

T45 - Privacy of Information in Different Cultures by Matthew Wilder

To discuss the value of privacy, we must first grasp the concept of privacy itself in a clear manner. According to Privacy International, a UK based international NGO group, privacy is the ability of an individual or group to keep their lives and personal affairs out of public view, or to control the flow of information about themselves. The problem with privacy, though, exists in the controlling of the flow of information. It is often argued to what degree a person should be allowed to keep private information to himself, and what the consequences of that privacy are.

1. What are the issues associated with this subject?

The issues associated with this subject all essentially boil down to one; the value of privacy. It is important to understand that different people have different values. This is where culture comes into the picture, because a person's culture greatly affects the person's value of privacy. Let us examine an example of where differing views of privacy come into conflict. One day, Joe Smith, an American, is hired by a French firm as a district manager in Paris. After several months of low gains, Joe speculates that increasing productivity will raise profits in his office. So to increase productivity, Joe decides that he must make his French employees understand that during office hours, the only thing allowed to be done is work, which means no surfing the internet, no private emails, etc. After Joe sends out an email that notifies his workers of this, Joe then secretly goes on to hire IT people to create a system that allows him to monitor the computer actions of his employees, just like he did when he worked in the United States. He believes that this method works because in the US, he was able to fire three employees that worked for him who had been regularly sending private emails, and fire them. Low and behold, after two weeks, he finds that Pierre, one of his French workers, has been spending hours on Youtube. Happy with his find, Joe fires Pierre for not following his policy. But two weeks later, Pierre arrives at Joe's office with two police officers. The police officers take Joe into custody and Pierre regains his job. What happened here? The difference in the value of privacy is exactly what happened here. In France, privacy is widely respected, and the value of privacy is extremely high. It is against EU law (Article 8) for a firm to monitor a person's use of email, phones, etc. without the employee's consent. This is very different from the United States, where there exists no law like the one stated above, and people are fired after their computers have been monitored.

2. How did this technology emerge?

The technology related to this issue would be the surveillance methods used by corporations and governments. Surveillance, which ranges anywhere from spyware, and bugs, to phone taps and close circuited video cameras, have mostly emerged from the Cold War era, where the rivalry between the U.S. and the Soviet Union brought about heavy development in spying technology.

3. Who are the stakeholders?**4. What are the advantages and disadvantages of those stakeholders?**

The stakeholders in the debate over the value of privacy are the people whose privacy is being taken away, and the people who take away other peoples' privacy. When a person's privacy is taken away, he or she loses a sense of security, while on the other hand, without a person's private information, certain things in society will not go as efficiently as they could with the private information. For example, stockholders of a company trust the company to be as efficient as possible as to maximize total profit. And in order for a company to be completely efficient, a company must have maximum productivity, and in order for a company to have maximum productivity, managers must make sure that employees are strictly using their work hours only for work. Thus a company may choose to take away privacy in order to maximize productivity. Another example is the government. A government may spy on suspected terrorists in order to prevent future terrorist attacks.

5. What solutions can overcome the problem?

A possible solution to the problem of privacy is to find some kind of point where the trade-off between privacy and efficiency is equal. With this, a level of privacy is attained, while at the same time a degree of efficiency is also achieved. An example of such a solution would be a take-it-or-leave-it approach. In this approach, a company would tell a person about the company's monitoring policies before he or she was hired and then the person would choose if he or she really wanted to go on and work at the company. But a downside to this would be that many people would choose not to work at such a company with little freedom. So then you would have to put in some kind of policy after a person was hired. The problem though, with this comes with each person's differing values on privacy. Because of the different views on privacy, it would be difficult to place one specific policy on a group of people, because the policy would only satisfy a number of people and make another sum of people unhappy. Thus it would be necessary to alter the policy according to the views on privacy by each and every person.

6. What areas of impact does it affect?

The obvious area of impact in this issue is the privacy of the individual, and how that changes with the person's culture.

7. Evaluate the impact locally and globally.

Because the topic is privacy of information in different cultures, the impact is of a global nature. For example, when the United Nations gather to meet and discuss human rights, specifically the right of a person to have privacy, and how much power a government should have to breach that privacy, different nations will have

different opinions. On one hand, countries like Japan where privacy has an extremely high value (it is illegal for a Japanese school to publish and distribute to students phone chains that have students' phone numbers and home addresses), may give governments very little control over people's privacy. On the other hand, the U.S., which has an extremely aggressive foreign policy, may want extensive power over people's private information in order to catch terrorist, etc.

8. What are the ethical issues?

The ethical issue is not so much whether a person should have any privacy, because basic laws in most civilized countries allow privacy as a basic human right, but more so how much privacy a person should have. One could argue that because privacy is a human right, people should have complete control over their private information. But what if a person's privacy was actually hurting the person and/or the people in his or her life? Take random drug testing for example. Random drug tests are an obvious breach of personal privacy, but it is done for a person, and for society's benefit.

9. Who is responsible?

10. Who is accountable?

It is hard to say who specifically would be responsible for this argument over privacy. Would it be governments who spy on their citizens? Or would it be the companies that use surveillance methods against their employees? Personally I would have to say that it was the fault of the people who try to gain private information, whether it is justified or not.

11. What laws apply?

- Universal Declaration of Human Rights, Article 12 says "No one shall be subjected to arbitrary interference with his privacy, family, home or correspondence, nor to attacks upon his honour and reputation. Everyone has the right to the protection of the law against such interference or attacks."
- France's Declaration of the Rights of the Man and of the Citizen explicitly state the protection of privacy
- United Kingdom's Data Protection Act 1998
- Canada's Personal Information Protection and Electronic Documents Act
- Israel, Taiwan, South Africa, Australia, New Zealand, Argentina, Chile, Peru constitutions and privacy protection laws

12. Are there alternative decisions?

One alternative for workplace privacy is to allow for some monitoring policies, but not make the policies unknown to people. People could be given reports each month or so on the history of their computer usage for that month. This will especially work in the workplace because employees will know that they are being checked for, and they will know exactly what the employers know about them. This alternative will still provide an incentive for workers to stay on task while at the same time lowering the level of privacy intrusion in the sense that the workers know which aspects of their activities are being inspected.

13. What are the consequences of these decisions?

The only consequence of this decision is that people may not like their activities monitored, and so may quit for those reasons. This may lead to an increased unpopularity in the company, and so the company may ultimately have to repeal its policies.

T46 - Rights of individuals with respect to the storage of personal data by Taro Kondo

Have you ever had times when you felt that you had some rights to possess something you are not willing to share with anybody else? These days most of the individuals who use computers feel this way, and some issues concerning that change of behavior are arising. As a simple example, the president of one company sets a policy that no staff members can store their personal data in their computers. The purpose of this action is to prevent the members from having data that have nothing to do with what they should be focusing on.

Those can act as distractors and members might not allocate their time efficiently. This may include pornography, and other files for entertainment. It's rare but there is another possibility, and that is the member has a data of confidential information shared only inside the company. The purpose of this is aiding other businesses. The idea of restriction does not sound bad for the company itself, but for the individuals it is certainly a negative effect. They might protest, arguing that since its their computers, the storing should be respected. In addition with that reason, points like ' relaxation factor during breaks' would probably be mentioned. Personal data has definite values for the individuals, and thus prohibiting them is too much pain. The final consequence of the dispute can vary from company to company.

When a person first sets his foot into his office, usually a document with list of rules is handed to him and he has to sign on it to show that he agrees to all the terms. If one of the rules stated on it was about the restriction, then it means the person violated it and therefore he must be penalized. If there was no clear rule, then the member

can get away with it. But what about cases other than those occurring in companies? If we look at ones in a smaller scale, it is hard to determine the rights of keeping personal data. For example, when there is one computer at home and all the members of the family are using it, is it justifiable for each of them to have their own private data?

A possible situation may be that the parents are ordering children to not to do so, since they are worried that the children will save pornography etcetra, instead of what they consider is most important for them to do, like working on their homeworks. We should note that people who are strongly believing they have rights to save their personal materials tend to put passwords on them, so it makes it harder for others to see. This is a questioning matter too because they are creating a certain boundary. Afterall, everyone has his or her own space of privacy.

It is natural for a person to place his or her private things inside the computer, because there is often so much capacity. My insight is that to some extent, it is okay to put data. But suppose the case is that several people are sharing the computer and there is already enough information stored, then everybody should be careful with how much private stuff to save. In conclusion, there is no one right answer to resolve the issues. Abiding to a rule, if such exists, is a wise idea. Country law is very vague about these kind of matters. The most effective solution probably is to go through a negotiation and compare the level of drawbacks and benefits of having one's properties inside the machine.

**T47 - Social consequences of outdated or incorrect data stored in databases
by Simon Ruiz**

This essay focuses on HOW outdated or incorrect data stored in databases lead to a social consequence and how it may be solved.

A flat file or spreadsheet – database is a simple method for storing data. All records in this database have the same number of "fields". Individual records have different data in each field with one field serving as a key to locate a particular record. For example, your social security number may be the key field in a record of your name, address, phone number, sex, ethnicity, place of birth, date of birth, and so on. For an individual, or a tract of land, there could be hundreds of fields associated with the record. When the number of fields becomes lengthy a flat file is cumbersome to search. Also the programmers usually determine the key fields and searching by other determinants may be difficult for the user.

Although this type of database is simple in its structure, expanding the number of fields usually entails reprogramming. Additionally, adding new records is time consuming, particularly when there are numerous fields. Other methods offer more flexibility and responsiveness. Other files do exist such as hierarchical file and relational files. All of the files introduced serve easy access to the users.

As understanding the picture of what data are included in shared databases, it is important to assess the credibility of outdated or incorrect data in stored databases. For example, outdated or incorrect data in government agencies that are ultimately distributed to citizens in order to vote, etc, may cause social consequences. Government agencies usually apply hierarchical database system, which are particularly attractive with their objectives. In a hierarchical database system, the act of adding and deleting records is easy, fast data retrieval through higher-level records is possible, and multiple associations with records in different files are also possible. However, the disadvantages seem to deepen the social consequences of the incorrect data in the hierarchical database system. Which are: pointer path restricts access, each association requires repetitive data in other records, pointers require large amount of computer storage. These disadvantages come into role after the problems have risen.

One of the causes of the social consequences is that the incorrect or outdated data simply gives the wrong information about the individual, and therefore many of the legal documents for that individual become distorted. For example, a retired man who is about to receive a pension from the companies he has worked does not get into account for his measure of pension. This is because the transferring of data in the databases among the government officials was incorrect and easily mistaken by the person in charge. The social consequence for this man was fatal in terms of financial life just because of an incorrect data in an easily accessed data. Now this man receives an incorrect pension because of the incorrect data stored in the database. This sort of failure happens when the man has transferred his career time to time and his state officials did not keep track of his job career. Another simple cause can be that his name or other raw data were inserted incorrectly by the secretary or the person in charge.

