User Interfaces

People need a way of interacting with machines if they are to be useful.

Think of a vending machine - you want a drink, but how do you get the machine to give it to you?

Well, you will have to read the display and follow the instructions, put your money in the slot, press the right buttons and eventually your drink will pop out (hopefully!).

You got the machine to give you a drink by interacting with it via its 'user interface'.

Think about all of the other machines that you interact with on a daily basis. You have to do certain things and make choices to get them to work.

A Command Line Interface allows the user to interact directly with the computer system by typing in commands (instructions) into a screen. You cannot just type in any kind of instruction of course, because the computer will only react to a definite set of words.

These commands are very specific, for example in DOS you could type in:

copy c:\item.txt d:\

That tells the machine to copy the file 'item.txt' that resides in the root directory of drive C: into the root directory of drive D:\

Many commands have what are called 'switches'. These are extra parameters or flags which add extra functionality to the command. For example:

»Dir gives a directory listing
»Dir /w gives the listing across the page
»Dir /s includes the sub directories
»Dir /p pauses at the bottom of every page

Before Windows was developed, this type of user interface was what most people used to get the computer to follow instructions. Nowadays, very few people have the knowledge to be able to use a command line interface.

A menu interface lets you interact with a computer or device by working your way through a series of screens or menus.

Think about your iPod or mobile phone, they both use a menu driven interface. You are presented with a menu, you make a choice and then the next menu appears on the screen. You make another choice and so on.

Cashpoint machines (ATMs) are another good example of a menu driven interface.

Menu driven interfaces can also be verbal rather than visual. Have you ever made a telephone call and been asked to 'press 1 for abc, press 2 for def, press 3 for ghi'?

Most of the software that you use have menu interfaces. You can use many features of the software by working your way through the menu options. Have a look at the menus in your word processor or spreadsheet package and see how many different choices you are given.

A well designed menu interface is simple to use, you just follow the instructions and make your choices.

A graphical user interface (GUI) is the most common type of user interface in use today. It is a very 'friendly' way for people to interact with the computer because it makes use of pictures, graphics and icons - hence why it is called 'graphical'.

A GUI (pronounced gooey) is also known as a WIMP interface because it makes use of:

Windows - a rectangular area on the screen where the commonly used applications run

Icons - a picture or symbol which is used to represent a software application or hardware device

Menus - a list of options from which the user can choose what they require

Pointers - a symbol such as an arrow which moves around the screen as you move your mouse. Helps you to select objects.

A Sound and speech of interface allows the user to speak or type in their normal everyday language in order to interact with the computer.

For example, some applications such as speech recognition software accepts the spoken words and converts them into text on the computer. These applications have a much wider vocabularly than the dialogue interface.

An example of a natural language interface which makes use of written text is a 'chat bot'. This software mimics a conversation - you ask it questions and it will come back with a suitable comment for you.

This is the most technically challenging form of interface for the designers as it has to cope with different accents, dialects, slang, homonyms (bare or bear) etc.

Touch sensitive interfaces can be found on many mobile devices such as a smart phone or a tablet computer.

They work by your finger touching the screen. The touching is detected and translated by the device into instructions. As well as tapping, the screen can sense swiping and pinching actions.

Many Cashpoint machines (ATMs) have touch sensitive screens where you can use your finger to select a service such as withdrawing cash, seeing your balance or ordering a statement.

Ticket ordering systems in train and bus stations also use touch sensitive interfaces. You select your journey from a menu of options, select the date and time and then indicate how you are going to pay for the ticket.

Museums and art galleries often have touch sensitive screens where you can find out more information about a particular display or piece of art by selecting a graphic icon.

Updated operating systems such as Windows 8 now have built-in touch capability.