**Practical Week 2**

Exercise 1

B&K Resins supply Epoxide and Polyester resins to a number of companies. They specialise in supplying small quantities to small companies and large numbers of small tins to larger companies and organisations e.g. they supplied 5000 x 500gram tins to the Navy for distribution around the world. Their stock control system consisted of several large boards on the office wall with the product numbers painted on them followed by 5 nails spaced at intervals. Circular disks with numbers on them were hung on the nails to indicate the quantity of each product in stock. When a customer phoned and enquired about a product the people in the office were able to instantly say whether there was stock available. When an order was placed the quantity of the order was subtracted from the number on the board and the disks changed to reflect the new stock available. When a delivery came in the amount was added to that on the board and the disks altered. With reference to the above scenario, answer the following questions in discussion with your tutor(s).

**What are the advantages of using this system?**

It shows precisely how many items are in stock and does not need to use any other process for checking the amount that is left. When they get a call they can instantly tell the customer how many they have in stock (if they need to) just by looking at the wall. In this respect it is incredibly efficient.

**What problems are there with using this system?**

**With the massive amounts of product that they are selling it will be very hard to have an accurate number on the disks. I assume that the process of changing the disks once products are sold is not automated and is done through human intervention. Therefore, if someone where to miscount or even forget to change the disks they could assume they have more product than they do which could cause massive order issues down the line. The amount of product shown needs to be an exact number of what they actually have or else other parts of the business are going to have a difficult time, e.g. ordering more supplies, sending product to customers, working out VAT etc.**

**If you were asked to look at developing a new system for this company how would you start to find out the information you need?**

I would plan meetings with a manager, or someone in charge, to fully understand the requirements for the system, i.e. what features it needs, as well as to get an idea as to what data the system will be collecting (assuming they don't want the system to just deal with sales). This will give me a good impression as to what the system will be used for and what data it will store and manage, however, I will make sure I also interview the end users (in this case the people who answer the phones) to see how much knowledge they have with the system that I will propose, i.e. experience with application software, as well as to get an idea of their preferences with the new system, as they will be the ones using it. I could also make use of questionnaires and surveys if I don't have time to interview everyone or it is too costly.

Exercise 2

Visitors to the Science Museum, currently walk around the exhibits in their own time and with the aid of a paper map. Information about exhibits is presented via text and digital media but with no cohesive approach. The Science Museum now wish to develop a web application which will offer its users a personalised tour of the museum depending on a visitor’s individual interests, with previews of some of the exhibits and background information etc. It is expected that users will fall into two main groups: 1) Visitors to the museum itself who wish to access the application via a laptop, netbook, ipad or mobile phone as they tour the museum 2) Users who visit the museum website and want a virtual tour The application should: 1) Allow a user to logon 2) Ask questions to determine the best route through the museum to take. These can then also be used to create statistics about visitors. 3) Plot a route through the museum to maximise time spent on the areas the user has shown a preference for 4) Show a floor plan of the museum so that users can see where they are in relation to the whole building 5) Offer relevant information about exhibits as they are passed. 6) Allow users to request further information on a particular exhibit 7) If exited, allow a user to start again or return to their previous place Adapted from: [http://www.doc.ic.ac.uk/~frk/frank/da/hci/Software%20Engineering%20Design%20II%20coursework.pdf](https://www.google.com/url?q=http://www.doc.ic.ac.uk/~frk/frank/da/hci/Software%2520Engineering%2520Design%2520II%2520coursework.pdf&sa=D&usg=AFQjCNHSp1kSTNvvJ0qw8j1yUQ-sZy9ZYQ)

**What are the advantages of the current system?**

**It seems very simplistic and cheap to make. The packs can include a variety of information and can be constantly changed and improved in the future.**

**What could be some possible problems with using the current system?**

Because it is simplistic it doesn't appear to be very organised and could therefore be difficult to navigate for the user. As it is in physical form it could get lost easily or damaged, meaning the user may have to return to get another one or may not get the full experience out of the museum. It doesn't include other information such as current location in the museum or any other extra information which is wanted in the new system.