Another problem can arise with the presence of outdated data in stored databases. For example, a person living in Long Beach, New York moves to Ocean Beach, California. This obviously changes his address to where he is living currently. But does the government keep track of where he is living? Let's say they don't. If they continue to do so, when they distribute electronic voting machine passwords to vote, they send it to the wrong address, to Long Beach, New York. Consequently, the person who recently moved to a new location does not get the advantage to vote because of its outdated data stored inside the government's database. An individual lacking the advantage to vote because of outdated data in government database could lead into a serious social problem within the country.

In these situations, we will want to examine spatial relationships based upon location, as well as functional and logical relationships among geographic features. Spatial relationships include the data of absolute and relative location, distance between features, proximity of features, features in the "neighborhood" of other features, and

direction and movement from place to place. This is a solution what the GIS provides, where it has the power of recording more than location and simple attribute information.

Functional relationships among geographic features and its attributes include information about how features are connected and interact in real-life terms. A road network might be classified functionally from the largest superhighway down to the most isolated rural road or suburban cul-de-sac based upon their role in the overall transportation system. Minor roads and suburban streets "feed" major highways, but are not directly connected to them. As another example in assessing wildlife habitats, various environmental conditions function together to define the optimal living environments for certain species. Within cities, ownership is a functional classification of great importance as is land use and zoning classification. Logical relationships involve "if-then" and "and-or" conditions that must exist among features stored in the dataset. For example, no land may be permitted to be zoned for residential use if it lies within a rivers five-year flood plain. Development may not allowed in the habitat of some endangered species.

As a conclusion, databases can be designed to represent, model, and store information about these relationships as needed for particular applications. Discussed broadly, the stakeholders among these situations are with no doubt, YOU. The state officials do not rarely take responsibility for an incorrect or outdated data that has been caused by external tasks supporting you.

T48 - Social consequences of the release of sensitive data stored in databases by HeeJun

What will you do if you find out your sensitive data, such as credit card numbers and passwords, are exposed to some abusers who illegally use your information to benefit them? What will you as a businessman do if all the important data of your business are stolen from your old hard disk? As people have become more aware of identity theft, they are realizing the necessity of the protection of their personal information.

It is easy to find out the records of web sites you have visited, files you have downloaded, and old documents you thought you had deleted for anyone who can access your system to find. And with sophisticated data recovery software, even data that you went out of the way to make sure was gone may still be lurking in bits and pieces that can be put back together.

To understand how important it is to protect our own information from abuses, we should first understand the definition of sensitive data. Sensitive data are information that adversely affect a person, the national interest and etc. through unauthorized access, or modification. They cover many subjects: Social Security number; drivers license number; personnel information like birthday; financial information; criminal records; research data; legal data that should not be open to the public and so on. Sensitive data are protected by laws and regulations. Therefore, if it is found out that one is trying to steal the data, he or she gets harsh punishments.

The University of Glamorgan and Edith Cowan University in Australia recently found out on their research that sensitive data still exist on discarded or second-hand computer hard disk drives. They examined about three hundred second-hand hard drives, which included data of important financial information like bank account, payroll information, IP addresses, and etc.. Their research revealed that people's sensitive data are exposed to danger more than we think and that we are not doing a good job protecting the sensitive data from the danger.

Most of the people are unaware that sensitive data remain in a hard drive and can be easily recovered. Thus, it is very easy to get information about a person. When you visit the web sites, all information is in browser's history. Even if you delete those temporary Internet files, not all of them are deleted completely. Word processing programs, for instance, create temporary files when you are working on the programs.

They are not deleted even when you turn the programs off. Instant messenger programs like MSN Messenger save text conversations to a file on a computer. Your information will easily taken away from your computer if a hacker is determined to do so. What it meant by these examples is that although you might think you have deleted information, the information still remain in memory on the computer.

When we delete a file, the file is not actually "deleted." We all know that the file first goes to the Recycle Bin. But even when we delete files in the Recycle Bin, the files still remain in your computer disk. What happens when you delete a file is that the pointers to the file are removed from the space where it is stored on disk becoming reusable. The data of the file are still in the hard disk as many "1s and 0s." Even if you format the hard drive, amazingly, the data are still there. If someone is determined to take away your sensitive data, all he has to do is to take your hard drive and recover all the data. It is that easy to steal the data. Thus we have to be aware that sensitive data can be easily taken away and we had better take some actions to protect our sensitive and personal information.

T49 - Legislation to prevent access by Aditya Kumar

Censorship is the restriction of information access to a certain people. This issue is developing into a more serious one. China is amongst the countries in which information access to citizens who have access to the internet is severely restricted. An example of this is the one involving Tianenmen Square. In Google China, if one types in Tianenmen Square in the image search bar, Google returns images depicting the beautiful architecture and not the ugliness that has transpired there. Google has been come under heavy criticism for condoning this sort of behaviour from the Chinese Government.

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This is unethical because it is in violation of the human right which states that all humans have access to information. Also, since people have boycotted Google in China and in many countries across the world to voice their feelings, Google has suffered a severe blow to business and its integrity has suffered. This is not Google's fault because any company ceases to expand its business in a legal way.

The fact of the matter is that the Chinese Government is engaging in unethical acts by preventing Google from expanding its business across the world. Also sites which are not filtered through by the Chinese Government are those belonging to Western news outlets, sexually explicit sites (even if legal), and also sites which are anti-China and pro-Taiwan independence. Thus, the Chinese cannot gain access to other sides of matters of grave importance, the Taiwan issue being one such.

Thus, in this case the Chinese are the party with something to lose and are inflicting this on Google, a legitimate company. Thus, China is a stakeholder and can lose reliability and its integrity by what is fair as per censorship norms across the world and also those specified by the United Nations Human Rights Commission. The monitoring tool (Access to Information Tool) developed by the Justice initiative aims to promote access to information. This tool allows monitoring in that it allows an administrator or an authority to see if there's any discrimination that is involved when it comes to the distribution of information. It is currently being piloted (tried) in 5 countries, namely Bulgaria, Armenia, South Africa, Peru and Macedonia. The other stakeholders are the people who are either being restricted to only limited information. As humans, they are guaranteed the right to information and are losing out on what is rightfully theirs.

Also, apart from human rights, the academic or intellectual community is impacted. Scientists need to access information contained in databases to proceed with their research. Limiting their access, not necessarily through some law which is specifically targeted at them, could severely limit a country's output and well being. Thus, over here the stakeholders include the larger community as well.

A justification for censorship of pornographic countries in the Gulf is simply religious law. They don't want people to be exposed to sexually explicit content. Also, in Saudi Arabia, they block sites which challenge the sanctity of Islam, "anything damaging to the dignity of heads of states or heads of diplomatic missions in the Kingdom, or harms relations with those countries" and anything contrary to the state and its system. Despite it being well intentioned, i.e. to keep the country unified, the blocking of sites is unethical in that it gives Saudi Arabians a very one-sided and objective view of the religion and the country's affairs. This violates the very purpose of the declaration of human rights saying that every human has the right to access information.

In July of 2001, the "Internet Content Filtering Ordinance" came into effect in the state of South Korea. It blocks websites containing illegal information and those which promote "cyber sexual violence". In 12/1998, in Sweden, the "Responsibility for Electronic Bulletin Boards" law was enforced.

The aims are to stop:

- instigation of rebellion
- racial agitation
- child pornography
- illegal description of violence
- or when it is obvious that the user has infringed copyright law.

This is an instance of a censorship law being morally correct. Over here, the Government is not restricting inflow of information to its citizens, it is just working to promote the abolishment of social taboos. It is ethical because it is functioning to eliminate cultural wrongs which are unfortunately rampant in today's culture and society.

The child online protection act was enacted in October of 1998. Its aim is to stop people from reaping commercial benefits that is "harmful to minors". This maintains a child's innocence and security and is therefore an ethical law which works to diminish the rampancy of an unethical act.

Censorship is also discrimination. A person in a different country has access to different and different amounts of information. This is simply wrong. There should not be any discrimination apart from the "content of one's character" (how ethical one is) and the skill level of someone.

Thus, the arguments presented above clearly indicate how censorship laws can work productively or counter-productively for a community. The ethicality of its enforcement varies with the clauses.

T50 - Responsibility for the security of data stored in databases from different perspectives, for example, the developer, the user and the management of an organization by Akira

First of all, privacy is a big issue in the area of data security. These days, especially in Japan, I often see news reports about employees of companies accidentally revealing private information about their customers on the Internet. This is one example where responsibility for securing stored data was not met, and the privacy of the customers was violated. Another issue concerning this topic is trust. If the data is not secure and the information is taken or seen, the person or company responsible for the data would lose trust and customers would probably

remove their data. Also, if the data is some kind of government secret and the security is easily breached, this would be an issue of national security. This is because if some type of terrorist group obtains data showing the schedule of the president or other high official they might plan an assassination.

Separating a computer from the Internet or any type of connection may solve the problem, but still there is a possibility that someone could sneak into your house and steal the computer. So the best way would be to carry important data yourself on some type of memory card. Another way is to memorize all the significant data instead of storing it in a database, but this would be pretty hard to do. Also you can try to camouflage your data so no one would take an interest in it. People can also use encryption so the information cannot be deciphered easily.

The impact locally if the data is stolen from the database is great. First of all, if it is a company's customer list, a lot of people's private data would be seen without their permission, and this is a huge violation of privacy. Another example of impact locally is data taken from a company database. If the data were a company secret the company might lose profits if it contains useful idea for a new product and falls into a competitor's hands. Also there would be many lawsuits against the database organizer because he did not secure the data well enough. The impact globally would be huge as well. This is because if one country breaks into another country's database this is violating national security and would cause a huge conflict between the two countries, particularly if the information were related to defense capabilities. And depending on the data it might even cause a war.

The ethical issues concerning responsibility of securing databases are numerous. For example, if the organizer sells the data from the database it would be extremely unethical. This would not only be a problem of responsibility but would be a violation of the promise of security you give to the user using the database.

An alternative decision can be to store data yourself. In case of a company, the data can be stored by each employee that is responsible for the data instead of storing everything in one database. So the employees can take their work back home in a memory stick. If they do this, there would be no data that can be stolen from the database because each individual would have a part of the data.

The consequences of these decisions include the possibility that an employee might be paid to reveal their part of the company data. There is always the chance that the employee might turn against the company, but this would be more unlikely if the data that is taken shows who was responsible for maintaining it.

