A computer system consists of hardware and software. Hardware is the equipment, which makes up the computer system. Hardware consists of:

- Input devices such as keyboard, mouse, joystick

- The Central Processing Unit (CPU)

- Output devices such as a printer, monitor, graph plotter

- Backing storage devices such as disc drive, hard drive

- Media such

There is hardware that I used is:

- **Mouse**
- **Keyboard**
- **Printer**
- **Monitor**

A tracker ball mouse
A tracker ball mouse is an input device and similar to a mouse but the ball is set into a cup on the top of the unit. A finger or, on larger tracker balls the palm of the hand, is used to roll the ball in any direction. The ball controls the movement of the pointer on the screen. Buttons on the tracker ball work in the same way as mouse butons to activate processes on the screen. My alternative of using a mouse with a tracker ball would be a mouse without a tracker ball.

Benefit:

- **A tracker ball does not require a large flat surface.**

Drawbacks:

- **Most people find them a bit fiddly**
- **Not accurate**
- **Not quiet**

ALTERNATIVE: Mouse without a tracker ball
The pointer on the monitor screen mirrors the movement of the mouse by the user's hand. Under the mouse is a ball, which rolls as the mouse is moved. This movement of he ball causes two shafts to rotate inside the mouse; one shaft records the movement in the north-south direction and the other shaft records the east-west movement. When the screen pointer is over a0n icon or menu selection, the mouse button can be clicked, double clicked or dragged to activate a process. Some mice have a small wheel as well as the buttons. The function of the wheel depends on the software being used on the computer; in a document, it can allow the user to scroll up and down; in a desktop publishing package, it might enable the user to zoom in and out of the page. Over a period of time, the performance of the mouse can deteriorate as the ball and shafts collect dust and dirt. Some modern mice use a light beam and detector to register movements instead off the mouse ball. Many mice now use infrared or wireless links to the computer, which removes the need to have a connecting cable.

Benefit:

- **It is easy and convenient to use**
- **It is inexpensive**

- **Most modern software includes an option to use it.**
- **It selects a position on the screen more quickly than is possible with a keyboard.**

Drawbacks:

- **It cannot be used to input text easily- you still need a keyboard to do that.**
- **It is relatively slow for selecting options from menus. A user who is familiar with the software can select options more quickly with the keys.**
- **It is not very accurate for drawing purposes**
- **The mouse requires a flat surface to operate**

QWERTY Keyboard
Keyboard is the most important and commonly used input device. A keyboard consist of following four areas:

1. **Function keys (F1- F12, Print Scan, Scroll lock, Pause Break), which is the top row of the keyboards.**
2. **Main section (A-Z, Symbols, and some function keys)**
3. **Numeric keypad, which is on the right.**
4. **Courser movement and editing keys, which locate between the main section key and numeric keypad.**

When we press a key on the keyboard the key sends an electronic signal that will be interpreted as a character of function by the computer processor.

The question is asked that why the letters on a keyboard are not alphabetically arranged the answer to this question is that in the past the processors of the computers were very slow they could not handle too much data at once so to slow down the speed of the typists they created a standard layout called QWERTY which comes from the six keys on the top row of the alphabetical character.

Now days different types of keyboards are available in the market to meet the needs of the users for example ergonomic keyboard is more efficient for those users who suffer from the strain injury or for those who use a keyboard for long period of time.

Benefits:

- **They are very reliable. Other methods of text input such as voice input and optical character recognition are prone to errors.**
- **Every computer has a keyboard. No extra equipment needs to be bought.**

ALTERNATIVE: Concept keyboard
My alternative of using a QWERTY keyboard would have been a concept keyboard. A concept keyboard is a flatbed of contact switches covered by a flexible membrane. Programmers can allocate one or more switches to respond in different ways. Overlays with pictures and symbols are placed over the membrane.

Uses of the concept keyboard include in primary schools where the overlays are designed with interesting picture layouts. Children press particular symbols or pictures in response to the activity being done. These keyboards are very flexible: an overlay for a five year-old can be designed quite differently to an overlay for ten-year old, which would be more detailed.

Concept keyboards are also used in restaurants where the checkout tills use symbols to speed up the data entry. They can also be use in hostile environments, for example, on North Sea oil platforms where the keyboard allows workers to use computer controlled machinery through the keyboard without it being damaged by salt spray or chemicals on the platform.

Printers

Over the years, many types of printers have been made with different print mechanisms. These printers can be can be placed in one of two groups-impact printers and non-impact printers. With impact printers, the letters, or tiny pins, which make up characters, strike an inked ribbon against the paper. Because of this hammering effect, these printers can be quite noisy. Today, the most popular types of printers for schools, offices and homes are ink-jet and laser printers, which are non-impact printers.

Inkjet printer

For printing my coursework the printer, which was used was an ink-jet printer. In an ink-jet printer, the print head contains tiny nozzles through which ink can be selectively sprayed onto the paper to form characters or the graphic images. Inside the print head are tiny piezoelectric crystals. These crystals change shape when an electric current is applied across them and this forces the ink out through the print head nozzle. My alternative would be a laser or dot matrix printer.