**What would be the benefits of creating the new system?**

The new system can allow user logons so that each individual account can be personalised. This could allow for different routes through the museum to be displayed depending on what the user wants to see most. It allows for a tracking system so that the user knows where they are all the time in the museum and therefore how to get to other exhibits. It is not limited to the amount of information that can be stored about each exhibit. Can be re-used again and again. If people visit more than once they can log back in and re-use the system. Easy to update. User information can be used to examine which are the most interesting exhibits and therefore can improve the flow of people through the museum by moving exhibits into the best route. The museum could also take advantage of this by placing shops or stools along this route to increase revenue.

The Database

Now on to some more technical questions....... Use your preferred search engine to find answers to the following questions

**Give a brief description of the MySQL software**

"An open source relational database management system."

It's based of SQL which is a programming language used to insert, delete, and update information in databases. It can be used for a whole range of applications but is often used on web servers and to create dynamic websites.

**Who owns the software?**

Oracle Corporation

**List 5 advantages of MySQL**

1. Secure - includes data security layers that protect sensitive data from intruders

2. Inexpensive - it is free from the MySQL website

3. Open source - because it is free and open source it allows for a large online community which help each other with solving problems as well as teaching new comers how to use it

4. The amount of data that can be stored is huge (up to 8TB)

5. It supports a whole range of development interfaces

**List 5 disadvantages of MySQL**

1. Stability issues

2. Although it can scale to massive amounts of data it has poor performance when it does scale

3. Development is slow

4. Functionality is dependant on addons

5. It is rather limited with what it can do, it doesn't contain as many features as other systems

**Give a brief description of the DB2 DBMS software**

A relational database management system that IBM began selling in 1983. It was developed to run on the MVS operating system but was later released on OS/2 as well. Today it can be run on UNIX, Linux and Windows and is used heavily by a large range of organisations.

**Who owns the software?**

IBM

**List 5 advantages of DB2**

- Large amount of support available

- Runs on a variety of platforms

- Easy to scale

- Stable

- Self-tuning memory management, amount of resources changes depending on the time of day and workload

**List 5 disadvantages of DB2**

**- More information, support and tools developed for other systems such as Oracle than DB2**

**- Doesn't get used much**

**Give a brief description of the Oracle DBMS software**

A database management system where data may be accessed by users, via an application or, through structured query language (SQL). It is a fully scalable relational database system. It is used by massive enterprises which use it to manage and process massive amounts of data across large and local networks.

**Who owns the software?**

Oracle Corporation

**List 5 advantages of Oracle**

- Portability (runs on hundreds of hardware platforms)

- Oracle provides huge support for cloud based backups and recovery

- Supports large databases and massive amounts of data

- Good security

- Supports cursors, making programming easier

**List 5 disadvantages of Oracle**

- Difficult to move from one system to another

- Expensive

**Give a brief description of the MS SQL Server**

A relational DBMS from Microsoft that is a major component of the Windows Server System. It is Microsoft's high-end client/server database and is closely integrated with Microsoft Visual Studio and the Microsoft Office System. Numerous editions are available, including those for Enterprise, Developer, Workgroup and 64-bit platforms.

**Who owns the software?**

**Microsoft**

**List 5 advantages of MS SQL Server**

* Works well with other Microsoft software
* Scales well

**List 5 disadvantages of MS SQL Server**

* Expensive

Student Records System

All of the data we hold about you as a student is held within a Student Records System with a relational database at its heart. Please answer the following questions based on this system

**What information about you do you think we would hold in this system?**

**- Personal Information**

**- Classes, lectures, timetable, moodle units etc.**

**All of the data held is organised into a variety of tables (relations) each with their own names and attributes. What tables do you think are used?**

**Student (contains personal information plus student ID)**

**Course (contains information about course, units etc)**

**Grades (contains information about the grades for each unit, course etc)**