T51 - Accountability of the negative social effects caused by insecure databases by Haider

Although it is hard to provide one definition of the term database that encompasses all types of databases and contexts the term is used in, one accurate definition that can be used in this discussion is that a database is a collection of records stored in a computer in a systematic way, allowing for efficient retrieval of data when required, the key word being records.

Databases were developed because people needed efficient ways to store and retrieve information whenever desired. Databases first started as index cards and the like, and slowly evolved into high-speed high-load computer databases. In modern computer databases, records can be of anything, ranging from SAT scores to complete personal profiles to spy photos of somebody. This versatility often entails a great deal of privacy and confidentiality, which has led to the development of database security systems. Although there are a number of security systems for databases, the most common and practical security system is the traditional username and password prompt that allows exclusive access to privileged data. There are, however, fundamental problems with the system. Without going into technical details, such systems are easy to hack. Hacking is essentially the penetration of a security system to gain unauthorized access to privileged information. Other security systems, which are often considered to be more secure but less practical in some cases, are fingerprint, voice, and retina matching, among many others.

A number of social issues arise from insecure databases. Databases are seldom free for access to the public, and usually contain data that can be accessed by a privileged few. Insecure databases hence threaten the privacy and confidentiality of such data. Also, in many cases, data is often of economic value. In such cases, the access rights are sold or rented for profits. Hence, in the case of insecure databases, data of economic value can be accessed by unauthorized persons, resulting in economic failure. Often, databases contain sensitive information which, in the hands of the wrong people, can result in disasters. For example, an insecure government database containing the records of all people living in a certain area can end up catalyzing terrorism if the wrong people gain access to it.

The issue of accountability was briefly touched on in my previous discussion (<http://itgsbasicsnetworks.blogspot.com/2006/11/networks-pt-3.html>). Just like in the case of networks, "who is accountable?" has no definite answers when database security is concerned. One point of view, of course, is that the people who "break in" to protected databases are at fault for legal and privacy breaches. This, however, does not result in anything constructive. People who want access to your data will try to gain access to your data in any way possible. Another, more interesting point of view is that highly confidential records and data should not be stored on databases that are located on networks that can easily be accessed by the public. For example, a sensitive government database should not be accessible over the Internet, even if it is protected. Hence, if there is a data leak and negative social implications do arise, the people or organization that set up the database are at

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fault for not taking into account the security risk. Understanding this, almost all major organizations allow access to sensitive databases to employees over local, secure networks, as opposed to the Internet.

Secure databases are desired because records and data are often sensitive information. As long as such information exists, there will be attempts by unauthorized persons to access it. If the database's security system is breached and it results in negative social effects, instead blaming the developer of the database, we should all accept the responsibility as a community and take that as an opportunity to understand the implications of insecure databases and the importance of investing in the development of effective security systems.

T52 - Ethical issues related to the collection and use of personal data by Joseph

Most of us enjoy the rapid advancements in technology. It provides us great convenience and allows us to communicate globally. But we also have to agree that there should be a limit; we do not want people to have access to our everyday private lives. Friendships can be diminished, chances to get the job you wanted can be lost, and a small mistake can lead to worldwide embarrassment.

Collection of personal data also has positive effects. We do not want to be working together with someone who had murdered someone as a kid and came out of jail still unstable. It can help in crime investigations, proving relationships between people and finding motives from past backgrounds. For all we know, the person living across from has had a past of robbing his neighbors. These information can help protect us and make us feel safe.

But there are also those that can humiliate and frustrate us. What we ate yesterday, where we live, if everyone could have access to these information, the world would be a scary place. A famous example is how Star Wars Kid got released into the Internet. A fat high school kid made a stupid mistake by taping himself using a golf club as a light saver and swinging it like in the Star Wars movies. He left it in the high school studio, and a classmate found it. He showed it to some of his friends and they thought it would be funny to release it on the Internet. It was estimated that over 900 million people viewed it, and he supposedly attempted suicide even though he won almost a million dollars from suing his classmates. If the Internet had not been this accessible and usable, his embarrassment could have been greatly reduced. If you had not seen this video check, "star wars kid" on google video.

Here is a real example that could happen to any of us. I go to a guidance counselor to ask about colleges and she realizes that my parents were divorced. The counselor researches my past and recommends I see a counselor about my parents. Whenever I ask her about information on colleges, she just ignores me and talks to me about the counselors. She also kept following me in the hallways and called my parents about me visiting a counselor. First of all, it is information I do not want others to know about. Second of all, because of that I cannot get information about my colleges. Third of all, it really isn't any of her business. This is a small true example that occurs everyday, everywhere. Your job application could be rejected if the manager found out that you broke a window when you were a kid.

There are advantages and disadvantages of collecting personal data. We do not have to solve the problem by allowing if the advantages are greater or restricting if the disadvantages are greater. Instead we should limit some sort of information and allow only certain people to have access. We do not want everyone to know every little information about us but we also want to know every little information about everyone.

T53 - Issues related to the selling of data stored in databases by Kent Harvath

Commercial data brokers have been selling many private data to numerous government agencies, marketing companies, and employers. The innovation in informational technology has promoted and expanded this market. Computer data bases has made it better at storing and managing a larger amount of data and the internet has made it easier to trade data and new brokers to join the market. Apparently there are ethical problems related to this selling of private information.

The kind of information data brokers sell includes home addresses, e-mail addresses, phone numbers, phone records, occupation, things purchased especially over net, crime records, and so on. Brokers in black markets trade data that was supposed to "not be used for other use" or data that's much more private. This kind of data includes customer information that could comprise of credit card numbers. Private data is useful in many ways such as for direct marketing by phones or mails or for grasping the background information of potential employees. This is usually where senders of those junk mails and junk e-mails and possibly junk phones get people's information.

There are many problems related to the personal information data base. Of those one of the most concerned is mistaken data. In one case, a man called Ron Peterson was recorded as a female prostitute in backgroundchecks.com. In another case, a man who had committed a small crime of stealing was mistakenly recorded as having done a felony sentenced for 7 years in prison in the data base of a commercial data broker called Checkpoint. He never got a good job for this for thirty years until he asked one employer the reason for not hiring him and found out the truth. According to the president of backgroundchecks.com, any data broker hardly distinguishes different people with same names.

Most of them even treat individuals with similar names as one person. The thing is that you never know how you are recorded in data bases unless you buy them yourself and check them. If it is wrong, the change is only made if you tell them the mistake. Also, even if the data base is corrected, all other data bases that you may no even know of may still have the wrong information. It causes many problems such as unable to be hired or accepted as joining insurance and so on.

Among the ethical issues that this matter invokes, the core of them is the violation of privacy. Most of things in the world namely education, crimes, jobs, hospitals, shopping, etc are recorded due to the development of informational technology and it is probably impossible to be free from past records. It is understandable and in many cases useful to keep some records, but the problem occurs when these information are used to make money, especially when there are much inaccurate information.

It is ethically undesirable for the network system to be able to search anything. There must be some control over what kind of information gets distributed, and there are legal steps taken for this but the problem will not be sold as wrong as black markets exist. Since it is just a data, it is easy for black markets to exist especially with the internet. This is a serious problem since the society is tending to utilize data more and more. For example, money is probably going to be a mere data in time. As we rely more on data, the more serious this matter can be and the more effort have to be spent on it.

Databases: Knowledge of technology

In order to study and evaluate the social and ethical issues involved in the use of databases, the student must have an understanding of related technological concepts. These may include the following:

T54 - Key Terms by Chirag Garg

field, key field, record, search, query, sort, database management system, mail merge

Data that has several parts can be divided into **fields**.

For example, a computer may represent today's date as three distinct fields: the day, the month and the year. Thus, in computer science, things are divided into fields to make it easier for the user to recognize and use them while it also makes it easier for the person that is programming the clock simpler.

A key field is a field or set of fields of a database (typically a relational database) table which together form a unique identifier for a database record (a table entry). The aggregate of these fields is usually referred to simply as "the key".

Row —also called a record represents a single, implicitly structured data item in a table. In simple terms, a database table can be thought of as consisting of rows and columns or fields. Each row in a table represents a set of related data, and every row in the table has the same structure. For example, in a table that represents companies, each row would represent a single company.

Columns might represent things like company name, company street address, whether the company is publicly held, its VAT number, etc. In a table that represents the association of employees with departments, each row would associate one employee with one department. The implicit structure of a row, and the meaning of the data values in a row, requires that the row be understood as providing a succession of data values, one in each column of the table. The row is then interpreted as a relvar composed of a set of record, with each record consisting of the two items: the name of the relevant column and the value this row provides for that column. Each column expects a data value of a particular type. For example, one column might require a unique identifier, another might require text representing a person's name, and another might require an integer representing hourly pay in cents.

A search algorithm, broadly speaking, is an algorithm that takes a problem as input and returns a solution to the problem, usually after evaluating a number of possible solutions. Most of the algorithms studied by computer scientists that solve problems are kinds of search algorithms. The set of all possible solutions to a problem is called the search space. Brute-force search or "naïve"/uninformed search algorithms use the simplest, most intuitive method of searching through the search space, whereas informed search algorithms use heuristics to apply knowledge about the structure of the search space to try to reduce the amount of time spent searching.

There are different types of search methods used in computers:

An uninformed search algorithm is one that does not take into account the specific nature of the problem.

List search algorithms are perhaps the most basic kind of search algorithm. The goal is to find one element of a set by some key.

Tree search algorithms are the heart of searching techniques. These search trees of nodes, whether that tree is explicit or implicit.

Many of the problems in Tree search can be solved using SQL type searches. SQL typically works best on structured data. It offers one advantage over hierarchical type search in that it allows accessing the data in many different ways.

In general, a query is a form of questioning, in a line of inquiry. A query may also refer to:

- A precise request for information, typically keywords combined with Boolean operators and other modifiers, in the field of information retrieval.
- A database query, the standard way information is extracted from databases.
- Query language and database query language, ways of specifying a query.
- Command-Query Separation (CQS), a concept in object-oriented programming, especially in the Eiffel programming language.
- The question mark, especially as used by programmers (analogous to the use of "bang" for the exclamation mark).
- Query (Quaker), a question used for reflection and spiritual exercises among members of the Society of Friends.
- The formal name for a proposal letter (and perhaps accompanying materials) sent by an author to a literary agent or publisher to garner interest in a new work.

A database management system (DBMS) is a system or software designed to manage a database, and run operations on the data requested by numerous clients. Typical examples of DBMS use include accounting, human resources and customer support systems. DBMSs have more recently emerged as a fairly standard part of any company back office. A DBMS is a complex set of software programs that controls the organization, storage and retrieval of data in a database. A DBMS includes a modeling language, a database query language, & a transaction mechanism, that ideally would guarantee the ACID properties, in order to ensure data integrity, despite concurrent user accesses (concurrency control), and faults (fault tolerance).

