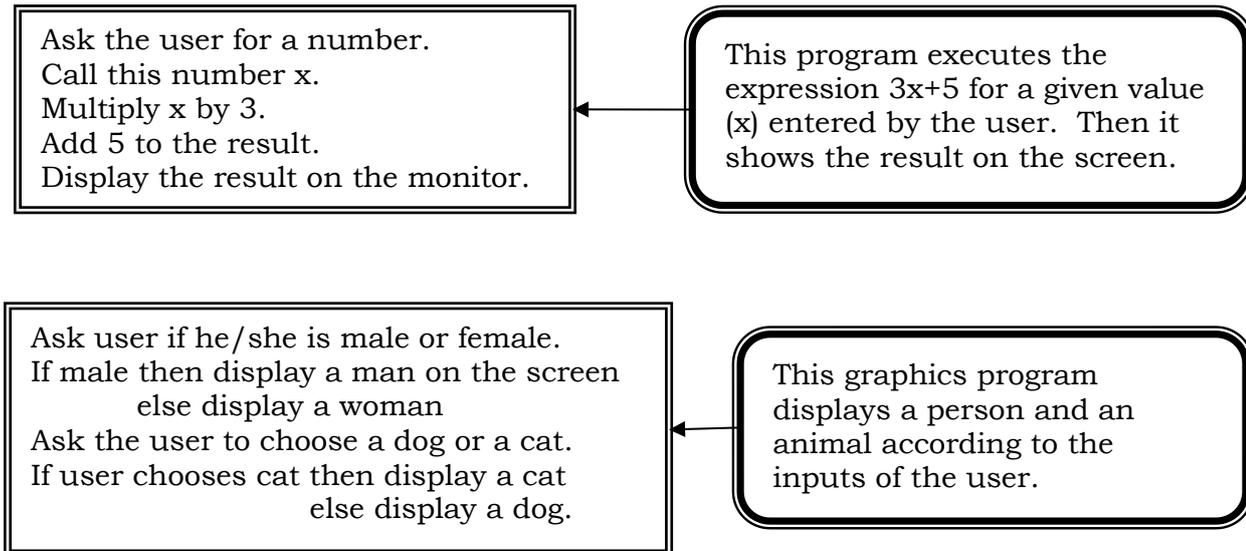## 1.3 Common Application Software

Software and Hardware

A **program** is a sequence of instructions. Instead of giving the computer one instruction to perform, we give it a program to **execute**. This means that the computer performs all the instructions, one by one, as dictated by the program.

Some programs have a few instructions while others consist of millions of instructions. Look at the following two programs.

Ask the user for a number.
Call this number x.
Multiply x by 3.
Add 5 to the result.
Display the result on the monitor.

This program executes the expression 3x+5 for a given value (x) entered by the user. Then it shows the result on the screen.

Ask user if he/she is male or female.
If male then display a man on the screen
		else display a woman
Ask the user to choose a dog or a cat.
If user chooses cat then display a cat
				else display a dog.

This graphics program displays a person and an animal according to the inputs of the user.

There are things that have no weight. You cannot hold them in your hand. Music is one such thing. To hear music you need a medium that holds the music (e.g. CD) and a device that plays the music when given the medium (e.g. CD player). Look at the following examples. Can you add some more?

The weightless item	The Medium	The Device to Play the Medium
A song	CD	CD player
A letter	Pen drive	A device with a USB port
	Paper	(No device required. We have a **hard copy**)
A video	Video tape	A video recorder
A photo	CD, DVD	A CD/DVD player connected to a monitor.
	Paper	(No device required. We have a hard copy)
Book	Paper	(No device required. We have a hard copy)
	DVD	E-book reader

A program is also a 'weightless' item. So it requires a medium to hold it (CD, DVD, pen drive, etc.) and a device to read it (e.g. a CD drive and monitor).

In the computer world all these weightless items are called **software**. Therefore all the information held on a CD, DVD, tape, pen drive, hard disk, etc. is called 'software'.

However for some authors software refers to programs and data and to many others software refers to programs only.
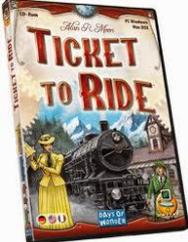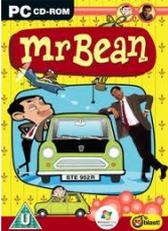
Hardware consists of the items that have weight. These items can be touched, seen etc. for example keyboard, CD, pen drive etc.

Applications Software and System Software

Software is divided into two:
- Application Software
- System Software

Application Software is software for the user's needs. Examples of applications software are:

Word Processor	This is an application used for writing documents for example a letter, a story, etc. Two examples are Microsoft Word and Atlantis Word Processor.	
Game	There are a lot of games set to run on a computer.	
Presentation Software	This kind of software helps a speaker to show slides during a presentation.	
Web browser	A web-browser helps you to search web-pages on the Internet.	
Software for photos	By means of this software one can view and edit photos.	

Drawing program	Such programs permit the user to draw paintings.	
Desktop publishing programs	These are programs aimed to prepare books, brochures etc for printing.	

System software is software that helps the computer to run properly, run faster or be secure. Here is a list of some systems software programs.

Operating system	This is the most important program found in the computer. It is the "manager" of the computer. It can be compared also to a traffic policeman.	
Antivirus programs	Checks if there are viruses inside your computer so that it can eliminate them.	
Screensavers	They are there to save the screen from being 'burned' in case we leave the same picture for a long time.	
Data compression programs	This has the ability to 'shorten' files so that they will occupy less memory.	
Cryptography programs	These programs write text files in a way that is not readable. The same program will make them readable whenever the user wants to read them.	
Defragmentation software	These programs organize the hard-disk so that when the computer searches the hard disk it will not take long to find what it wants.	

Utilities are system programs designed to help analyse, configure, optimize or maintain a computer.

Utilities are often rather technical and targeted at people with an advanced level of computer knowledge - in contrast to application software, which allows users to do things like creating text documents, playing video games, listening to music or viewing websites.

Examples of utility software:

- **Anti-virus** utilities scan for computer viruses

- **Backup** software can make copies of all information stored on a disk and **restore** either the entire disk (e.g. in an event of disk failure) or selected files (e.g. in an event of accidental deletion).

- **Clipboard managers** expand the clipboard functionality of an operating system.

- **Cryptographic** utilities **encrypt** and **decrypt** files.

- **Data compression** utilities shorten the length of a file.

- **Disk cleaners** can find files that are unnecessary to computer operation, or take up considerable amounts of space. Disk cleaner helps the user to decide what to delete when their hard disk is full.

- **Disk compression** utilities can transparently compress/un-compress the contents of a disk, increasing the capacity of the disk.

- **Disk defragmenters** can detect computer files whose contents are broken across several locations on the hard disk, and move the fragments to one location to increase efficiency.

- **Disk partitioning** software can divide an individual drive into multiple logical drives, each with its own file system which can be mounted by the operating system and treated as an individual drive.

- **File managers** provide a convenient method of performing routine data management tasks, such as deleting, renaming, cataloguing, un-cataloguing, moving, copying, merging, generating and modifying data sets.

- **Memory testers** check for memory failures.

- **Network utilities** analyse the computer's network connectivity, configure network settings, check data transfer or log events.

- **Screensavers** were desired to prevent phosphor burn-in on CRT and plasma computer monitors by blanking the screen or filling it with moving images or patterns when the computer is not in use. Contemporary screensavers are used primarily for entertainment or security.

- **System monitors** for monitoring resources and performance in a computer system.

- **System profilers** provide detailed information about the software installed and hardware attached to the computer.