Benefits:

- **They are quite good**
- **Good quality output is produced**
- **There is little extra cost for colour printing.**

Drawbacks:

- **A good quality paper is needed or the ink spreads.**
- **The ink can be smudged.**

ALTERNATIVE: Dot-matrix printer

A dot-matrix printer has a print head that travels across the paper. In the head are sets of pins, which shoot out, and strike the ink ribbon against t he paper as the print head moves along. These printers produce low to medium quality black and white printing. Several years ago they were the ideal choice for a home printer but now the colour ink-jet has taken their place. They are still used in business for the following reasons:

Benefits:

- **The running costs are very low.**

- **They are robust and can operate in harsh environments.**
- **If several sheets of self-carbonating are placed into the printer, then multiple copies can be produced at the same time. This is because it is an impact printer and strikes the paper. This is particularly useful in places such as warehouse.**

Drawbacks:

- **Low resolution- print quality is too poor to produce presentation documents.**
- **Very slow- can be less than 100 characters per minute (cmp)**
- **Very noisy- cannot be used near a phone**

ALTERNATIVE: Laser printer

Laser printers work on the same principle as photocopiers. The toner, which is powered ink, is transferred to the paper where it is fused by the action of heat and pressure. Lasers are very quiet printers and give high quality print. A mono (black and white) laser printer with a speed of eight pages per minute can be purchased for around £200. A school or business printer would have a typical speed of 12 to 24 pages per minute. The majority of laser printers sold are still mono but colour printers are becoming more popular as their prices are dropping to around £1000.

A laser printer works by the laser drawing the image onto a negatively charged photosensitive drum. Where the laser hits the drum, the charge is removed. The drum then passes the toner reservoir where negatively charged toner is attracted to these areas. This toner is then transferred to the paper, where it is heated, and made to stick by the fuser assembly.

Benefits:

- **Excellent print quality is produced.**
- **They are quiet.**

Drawbacks:

- **The initial cost of the printers and their consumables is high particularly - for colour work.**
- **Laser printers cannot match the quality of ink jet printers for reproducing artwork and photographs in colour.**

Software

Software is the program, which runs the system. The main program that runs the computer system is called the Operating system. Other programs include Word Processing, Database, Spreadsheet, and Graphics etc.

The software, which I used in my coursework, were:

- **Microsoft Word**
- **Microsoft Excel**

Word processor
A word processor is a program for producing and editing text such as letters and reports.

CHARACTERISTICS: of a word processor

- **Simple entry, editing of text and correction of keying error.**
- **Improved appearance and style with features such as underlining, bold, italics.**
- **Spell checking and even grammar checking.**
- **Some control of layout- changing margins, page numbering, etc.**
- **Some choice of fonts.**
- **Facilities for printing and addressing a set of letters.**

APPLICATIONS: of a word processor

- **Writing letters, reports, lists and other documents in an office.**
- **Producing the text of books and articles. Although a book or magazine may be produced with another package such as a desktop publisher, the text is often written on a word processor first.**
- **Personalising letters- producing a set of similar letters to be posted to a number of people.**

Microsoft Word

This program I cannot do without and is most important. I will use this word processing program to type up all of my documentation. Because of it's many uses, I can also use this program to make posters, letters etc. The main use for this program, however, will be the word processing.

Benefits:

- **Can change size, font, colour and shape of text.**
- **Can insert pictures that can be resized and moved freely.**
- **Has a formal layout that is easy to use.**
- **Mistakes can be rectified easily. If writing by hand and you make a mistake, you would have to use liquid paper. Using a word processor you can just delete the mistake.**
- **Spelling and grammar checks can be used.**
- **Documents can be changed, saved and loaded an infinite amount of times.**
- **Drafts of documents can be printed and proofread. If any mistakes are made, the document can be reloaded, changed, printed and resaved.**
- **Text and pictures can be moved.**

Drawbacks:

- **The whole page cannot be viewed efficiently without first either zooming out or going into 'Print Preview'.**
- **Pictures and text boxes cannot be moved easily. You must have access to a computer to open or view the document.**
- **Can't put pictures on as easily as a DTP program.**

My alternative would be Lotus Word pro or WordPerfect but these programs are not available to me.

SPREADSHEET

A spreadsheet is a package, which displays information in the form of a table. This is divided into rows and columns of individual boxes called cells. The spreadsheet allows calculations to be done on group of cells.

CHARACTERISTICS: of a spreadsheet

- **The user can enter text, a number or a formula into any cell.**
- **A formula allows calculations to be done on other cells.**
- **Formulae and other data can be copied into groups of cells.**
- **A variety of operations can be carried out on rows or columns.**

APPLICATIONS: of a spreadsheet

- **Displaying and calculating accounts and other financial information.**
- **Performing calculations on data collected in experiments and surveys.**
- **Performing calculations of data from which graphs can be drawn, e.g.**
- **Calculating the average temperature for a graph of weather data.**
- **A graph to solve a mathematical equation.**

Example software: Microsoft Excel

This spreadsheet program is ideal for working out all of my costs. Its mathematical capabilities are very useful for this type of task.

Advantages:

- **It has the option of typing formulae into the cells. These formulae will perform mathematical calculations that are quicker and easier than working it out in your head.**
- **The formulae in the cells work with each other and with the cells, so if you change a cell or a formula, the other cells with formulae in them will change to compensate.**
- **It can produce graphs with one click of the mouse.**
- **It has a layout that is easy to use and to see.**
- **It can be used to make simple tables.**

Disadvantages:

- **I can't think of any, this program has no faults.**

My alternative program would have been Lotus 123 but this program is not available to me.