Mail merge is a computer term describing the production of multiple (and potentially large numbers of) documents from a single template form and a structured data source. This technique is used to create personalized letters and pre-addressed envelopes or mailing labels for mass mailings from a database mailing list of names and addresses.

The procedure of mail merging is typically carried out using a word processing program. The template is a word processing document which contains fixed text that will be the same in each output document variables which act as placeholders to be replaced by text from the data source.

or

Key Terms by Isaku Oba

Spread sheet programs such as Microsoft Excel have been invented as a systematic method to input and store data. This allowed a more efficient way of storing numerical data, but it also allowed the user to convert the data easily into different formats such as graphs. These programs also allowed users to program equations and calculate new values. What was the significance of these automated functions in terms of daily life? The answer lies in the changes that these programs brought to office work. Before these programs were introduced, companies needed to hire specialized and organized workers who had ability to effectively collect data and reconstruct the bits and pieces into an understandable format.

People who had these skills were not that common at the time, and even the people who were skilled in these aspects took considerable amount of time to complete these tasks. Due to this fact, it was common before for companies to skip organization of data, and keep them in their original format. However, with the introduction of spread sheet programs, ordinary people with no skill were able to do this in a shorter period of time by completing a simple task of punching in numbers in rows and columns.

Thus the spread sheet programs succeeded in significantly increasing the process of office work, and providing more doable jobs for the general unskilled people.

However, the introduction of spread sheet programs was not all benefits which it brought in. It was said, prior to the public introduction of PCs that the public distribution of computers would increase the efficiency of jobs, and therefore decrease the time that workers had to work, for they could complete the same job in the same time. This proved not to be true as corporations gradually increased the amount of work required for their employees, as technology progressed.

This follows a trend of capitalism which was criticized by Karl Marks as an exploitation of the working class by middle class entrepreneurs. The example of spread sheet programs combined with past historical evidence shows that corporate interest is not to lessen the pressure of workers and lift them of their burden, but make them produce as much output as possible. Each time a new technology is introduced, corporate leaders use the cost for introduction of this technology as an excuse to not to lessen their employees' work hours, where actually the cost is hardly enough to stop the corporate profit from increasing dramatically as technology advances.

This reveals a limitation in the capitalist system that is so accepted in the developed world. In a capitalist society, we consider seeking for profit and seeking economical success stepping on others an accepted idea, and as a result we let ourselves be exploited by greedy corporation, and also create a low working class which makes about 1/100th of what the top10 entrepreneurs make in total. This teaches us a lesson that we must not fall behind technology and let businesses use our ignorance about it as an advantage to maximize their profit while increasingly exploiting us

T55 - Flat-file database versus relational database by Sam

Flat-File Database

“A flat file database is a database designed around a single table. The flat file design puts all database information in one table, or list, with fields to represent all parameters. A flat file may contain many fields, often, with duplicate data that are prone to data corruption. If you decide to merge data between two flat files, you need to copy and paste relevant information from one file to the other. There is no automation between flat files.

If you have two or more flat files that contain client addresses, for example, and a client moved, you would have to manually modify the address parameters in each file that contains that client's information. Changing information in one file has no bearing on other files. Flat files offer the functionality to store information, manipulate fields, print or display formatted information and exchange information with others, through email and over the Internet. Some flat files may be attached to external files, such as text editors, to extend functionality and manage related information.”

Definition by www.databasedev.co.uk.

Relational Database

“A relational database incorporates multiple tables with methods for the tables to work together. The relationships between table data can be collated, merged and displayed in database forms. Most relational databases offer functionality to share data across networks, over the internet, with laptops and other electronic devices, such as palm pilots, and with other software systems.”

Definition by www.databasedev.co.uk.

Advantages of Using Flat-File Database Rather Than Relational Database

To create a flat-file database, there is not much skills needed. Without much design knowledge, people can make a flat-file database with only using simple software. On the other hand, to create a relational database you need to put much more time and effort. With relational database, every input data must make sense in relation with other data. If you make mistake in one part, it might result in an error occurring to the whole database.

When you use the data created in Flat-File databases, they are not linked. This means that for example, if the address data of your company is changed on the original file, it will not affect the documents created in the past. As you don't want old data to change, this is convenient. However, in a relational database, every document created is linked and related to the original file. So if a change in company address occurs in 2007, it will cause the company address data listed on 1997 document to also change to the new address. This may create problems for the company when they access the 1997 data later.

Advantages of Using Relational Database Rather Than Flat-File Database

- As relational database is linked throughout the database, it has much more possibilities than flat-file database. For example, in relational database you can define certain record fields, such as keys or indexes, to perform search queries, join table records, and establish integrity constraints. Unlike flat-file database where every data is independent, relational database allows you to easily find necessary information and quickly create new file with just the necessary information.

Relational database allows easier access. Relational database can be set up to be connected to networks, where people can search and access necessary data from either within a network, over the internet, mobile devices, etc... With flat-file database, it is much more difficult to access necessary information as most of the time it is not connected to networks but rather accessed only within a computer.

So Which One to Use?

The decision of which database to use is completely up to the user. Often it is said that relational databases tend to be much more advanced than flat-file database as it allows easy access in a complicated format. However, not everyone can handle the complexity of a relational database. So again, it's a personal choice.

T56 - Paper files versus electronic files by Tomer

Throughout history databases of information were the centers of learning, however, with the computer revolution taking place, enormous libraries containing countless amounts of paper have been replaced by a small box with a screen.

Do digital databases make paper filing systems obsolete?

Does paper hold an advantage over digital databases which will never make paper disappear?

Although both have advantages and disadvantages, the two are not equal, one is better than the other.

1. What are the issues involved in ITGS?

One such ethical issue includes whether using one such technology is better or right than the other. Others include whether the penalty for breaking laws such as copyright would be more for one type of technology than the other.

2. How did this technology emerge?

The conversion from the tradition paper databases to the new digital database cause both social and ethical problems. However, from an ITGS point of view, the technology of digital both solves old problems that paper records have, but creates problems. The databases have been around for as writing was. A great library such as the one in Alexandria, were two of the many great databases that history describes. The ITGS issue originates with the digitalizing of those databases. Instead of the endless space and time it takes to organize paper files and folders, the processing power of a 2 by 4 processor in a metal box proved more efficient and convenient to store data.

3. How are the stake holders?

4. What are the advantages and disadvantages for these stake holders?

A stake holder is anyone with database. Clearly the properties of each type present themselves as advantages and disadvantages. The paper based databases do not have much advantage over the digital ones. The electronic database is smaller and more convenient: its accessibility is far faster, and its organization is a lot quicker. Moreover, copying a digital database requires seconds as opposed to rewriting scripts of paper as once people did, thus backing a database up is much easier this way. Even the durability of the database became superior with storage devices like magnetic tapes, hard disks, and compact disks. These days last for long period of time, a CD-R can function well from 70 to 200 years after its burning, while the data contained is maintained and can be copied without any loss of quality. Although paper can last that long just as well, paper decays and is oxidized by the air over time, quality is lost sometimes to a point of losing of information. Digital databases prove more reliable. The only advantage paper has over digitalized files is the cost. Paper is cheap.

5. What solutions can overcome the problems?

6. What areas of impact does it affect?

7. Evaluate the impact locally and globally.

Once technology reduces the cost of electronics to that of paper databases' only advantage over digital databases will be overcome. Slowly, information will be stored electronically all over the globe, and databases will grow even more efficient that they are today. The digitalization of information will have a very positive effect on the future of the human race in terms of efficiency.

1. What are the ethical issues?

2. Who is responsible?

3. Who is accountable?

With the internet developed to the proportions in reached today, an ethical issue arises, are digital database safe? If a database is linked to a network or the internet, hacking becomes a problem. Any hacker who knows what he is doing can break through to the data. The database's manager suffers security problems.

4. What laws apply?

Laws of copyright, theft, hacking, identity and information apply.

5. Are there alternative ethical decisions?

Some alternatives may be to use a different technology or to change existing ones.

6. What are the consequences of these decisions?

Although hacking is a threat to digital databases, paper databases suffer similar threats. One can physically break into a paper databases as one can cyber-physically break into a digital database. The same laws of personal property and breaking and entering apply in the real, and cyber world, same punishment, same consequences. Therefore, digital databases are rather similar in concept to paper ones, but they are more efficient, more economic, and just as safe. There is no reason why digital databases should replace paper databases.

Throughout history databases of information were the centers of learning, however, with the computer revolution taking place, enormous libraries containing countless amounts of paper have been replaced by a small box with a screen.

Let us first define both those terms.

Paper is a commodity of thin material produced by the amalgamation of fibers, typically vegetable fibers composed of cellulose, which are subsequently held together by hydrogen bonding. While the fibers used are usually natural in origin, a wide variety of synthetic fibers, such as polypropylene and polyethylene, may be

incorporated into paper as a way of imparting desirable physical properties. The most common source of these kinds of fibers is wood pulp from pulpwood trees, largely softwoods and hardwoods, such as spruce and aspen respectively. Other vegetable fiber materials including those of cotton, hemp, linen, and rice may be used.(www.wikipedia.org)

A paper file is referred to a document or a piece of information on paper used to many purposes.

An electronic file is a file stored in digital form; for example, on a CD, magnetic tape, DVD, HDD.

Do digital databases make paper filing systems obsolete?

Does paper hold an advantage over digital databases which will never make paper disappear?

Although both have advantages and disadvantages, the two are not equal, one is better than the other.

We will talk about those in the document hence onwards.

1. What are the issues involved in ITGS?

There are many issues involved with this topic. First of all, we have to resolve whether one type of storage or technology is better than the other or not. We can either state the advantages and disadvantages and then postulate on that. Or we can list the importance of each and then decide. Another issue is the history and emergence of such technologies. Something else might be whether something will be useful to one type of majority than the other.

2. How did this technology emerge?

The conversion from the tradition paper databases to the new digital database cause both social and ethical problems. However, from an ITGS point of view, the technology of digital both solves old problems that paper records have, but creates problems. The databases have been around for as writing was. A great library such as the one in Alexandria, were two of the many great databases that history describes. The ITGS issue originates with the digitalizing of those databases. Instead of the endless space and time it takes to organize paper files and folders, the processing power of a 2 by 4 processor in a metal box proved more efficient and convenient to store data.

Paper as written by wikipedia is as follows.

The word paper comes from the Greek term for the ancient Egyptian writing material called papyrus, which was formed from beaten strips of papyrus plants. Papyrus was produced as early as 3000 BC in Egypt, and sold to ancient Greece and Rome. The establishment of the Library of Alexandria put a drain on the supply of papyrus. As a result, according to the Roman historian Pliny (Natural History records, xiii.21), parchment was invented under the patronage of Eumenes of Pergamum to build his rival library at Pergamum. Outside of Egypt, parchment or vellum, made of processed sheepskin or calfskin, replaced papyrus as the papyrus plant requires subtropical conditions to grow.

In China, documents were ordinarily written on bone or bamboo, making them very heavy and awkward to transport. Silk was sometimes used, but was normally too expensive to consider. Indeed, most of the above materials were rare and costly. While the Chinese court official Cai Lun is widely regarded to have first described the modern method of papermaking (inspired from wasps and bees) from wood pulp in AD 105, the 2006 discovery of specimens bearing written Chinese characters in north-west China's Gansu province suggest that paper was in use by the ancient Chinese military more than 100 years before Cai in 8 BCE [2]. Archaeologically however, true paper without writing has been excavated in China dating from the 2nd-century BCE. Paper is considered to be one of the Four Great Inventions of Ancient China.

In America, archaeological evidence indicates that paper was invented by the Mayans no later than the 5th century AD.[1] Called amatl, it was in widespread use among Mesoamerican cultures until the Spanish conquest. In small quantities, traditional Maya papermaking techniques are still practiced today.

Paper is considered to be one of the Four Great Inventions of Ancient China. It spread slowly outside of China; other East Asian cultures, even after seeing paper, could not figure out how to make it themselves. Instruction in the manufacturing process was required, and the Chinese were reluctant to share their secrets. The paper was thin and translucent, not like modern western paper, and thus only written on one side. Books were invented in India, of Palm leaves (where we derive the name leaf for a sheet of a book). The technology was first transferred to Korea in 604 and then imported to Japan by a Buddhist priests, around 610, where fibres (called bast) from the mulberry tree were used.

An electronic file can be traced back to the computer, which as many of us know, the pioneers were Dell and Microsoft.

3. How are the stake holders?

At the moment, no stake holders can be traced. The general audience and users of paper and electronic files or people who store using such types of technologies can be stake holders.

4. What are the advantages and disadvantages for these stake holders?

A stake holder is anyone with database. Clearly the properties of each type present themselves as advantages and disadvantages. The paper based databases do not have much advantage over the digital ones. The electronic database is smaller and more convenient: its accessibility is far faster, and its organization is a lot quicker. Moreover, copying a digital database requires seconds as opposed to rewriting scripts of paper as once people did, thus backing a database up is much easier this way. Even the durability of the database became superior with storage devices like magnetic tapes, hard disks, and compact disks. These days last for long period of time, a CD-R can function well from 70 to 200 years after its burning, while the data contained is maintained and can be copied without any loss of quality. Although paper can last that long just as well, paper decays and is oxidized by the air over time, quality is lost sometimes to a point of loosing of information. Digital databases prove more reliable. The only advantage paper has over digitalized files is the cost. Paper is cheap.

5. What solutions can overcome the problems?

There is no one solution to this specific problem. A majority will prefer using paper for storage while the other will choose using electronic files as a storage option. Other solutions might be to use another type of storage system, which is different than that of paper or electronic files.

6. What areas of impact does it affect?

It impacts general life, official life and professional as well. It concerns people all around the world. Since almost all of use organize and store information, it will affect us if a new type of technology came about.

Basically, it impacts the people all over the globe, and the impact is pretty strong.

7. Evaluate the impact locally and globally.

Once technology reduces the cost of electronics to that of paper databases' only advantage over digital databases will be overcome. Slowly, information will be stored electronically all over the globe, and databases will grow even more efficient that they are today. The digitalization of information will have a very positive effect on the future of the human race in terms of efficiency.

If a new technology emerges, it will impact strongly over the globe since almost all of us store information and organize it.

1. What are the ethical issues?

One such ethical issue includes whether using one such technology is better or right than the other. Others include whether the penalty for breaking laws such as copyright would be more for one type of technology than the other.

2. Who is responsible?

The company who makes the new technology, or changes existing technology. Or the people can be held responsible for choosing which of the existing ones are better. This can have an impact locally as well as globally.

3. Who is accountable?

With the internet developed to the proportions in reached today, an ethical issue arises, are digital database safe? If a database is linked to a network or the internet, hacking becomes a problem. Any hacker who knows what he is doing can break through to the data. The database's manger suffers security problems.

As I said, the person or company responsible is accountable as well.

4. What laws apply?

Laws of copyright, theft, hacking, identity and information apply.

5. Are there alternative ethical decisions?

Some alternatives may be to use a different technology or to change existing ones.

6. What are the consequences of these decisions?

Although hacking is a threat to digital databases, paper databases suffer similar threats. One can physically break into a paper databases as one can cyber-physically break into a digital database. The same laws of personal property and breaking and entering apply in the real, and cyber world, same punishment, same consequences. Therefore, digital databases are rather similar in concept to paper ones, but they are more efficient, more economic, and just as safe. There is no reason why digital databases should replace paper databases

To use a different technology would mean to change rules, regulations, test many ideas, etc. It would cost time and money and resources. To change technology would have approximately the same impacts.

or this

Spread sheet programs such as Microsoft Excel have been invented as a systematic method to input and store data. This allowed a more efficient way of storing numerical data, but it also allowed the user to convert the data easily into different formats such as graphs. These programs also allowed users to program equations and

ITGS: 2.2.2 Databases and Spreadsheets

calculate new values. What was the significance of these automated functions in terms of daily life? The answer lies in the changes that these programs brought to office work. Before these programs were introduced, companies needed to hire specialized and organized workers who had ability to effectively collect data and reconstruct the bits and pieces into an understandable format.

People who had these skills were not that common at the time, and even the people who were skilled in these aspects took considerable amount of time to complete these tasks. Due to this fact, it was common before for companies to skip organization of data, and keep them in their original format. However, with the introduction of spread sheet programs, ordinary people with no skill were able to do this in a shorter period of time by completing a simple task of punching in numbers in rows and columns. Thus the spread sheet programs succeeded in significantly increasing the process of office work, and providing more doable jobs for the general unskilled people.

However, the introduction of spread sheet programs was not all benefits which it brought in. It was said, prior to the public introduction of PCs that the public distribution of computers would increase the efficiency of jobs, and therefore decrease the time that workers had to work, for they could complete the same job in the same time. This proved not to be true as corporations gradually increased the amount of work required for their employees, as technology progressed.

This follows a trend of capitalism which was criticized by Karl Marks as an exploitation of the working class by middle class entrepreneurs. The example of spread sheet programs combined with past historical evidence shows that corporal interest is not to lessen the pressure of workers and lift them of their burden, but make them produce as much output as possible. Each time a new technology is introduced, corporate leaders use the cost for introduction of this technology as an excuse to not to lessen their employees' work hours, where actually the cost is hardly enough to stop the corporate profit from increasing dramatically as technology advances.

This reveals a limitation in the capitalist system that is so accepted in the developed world. In a capitalist society, we consider seeking for profit and seeking economical success stepping on others an accepted idea, and as a result we let ourselves be exploited by greedy corporation, and also create a low working class which makes about 1/100th of what the top10 entrepreneurs make in total. This teaches us a lesson that we must not fall behind technology and let businesses use our ignorance about it as an advantage to maximize their profit while increasingly exploiting us.

T57 - Data redundancy and data integrity by Chaan

In this modern world that we live in, data and or information have quickly become the most important things in shaping and directing the world. Problems such as Data Redundancy and Integrity are putting that very important process of storing data and information in danger.

Data Redundancy refers to the unnecessary duplication of data, which means data is in one place but is at the same time located in another place.

This duplication of data wastes space, and provides people and databases with organization problems. Another negative to data redundancy is that if one wishes to make changes to the redundant data, he or she must make changes to multiple fields, in other words, all of the duplicated data. Can you imagine how much time would be taken away by this process if data redundancy was to occur to businesses such as banks, airports, etc?

If data redundancy was to go unchecked in the data storage of say a bank, it would completely slow down the transaction of data to that bank. It would unnecessarily cost the bank extra money to manage its data bases because of the duplication that has occurred! If that data redundancy went on unchecked, it would eventually cause an over flood of the banks data base, and maybe even cause it to crash. The problem of data redundancy affects every part of society, from businesses to home management of data. The only effective solution to this problem would have to be taken on a personal level, where businesses and or individuals would take extra precautions such as regular check of their data and elimination of inconsistent data dependencies.

Data Integrity in itself, means preserving the authenticity of data. In this paper however, data integrity will be referred to as the illegal manipulation and alteration of data. Most this problem occurs and affects businesses the most; such banks and other large co-operations that frequently use ID to conduct business. In banks, where most of the violation of Data Integrity occurs, attackers will either manipulate numbers on transactions or assume the identity of somebody else. Even if security is tightened, in order to minimize the possibilities of data integrity, it will always occur.

Another solution that might help would be to stiffen the punishment given to persons found of data integrity! A fear of harsher punishments might deter potential attackers from attempting data integrity.

T58 - Databases: Design and creation concepts

Updating Data by Su Chen

Information is updating every moment. Lots of new things are going to put online to share with other people. People usually say updating, uploading, but the question is what do they really update. We are not updating information, news or other things, but the database. Database is a collection of varies information, may include

bibliographic textual or numeric data. Thus, we can say that database is one the most important part in the computer system.

Usually there are two application pages that use to update data in a database. One is an update form, second is an update action page which most of us use in the daily life. For example, every time when you want edit something on your website (my space), often you just change what you want in the different sections. In the end you click ok, submit or other buttons that have update this function to complete your updating.

An update form is similar to an insert form, but remembers there are two key differences: 1. an update form contains a reference to the primary key of the record that is being updated. The term primary key often refers to a field or combination of fields in a database table that uniquely identifies each record in the table. For instance, in a table of employee names and addresses, only the Employee ID would be unique to each record. 2. An update form is usually populated with existing record data because the form's purpose is to update data. In other words, it just means that we update the data that already existed there.

By knowing these, one can easily update the data at anytime and even can create their own update forms or update action pages. The important thing to create an update action page with cfupdate is that to use cfupdate code, you must include the field or fields that make up the primary key in your form submittal. The cfupdate tag automatically detects the primary key fields in the table that your are updating and looks for them in the submitted form fields. ColdFusion uses the primary key fields to select the record to update. Therefore, you cannot update the primary key value itself. Then it uses the remaining form fields that are submitted to update the corresponding fields in the record. Finally your form only needs to have fields for the database fields that you want to change.

Different companies have their different update form, but the essential function of this form does not change. It allows people to update their newest data, makes things become simple and convenient. Without Updating data, you may never sure about anything of him. You may find out that mailing address is no longer accurate. Therefore, you may lose contact with him. Thus, updating data is important not only because it saves out time but also through this we can know the current situation----what's going on in the world. Luckily, people can update the data at the same time. In other words, not only you, but others can also change this data whenever they want. The good side of this is that you can know the changing immediately. So suppose to say you update some data about Microsoft market share, however this data may only apply to the past. Thus, someone else may just update the newest data to show the recent situation. You may learn some new things from updating.

The social issue of updating data is that, if in a multi-user environment, like what I say before, since more than one person might be working with the same record at the same time. Because of this, thus other people can change or even delete the same data that you're trying to edit. You are not the only one that has the right to edit it. So you might occasionally encounter data conflicts with others as they work. Therefore, under this circumstance, updating data will just make our lives harder. People need to spend more time on data process.

Databases: Storage and access concepts

T59 - Data transfer between a database and a spreadsheet by Nitish Gautam

This paper is about data transfer from a database to a spreadsheet. Databases are collections of records stored in a systematic way. Spreadsheets are similar, as a spreadsheet is a table of information. Both these technologies emerged in the 1960's, and have become very popular since then.

Basically, data transmission is the transfer or conveyance of any kind of information from one place to another. It is basically to 'move' or copy or to transfer it from one place to another. In computer language, it is moving bits or bytes using programming languages, or in many cases, hardware. There are many types of data transfer, one is serial transfer, and the other is parallel transfer. The speed of data transfer is in bit rate.

One kind of database to spreadsheet transfer would be that a programmer makes a piece of code, and he tries to transfer the data. An example would be that someone transfers data from a Mysql database to a spreadsheet on another server. It will be useful to him in many ways, as he can adjust the data he needs, and from what place.

A short example can be:

```
Dim col As DataColumn
```

```
For Each col In table.Columns
```

```
colIndex += 1
```

```
excel.Cells(1, colIndex) = col.ColumnName
```

```
Next col
```

```
Dim row As DataRow
```

```
For Each row In table.Rows
```

```
rowIndex += 1
```

```
colIndex = 0
```

```
Dim col As DataColumn
```

For Each col In table.Columns

colIndex += 1

excel.Cells(rowIndex, colIndex) = row(col.ColumnName).ToString()

Next col

Next row

(note: that was just a small one)

To transfer data from a database to a spreadsheet, one would need programming language. And this means big lines of code for big databases. Mysql can be taken as an example. If one has a big Mysql database, and he has to transfer it to a spreadsheet, he would need code. This creates issues, because if there is an error with the database, then it takes a while to fix the error. And if more different types of data are being added, it is hard to control everything. We would have to spend time, which lots of people don't have.

Also, databases and spreadsheets will have errors if they are used in transferring from one to another. The piece of code used to transfer it will also have error. Or, if hardware is used, it will also have some faults. But the main thing to remember is, databases and spreadsheet transfers are complicated, and are bound to errors.

Another thing is the operating system between the transfers. There are many beliefs that windows to windows transfers are faster, or that windows to linux transfers are slow, and so on. The point we can take is, that the operating system does matter, and it will be hard to transfer between different servers, for example. Not that it will be 'hard', it will make matters worse for control of the situation.

Also, scripts will have faults. Questions like 'What if the scripts do the wrong thing for different types of data?' come into mind.

Another thing to remember is, that people can 'inject' in Mysql. The point I am trying to make is, that databases are vulnerable to injections or basically, illegal access. Also, if a programmer makes a code for transferring from a database to a spreadsheet, the code will have vulnerabilities.

T60 - Search and the use of the Boolean operators (AND, OR and NOT) by Raymon

A search function is essential in a large database or information; not just in corporate databases, like Microsoft's client list, but in search indexes like Google. Which is easier, to just put in a few key words to search by in a box, or to trowel through Google's 8 billion indexed pages to find the one you need? Thus, search capabilities have naturally been introduced in many systems since the advent of personal computers.

However, just a search with one keyword is not that useful. Imagine trying to search Google for cancer in cows, but you can only use one word; neither "cancer" nor "cows" will help you very much. One could search for the exact phrase, but that is not always the best solution either. This is where Boolean operators come in. The basic Boolean values are TRUE and FALSE; Boolean operators take these values and fiddle with them.

It is fairly common knowledge that you can use or between keywords to include at least one of them and you can use "-" in front of keywords to search for pages without that word. It is not common knowledge, however, that these are what we call Boolean Operators. It used to be that we had to add "+" or "AND" in between Google keywords. This is the Boolean operator that means, not surprisingly, "and". It handles the two values next to it, and when both of them are true (Which means they exist), the entire statement is true. Now, Google adds AND automatically between all statements.

The "-" means "NOT", and this inverts the Boolean value – therefore, FALSE becomes TRUE and TRUE becomes FALSE. Thus, when the search finds a keyword, it turns out TRUE, but with NOT in front of it, it becomes FALSE. Combined with AND, this makes the whole thing false.

Finally, "or" obviously means "OR", and acts like AND, only both the statements do not have to be right; only one of them has to be right to make the OR statement true, but both the statements can be true also. There is another, less common, type of OR called XOR, or "exclusive or" which is like OR – except for the fact that exactly one of the statements has to be true. For instance, with the statement "dogs AND playing AND Frisbee OR Frisbees AND NOT ball XOR balls":

1. Dogs playing and catching Frisbees

TRUE AND TRUE AND TRUE AND NOT(FALSE) = TRUE

2. Dogs playing with balls and Frisbees

TRUE AND TRUE AND TRUE AND NOT(TRUE) = FALSE

3. Dogs playing with doughnuts

TRUE AND TRUE AND FALSE AND NOT(FALSE) = FALSE

4. Dogs playing with Frisbees and a ball: A Frisbee is better than balls!

TRUE AND TRUE AND TRUE AND TRUE AND NOT(FALSE) = TRUE

So, as one can see, Boolean operators are very important in creating rich and meaningful search functions.

T61 - Data mining/data matching by Xiao Xiao Li

Presentation of the Issue

This fast growing Age of Information Technology provided the stimulus for the development of data mining and data matching, which helped firms and government agencies tremendously. However, this technology is slowly growing out of control. Firms have been data mining and data matching for years, but improvements in technology and techniques have taken the field to a new plateau where even its advocates are unsure where the road may lead. For example, in a privacy breach at the data collection giant ChoicePoint, con artists gained access to the Social Security numbers, addresses and other personal data of nearly 145,000 people.

This event clearly exposed the shortcomings of the laws governing the data mining/matching industry and consumer privacy. However, others claim that each Social Security Number is unique to every respondent and is therefore useless to the data mining industries. They also proclaim that data mining and matching is crucial to a market economy because it drives competition among the firms. This leads to a controversial debate between the subject of technology's positive contributions to society and the possible issues it's likely to cause. The invasion of privacy and identity theft will be perfect examples of the invoking issues created by this new technology. Instead of getting better, such social issues are becoming more severe each day with the ever-increasing technological progress.

IT Background

Data mining/matching is currently an issue to many people. But just couple of years back, few even heard of the term data mining/matching. Its development traces back to three central concepts, which are classical statistics, artificial intelligence, and machine learning. Classical statistics is definitely the oldest of the three. With no statistics, there would simply be no data mining/matching because statistics are the foundation of most technologies on which data mining/matching is built.

As the second stage of data mining development, Artificial intelligence attempts to apply human-thought-like processing to statistical problems via a 'magical' machine called computer. Although it's a significant development, but data mining requires intense processing power which only made it practical years later when computers finally started to offer more power at lower prices. The last member of the family line of data mining is machine learning, which allows individuals to take advantage of the ever-improving performance offered by computers.

Machine learning enable computer programmers to learn about the data they study, to make different decisions base on the qualities of the studied data, and to use statistics for fundamental concepts. Therefore, data mining is finding increasing acceptance in science and business areas which need to analyze large amounts of data to discover trends and patterns. But such actions also results in problems such as identity theft and the invasion of privacy, thus creating a major controversy.

The Impact of the Issue

Data mining/matching can be extremely useful in many cases, but the lack of a uniform set of rules is believed to be the central problem. The consumer data protection requirements are often conflicting, they differ from state to state, country to country, and are too industry-specific.

The Government Accounting Office (GAO) recently studied the use of personal information in government data mining projects. And their report concludes that none of the five agencies they analyzed: the Agriculture Department, the FBI, the Internal Revenue Service, the Small Business Administration and the State Department had fully complied with the Office of Management and Budget (OMB) guidance on privacy measures.

These agencies did not take the adequate steps to ensure information security, and this might lead to the possibility of this information ending up in the hands of unwanted individuals. Such events have huge economical, legal and political impacts on the society as a whole since data mining/matching is closely related and broadly used in all of those areas.

The recent ChoicePoint situation for example, is a huge indication of the vulnerability of the legal system and the lack of protection of personal data. Existing laws merely nibble at various corners of the data trade and are no longer sufficient when thieves can steal data not just from a few victims at a time, but from thousands of people with vast, digitized efficiency. Although modern technology of data mining/matching possesses unlimited marketing values, but the social impacts it creates must be addressed quickly and efficiently.

Solutions to Problems Arising from the Issue

As a result of the recent signs of vulnerability of the Privacy Laws, Federal regulators and lawmakers have started calling for an updating of the rules. These laws shall, and will not abolish data mining/matching altogether due to its recognized contributions to the market. Instead, they will be modified to ensure the safe-keeping and flow of data during various transactions. All firms should hire quality data managers who will devour themselves solely to the area of data mining.

Under such attention and care, any major economical or political chaos will be prevented. Governments around the world have to sign an international pact in order to have a uniform set of laws regarding cross-border data mining. This is crucial due to the global ness of today's world, and yet hard to achieve as the world is never in perfect harmony. Besides government and firm's actions, consumers themselves should also be fully alert at all times. More efficient security devices have to be invented and put into practical use, with a secret code that will be constantly changed by its user. If the governments, firms and individuals can cooperate in harmony and practice all the above suggestions, our world will continue to flourish with the help of data mining without any concerns over social issues.

Databases: Presentation concepts

T62 - Report generation by Raymon

With all the technology and information available in the world today, there is a need for a method of some sort to organize this data into coherent forms. After collecting gigabytes of numbers and other forms of data, someone has to take it all and put it into some form where it can be used. At least, someone did, a long time ago. Now, however, the sheer volumes of data being collected would mean that a person would have to spend months writing up a complete report, and by then, the report would be useless. In addition, a person always makes mistakes such as typos and reading from the wrong column, so there is need of a more precise and speedy way of creating the thousand-page reports that consulting firms and such need – and there is. Such software, called automated report generators, can generate millions of rows of information, graph it, and organize it in the matter in minutes, or, in the most extreme cases, an hour or two.

Report Generation software takes data in a certain format, reads all the data and puts it each value into the appropriate area. The formats used for storing the data are great in number, but the most common and flexible one available is the international standard XML. The newest version of Microsoft Office uses xml for all its document formats (The new .docx, .xlsx, .pptx formats). XML works as follows:

- The document is set up in a series of tags, such as , , and . Each tag has a closing tag in the form of , etcetera. Tags can be nested, in the form of .
- Values are put inside tags, with the tag representing the identity of the value and where it goes. For instance, the tag could denote a new row, then each tag could contain , , and tags, each of whice represent one column>.
- Therefore, a sample XML Document could look like:

John Doe

Miner

34

David Smith

Plumber

51

The software would then take this information and parse it, turning it into readable, printable data. It would go through the document, starting at the tag. Then, at , it would begin typing on a new row. It takes the values enclosed in the , , and tags, putting them into the respective columns in order. At , it would close the row and move down one row. It will continue, then stop when it reaches .

In such a way, software can do very quickly what would take a human a long time to complete – with no mistakes and perfect handwriting. Report generation is very important to the success of a business, as it is required for that business to present information to other firms, and the cleaner and more complete the data is made, the better the communication between the companies.

T63 - Special-purpose databases, for example, personal information managers, encyclopedias, library systems by Vaibhav Bhandari

ITGS: 2.2.2 Databases and Spreadsheets

Special purpose databases are systems which keep scholarly information or any other sort of information which is managed and stored in the database. These databases are designed to keep information which is further classified into more precise categories. The main purpose of these databases is to organize information belonging to a specific category which would help analyze or transfer data efficiently through the help of networks. Some frequently used examples of special purpose database's are "news bank" (www.newsbank.com), "ebSCO host" (www.search.epnet.com), and "financial times" (www.ft.com).

How did this technology emerge?

As there tends to be continuous growth in the business sector, therefore as a result of this it is natural for this to cause a large collection of interrelated data. As a result of the large collection of interrelated data there needs to be a system which can manage all this efficiently. To solve this problem there are two main things which have to be taken into account: there is a large collection of data, and they are interrelated. Hence to solve this there is to be a system (database) constructed which can manage all this data by storing and categorizing it.

What are the advantages and disadvantages?

The key usage of these types of databases is to access information efficiently across the globe. For instance news bank can help people access news articles from America to someone who would want to view them from Europe. So the advantage here is that a user can access information from any part of the world through networks as far as the information he wants to access is in a database. In addition to this news bank lets you categorize your searches. Therefore this prevents time wastage and helps the user access the information as precisely possible. The disadvantage of this is that if the database storing information somehow fails to manage all the information and loses it all by some sort of failure. Therefore in this case the users will be unable to access all the information as the database would fail to locate the information through networks by which various users are usually gaining access the information.

What are the issues associated with this?

The issues associated with this are that if there is a network failure or loss in the system where all the data is being stored, than the database will be unable to share the data extensively. Hence the data being stored cannot be fully relied upon as there is a great percentage that it might be lost. Hence this would defeat the purpose of having a database which would share information efficiently. Secondly as the data is being shared through networks it also puts up a possibility that the data can be manipulated or destroyed by someone's intentions.

What is an alternative solution to this?

An alternative solution would be to not use a database and instead store data in files and folders manually. This method would be very inefficient and would be very hard for users to gain access to this information extensively as it would not be shared through networks. Even though this would prevent someone from manipulating the information as it will not be shared through networks, the data can still very easily be lost as it will not be computerized and hence it will be hard to keep track of.

A common example

In our school library the software we use to manage our library is "Library Spectrum". This is a library database which helps the librarian manage the library and as well as it also allows the students to search availability of the book. In the library the librarian can simply just add a book by entering its key components. So in order for the student to check whether the book is available or not, he can simply just search key components of the book in the database and find whether the book has been purchased by the library or it is currently issued by someone.

Spreadsheets: Knowledge of technology

In order to study and evaluate the social and ethical issues involved in the use of spreadsheets, the student must have an understanding of related technological concepts. These may include the following.

Spreadsheets: Design and creation concepts

T64 - Key Terms By Tanay Khandelwal

Cell

A small compartment into which data is entered.

Cell Format

Adjusting a cell to fit to the desired contents wither in shape, size, width, or length.

Number

A numerical entry; the property possessed by a sum or total or indefinite quantity of units or individuals

Text

Written words; context.

Value

A numerical quantity measured or assigned or computed

Function

A relation, such that each element of a set (the domain) is associated with a unique element of another (possibly the same) set (the co domain, not to be confused with the range).

Calculation

Problem solving that involves numbers or quantities

Date

A particular day or the month

Currency

A form of money, where money is defined as a medium of exchange

Row

A category that shows related information in a horizontal list.

Column

A category that shows related information in a vertical list

Label

A name that identifies a category

Macro

An abstraction, that defines how a certain input pattern is replaced by an output pattern according to a defined set of rules.

Replicate

To duplicate, copy, reproduce, or repeat.

Template

(In design) a stencil or overlay used in drawing, painting or sewing to replicate letters, shapes or patterns.

(On a normal document) a pre-developed page layout used to create new pages (paper or electronic) from the same design, pattern, or style.

Worksheet

Refers to a computerized page allowing the user to manipulate many columns and rows of numbers.

Range

The set of all output values of a function.

Absolute

Numerical value without regard to its sign.

Relative Reference

A connection between two different things through a viewed or accepted perspective.

T65 - Paper files versus electronic files by Marek

Over the years, as technology has advanced, people have begun to make decisions. Decisions how to run companies, or to change systems or to buy new equipment. Decisions that affect our lives. One of the major decisions faced by many major companies today is "Should we store our data in paper, or in electronics?"

The Answer to this complex question was as simple as possible. Many companies simply choose to do both. This way, they employ a "safety net" system, in which there is a backup readily available should one of the systems become severely compromised. This style of recording keeping is both efficient and safe, as it allows another record of past events to be perused at will, compared, or even copied if the situation were to call for it.

In the past, many firms preferred to keep hard copies or records in paper format, due to the fact that they were readily available and incredibly easy to use. In those days, electronics were complex and confusing, and at some times, downright unreliable. Entire libraries of valuable information could be wiped from the hard-drive by a carelessly placed magnet.

The old fashioned way, on paper, could be categorized easily, and there would be very little chance that it could be damaged, or modified without the proper authorities knowing about it. There was also the psychological influence of keeping paper records, as it would reflect extremely well on the company if it could produce the

ITGS: 2.2.2 Databases and Spreadsheets

actual legal document in front of it's customers are opposed to a copy on the screen of some computer. In a fashion, it is human nature that dictates how we store things, and seeing that appearances are important, many companies have chosen the paper storage as well as electronic.

However, in the present and the future, computer memories seem to be the way the economy is heading. For on, computer technology has become amazingly reliable and simple, and the compression software has advanced such that several thousand books can be store in a portable box roughly the size of a game boy. In doing this, the companies designing the machines have all but assured the extinction of the old fashioned "paper" method.

Another added advantage of such a system is that the files of important information can be accessed globally from any computer terminal, given that the security conditions are all satisfactory. This allows a multitude of opportunities, such as new business transactions, as a person no longer must carry with them, but can pull them up from the recesses of his company's database and have them in front of his new business partners in less than five minutes.

This apparently useful advantage has its flip-side though. The fact that ANYONE can access the information and modify has lead to the rise in the number of hackers and electronic mischief makers. These legal documents, which were once untouched and left in a locked file cabinet, safely in building with a night guard is now on the internet, left to the tender mercies of the millions of cyber-thieves and other trouble makers around.

In conclusion, it seems apt to state that technology is at once both our salvation and damnation. It is a mixed blessing and curse, allowing us to mingle freely with more and more people, while also having our resources stolen and copied. Modern society in this form appears to take risks, and even though the price is high, we pay it gladly.

T66 - Reliability and integrity of data by Isaku

With the recent and rapid development of the computer and the digital network, the main form of data storage has met a major shift from paper to digital. This shift is fairly understandable considering the convenience and advantages digital data has over paper. When it was first introduced digital data seemed as an ideal form of data storage, and some even expected for it to replace paper in a matter of time. However, when people actually started using it, they realized that digital data also had its large share of defects, which is why paper is still used as a major form of data storage.

The main problem of digital data can be said to be its reliability. At first digital data was said to have an advantage over paper in terms of storage over time. In other words paper is not suitable for long term storage since paper decays over time. Another problem with paper is that you can not easily make a back up storage of it. Making a backup for your data is crucial especially when the data has something important, such as job related data.

It is not impossible to make back ups for paper data, but it is rather awkward since it involves numerous numbers of paper which takes up space, and the use of copy machines. In these aspects, it is crystal clear that digital data has a huge advantage over paper. First of all data stored in digital format is resistant to time. You can leave data stored digitally for more than ten years and you will not find it unreadable which usually is the case with paper. Second of all, you do not need a huge storage space for digital data like you do in paper. Digital data merely takes up a fraction of space in your computer's hard disk.

However, digital data does have problems with its reliability that is unique to itself, which is data loss. Digital memory storage is sensitive to physical damage in a different way. But what we cannot ignore is that data loss online digitally can end with greater consequences than with data loss on paper. One is that when digital data is damaged it is usually lost completely, whereas in paper, usually part of the data remains undamaged. Another crucial problem is that when you lose your data online or digitally, you usually lose data all together, which means that the probability of data loss might be lower in digital format, but the loss rate is much higher.

It seems that digital data is better off in many ways than paper, but digital data has its share of defects which also happen to be some of the most major problems internet users are facing. One of these problems is its increased vulnerability to secret theft, which leads to major data leakage. Many people have taken the anonymity and connectivity of the internet to their advantage, allowing them to steal personal information from the general public with relatively low risks of getting caught compared to the risks in the real world.

Digital theft can cause more damage to the victim because it usually takes them longer to realize their data has been stolen. One of the most important of the data that we hold in the internet is our personal information. This information is the most desirable one to thefts, as there are people who are willing to buy it for a high price, mainly because it consists of useful data such as credit card numbers. The method from which these thefts take our information has grown in sophistication over time, and have therefore resulted in an increasing difficulty to prevent them. One of the most common theft methods is fishing.

This involves the theft creating a fake identical copy of websites like amazon.com. When a user visits this page, he/she will be asked to enter personal information due to technical difficulties. Another method, which uses spyware, and figures out your password by scanning the record of the keys which you typed. Using these vital information, these thefts will pose as the victims, using their identity to spend money or use services with our name.

Clearly the dangers that accompany digital data storage cannot be neglected. Then what can we do to protect our data? The answer is simple; it is important to take great precautions when using digital data. It also may be a good idea not to rely too much on digital data. Although digital data does have many merits, using it on the internet has great risks with it. Therefore it might be a good idea to save important data on paper for safety, while using less important data online. This is yet another example that technology brings about convenience, but also new threats that may interfere with our daily lives.

Spreadsheets: Storage and access concepts

T67 - Data Transfer between a database and a spreadsheet by Alex Young

In today's abundant world of information, one must get to know more about how, when and why transferring information from a database to a spreadsheet is useful. A database is organized through a collection of information stored on to a computer or a CD drive or anything that is portable such as a memory stick and are arranged in a table of columns or rows. A spreadsheet is a table of values which are shown through rows and columns that allows the user to make a formula or insert a graph or place numerical values for necessary purposes.

By the definition of these two words we can clearly see why transferring a database upon a spreadsheet has its advantages.

A database only stores information and therefore might be hard to identify what is what or have a simple understanding what the database is trying to show. For example a spreadsheet can be more useful than a database to show or organize presentations. If a person showed a slide with numbers in no particular order, people will not understand what is going on but with a spreadsheet, we can have a better understanding as we can organize the data with graphs or tables. Another disadvantage with a database is that it cannot make graphs or tables it is only used for storage and therefore database in effect are somewhat limited in what it has to offer.

A program fully dedicated to a database is called Microsoft Access which creates and manages databases. Some database programs only include information in one table which is called a flat database but in Microsoft Access, it can display multiple related tables which are called relational databases.

People familiar with commands (specific instruction on a program to perform a desired action) on a computer can also be used upon databases or keyboard shortcuts can also be used for a more computer savvy user. This is useful as it can cut back on time spent on databases with a few simple commands instead of clicking and trying to find whatever the person is looking for.

A database is useful when a person wants to quickly retrieve information or place a table to another table to show a relationship of some sort. Although Microsoft Access may be useful in these examples, Microsoft Excel is more useful because we can do more with the data we are given. For example, with the data, we could make it into a graph to show a simpler model for people to understand or make equations to come up with the average or any outliers within the range of the data. Excel also allows us to make charts such as a pie chart or a bar chart. In Excel we could also add clip arts (a collection of images, designs, artwork which can be inserted into pages) and copy a graph from on to a different program such as Microsoft Word.

An advantage with a database is for big companies it could be a very useful tool to retrieve the necessary information. For example, if Sony wants to find out how many computers were sold in New York, they would go to wherever the database is stored, type in New York and find where it says "amount of computers sold" for example. As long as the database is organized well in a specific category and is in the right place a person can find whatever information is being looked upon without trouble.

Therefore in conclusion databases are used more for the purpose of storing data to possibly use that information in the future and possibly converting it on to a spreadsheet but a spreadsheet has more features to work with such as a graph or a chart or a clip art which are all models to try and simplify the data being given and lastly being able to make formulas is very important when trying to solve certain calculations involving the use of equations.

T68 - Select, print and display area of a worksheet by Harsh Sharma

A worksheet is basically an Excel document and most of the times a person doesn't need to print everything on the worksheet. Therefore, certain steps need to be taken in order to print exactly what you want.

Let's say you have entered your data in cells A1 to A25. However, you only need to select and print the data in cells A1 to A10. First of all, you need to select the cells A1 to A10. This can be done in several ways: either select the cells one by one (by pressing Ctrl (windows users) or Apple (mac users)) and clicking on the cells. Or you can simply use your mouse and simply select the cells A1 to A10, which obviously is the faster way.

After the cells have been selected, simply go to File and Print Area and then select "Set Print Area." This will make a dotted line around the cells you selected previously and just to check, go to File again and select "Print Preview." Here you'll only see the cells that you set for printing! How easy was that? You can do this with any number of cells you want.

Display area of a worksheet refers to what is being shown on the screen. This can be adjusted by using any of the many features excel has provided. All of these can be found under View. You can go to "Zoom" and enter any number you want! You can also make the whole worksheet full-screen by selecting "Full Screen" and you can also select different layouts for your worksheet. Microsoft is bad but not that bad! They do give us enough options to mess around with things.

T69 - Use of the appropriate graph or chart for the meaningful representation of information by Harsh Sharma

In today's world, collecting data or information is almost as easy as going to a convenient store and buying a pack of gum. Through Internet, a person can collect and view any kind of data right from his home. However, the raw data doesn't have any value until it's properly organized and represented. Word and Excel do a great job of collecting and organizing data, however, it is upon the person to choose the right graph or chart to represent that information.

Thankfully, a word processor already includes the "Table" function and all the user has to do is select that function and the table will be created in a second. Putting the data into the table is a very easy task and elementary kids have excelled at it. However, that's how far word processors go with providing options to represent information. A table in a word processor can only be used for small amount of data and it would be a very exhausting task to create multiple tables in order to represent a large amount of information.

Therefore, when it comes to representing large amount of information in an organized manner, spreadsheets take place of word processors. Word processors should mainly be used for reports and proposals, and it's use for representing statistics and information should be limited because there's a program other than word processor that does a much better job at it. Microsoft Excel, one of the best spreadsheet programs, has a wide variety of graphs and charts that could help represent any kind of information in a very concise and precise way. However, it is very important to select the right type of graph or chart otherwise the information would not be represented properly and it would lose it's value.

Here's a list of popular graphs/charts that Excel has to offer:

- Column
- Bar
- Line
- Pie
- XY (Scatter)
- Area
- Doughnut

Selecting the right type of chart can be a painful task sometimes because there is often an overlap between the types of charts. Therefore, here's a brief description of each type of chart and when it should be used. (examples provided)

1. **Column** – A column chart is composed of vertical columns (no surprise there!) and it is used to observe data over time or under certain conditions. There is a limitation though that the data must be small because if there were too many columns, then it would be hard to figure out the chart. Example: Different grade levels provided and the number of students that go clubbing in each grade.

2. **Bar** – A bar chart is very similar to a column chart except it uses horizontal bars. It is also used to observe data over time or under certain conditions with limited data. It comes down to people's preference when deciding between bar or column chart.

3. **Line** – A line chart is very different from column and bar charts because it is used to observe trends and/or functional relations over a period of time. There's no limit in this kind of chart because data can be easily plotted by using a scale. Example: The inflation rate in USA from year 1950-2000. Use a scale of 5 years to 1 cm and 1% to 1 cm.

4. **Pie** – A pie chart is also very different as it compares proportional relationships at a point in time. The limitation for pie chart is that the time and conditions have to be the same otherwise the chart would hold no value because different conditions could have been the cause for different conditions, hence wrong data. A good thing about a pie chart is that segments can be pulled out of the pie to emphasize on a certain part. Example – Mc.Donald's sales in the month of January in different countries. And the country with the biggest could be "pulled out" of the pie chart.

5. **XY (Scatter)** – This kind of chart shows correlation between two data sets (usually). There's a different set of data on the X-axis and a different set of data on the Y-axis and the scatter points make it easy to compare the two different sets of data. It should be used to convey an overall view of the two sets of data. Example – Number of boys in each grade level at SMIS and number of girls in each grade level at SIS.

6. **Area** – An area chart is sort of like a line chart except that all the area is shaded because there's usually more than one value on the chart. That's why the areas are shaded in order to make the chart more presentable. It can also be used to represent how one set of data is divided into three/four different parts or vice-versa. Example – Number of seniors that attend school in February, March, April and May. Months would be on the x-axis and number of seniors on the y-axis and the four months will combine together as a whole to represent the declining number.

7. **Doughnut** – The charts mentioned above are the most popular and most used ones. The only reason this chart is being discussed is because it has a funny name. It is very much like a pie chart except that it can hold different series unlike the pie chart that can only hold proportions of the same series. Example – Sales figures in different fast food restaurants in different countries.

As explained above, it is very important to use the right amount of chart otherwise you won't be able to present what you want to present. It has happened to me in the past and I don't want it to happen to you. So use the right type of chart and live a happy life!

T70 - Special-purpose spreadsheets, for example, inventory, budget by Dhruv

A spreadsheet is a table of values arranged in rows and columns. Each value can have a predefined relationship to the other values. If you change one value, therefore, you may need to change other values as well. This is like changing total returns on bank savings after changing the interest rate received.

'Spreadsheet applications' (sometimes referred to simply as spreadsheets) are computer programs that let you create and manipulate spreadsheets electronically. In a spreadsheet application, each value sits in a cell. You can define what type of data is in each cell and how different cells depend on one another. The relationships between cells are called formulas, and the names of the cells are called labels.

I'm sure that at some point or another you have used excel for something. Practice in computer class, computing a science lab etc. You input values into the spreadsheet. Once you have defined the cells and the formulas for linking them together, you can enter your data. You can then modify selected values to see how all the other values change accordingly. This enables you to study various what-if scenarios. Going back to my earlier example, you could see what returns you'd get from different interest rates on a loan to a bank.

Specifically now, an inventory is 'a detailed list of all the items in stock'. It follows that an inventory spreadsheet is a spreadsheet that would keep track of all the items in stock, their cost, possible selling price, maintenance payments and so on. These would just be the tip of the iceberg. The spreadsheet would allow companies to divide costs up between staff, lights, electricity etc. This would allow the firm to calculate cost and revenues for their inventories in the future and maintain a record of their past inventories. The firm would then be able to see how a change in any of the variables would affect their business. A key resource for companies as it provides an easy way to keep track of all the transactions that can and will occur. An inventory spreadsheet is much like a normal spreadsheet with some special functions and characteristics that benefit use by firms and other inventory keepers.

Secondly, a 'budget' is a summary of intended expenditures along with proposals for how to meet them; "the president submitted the annual budget to Congress". It follows that a budget spreadsheet allows for easier data collection and processing for budget makers such as governments. Even individual firms, for that matter, any accountant, would use budget sheets. This would enable them to enter expenditure and revenue data in several forms. Being a budget spreadsheet, it would have many functions and characteristics making it conducive for budgeting purpose. Such as, maybe a program that predicts how a change in economic conditions would affect revenue.

Essentially, the same things, the special kinds of spreadsheets are just variations of the basic form spreadsheet geared toward a specific type of data collection and processing. An inventory spreadsheet makes it easier to work with inventories and the same goes for budgetary spreadsheets. Inventory and Budget are only two kinds of special spreadsheets. It is important to know that spreadsheets that assist in the processing of scientific lab data etc. exist. Specialized data processing in any field/work requires special purpose spreadsheets to make things simpler for the person dealing with the data.