

Information & Communication Technology

Reading Book Grade 7

Educational Publications Department



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The National Anthem of Sri Lanka

Sri Lanka Matha
Apa Sri Lanka Namo Namo Namo Namo Matha
Sundara siri barinee, surendi athi sobamana Lanka
Dhanya dhanaya neka mal palaturu piri jaya bhoomiya ramya
Apa hata sepa siri setha sadana jeewanaye matha
Piliganu mena apa bhakthi pooja Namo Namo Matha
Apa Sri Lanka Namo Namo Namo Namo Matha
Oba we apa vidya
Obamaya apa sathya
Oba we apa shakthi
Apa hada thula bhakthi
Oba apa aloke
Apage anuprane
Oba apa jeevana we
Apa mukthiya oba we
Nava jeevana demine, nithina apa pubudukaran matha
Gnana veerya vadawamina regena yanu mana jaya bhoomi kara
Eka mavakage daru kela bevina
Yamu yamu vee nopama
Prema vada sema bheda durerada
Namo, Namo Matha
Apa Sri Lanka Namo Namo Namo Namo Matha

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ஆனந்த சமரக்கோன்
கவிதையின் பெயர்ப்பு.



Being innovative, changing with right knowledge
Be a light to the country as well as to the world.

Message from the Hon. Minister of Education

The past two decades have been significant in the world history due to changes that took place in technology. The present students face a lot of new challenges along with the rapid development of Information Technology, communication and other related fields. The manner of career opportunities are liable to change specifically in the near future. In such an environment, with a new technological and intellectual society, thousands of innovative career opportunities would be created. To win those challenges, it is the responsibility of the Sri Lankan Government and myself, as the Minister of Education, to empower you all.

This book is a product of free education. Your aim must be to use this book properly and acquire the necessary knowledge out of it. The government in turn is able to provide free textbooks to you, as a result of the commitment and labour of your parents and elders.

Since we have understood that the education is crucial in deciding the future of a country, the government has taken steps to change curriculum to suit the rapid changes of the technological world. Hence, you have to dedicate yourselves to become productive citizens. I believe that the knowledge this book provides will suffice your aim.

It is your duty to give a proper value to the money spent by the government on your education. Also you should understand that education determines your future. Make sure that you reach the optimum social stratum through education.

I congratulate you to enjoy the benefits of free education and bloom as an honoured citizen who takes the name of Sri Lanka to the world.

A handwritten signature in black ink, appearing to read "Akila Viraj Kariyawasam".

Akila Viraj Kariyawasam
Minister of Education

Foreword

The educational objectives of the contemporary world are becoming more complex along with the economic, social, cultural and technological development. The learning and teaching process too is changing in relation to human experiences, technological differences, research and new indices. Therefore, it is required to produce the textbook by including subject related information according to the objectives in the syllabus in order to maintain the teaching process by organizing learning experiences that suit to the learner needs. The textbook is not merely a learning tool for the learner. It is a blessing that contributes to obtain a higher education along with a development of conduct and attitudes, to develop values and to obtain learning experiences.

The government in its realization of the concept of free education has offered you all the textbooks from grades 1-11. I would like to remind you that you should make the maximum use of these textbooks and protect them well. I sincerely hope that this textbook would assist you to obtain the expertise to become a virtuous citizen with a complete personality who would be a valuable asset to the country.

I would like to bestow my sincere thanks on the members of the editorial and writer boards as well as on the staff of the Educational Publications Department who have strived to offer this textbook to you.

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Index

1	Central Processing Unit	1
2	Operating System	8
3	Security of Computer System	21
4	Word Processing	33
5	Programme Development	46
6	Presentation Software	69
7	Using Internet for Information and Communication	87



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Editorial Board

01

Central Processing Unit



Have you seen the
Central Processing
Unit?

Yes, I have.

What is the Central
Processing Unit?
Where is it located?

CPU can't be
observed from
the outside.



- Computer is like a kitchen in a hotel, and the Central Processing Unit is like a chef in that kitchen.
- As a chef prepares food, the Central Processing Unit processes data in the computer and converts them into information.
- As the food preparation speed depends on the speed of the chef, the speed of the computer depends on the speed of the Central Processing Unit.
- A dual-core processor is like having a kitchen with two chefs preparing two meals, so two things can be prepared at the same time.



1.1

Let's identify the Central Processing Unit

The Central Processing Unit – (CPU) can be identified as a digital circuit that processes data according to given instructions. Whatever task performed by the computer, in all such instances, the Central Processing Unit runs in the background.

The main function of the processor is to execute instructions stored in a computer programme. That is, it gets data and processes them according to given instructions.



Figure 1.1 - Central Processing Unit

While the Central Processing Unit can't be observed from the outside, it is positioned (fixed) on the motherboard, inside the system unit.

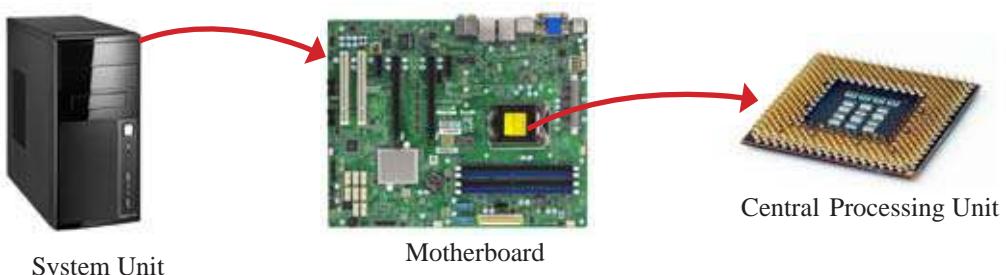


Figure 1.2 - Location of the Central Processing Unit



1.2

Let's identify the Components of the Central Processing Unit

The Central Processing Unit consists of three main components.

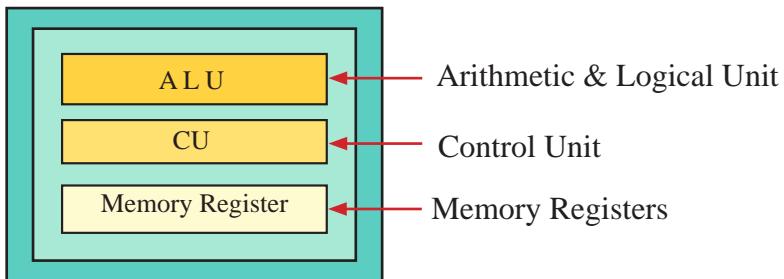


Figure 1.3 - Main components of the Central Processing Unit

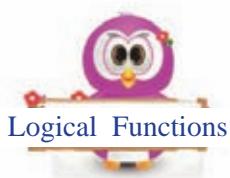
1.2.1

Arithmetic and Logical Unit

Mathematical and logical functions are performed in the Arithmetic and Logical Unit. The functions of this unit can be further divided into two main sub-functions.



Mathematical calculations such as addition, subtraction, multiplication and division.
Eg : $2 + 3 = 5$



Logical operations such as comparison of two numbers.
Eg : $3 > 2$

1.2.2

Control Unit

The Control Unit communicates between manipulates and controls the hardware connected to the computer. It also performs tasks such as controlling input and output data, ensuring that data is sent to right place at the right time and being alert whether relevant signals are successfully received.



1.2.3 Memory Registers

It temporarily stores data and instructions that are being used by the Central Processing Unit. The storage capacity of the memory registers is very low when compared with other memory devices like hard disk. However its data access speed is very high.



Activity 1 - see Workbook 1.1

1.3 Let's learn about the evolution of Central Processing Unit

The Central Processing Unit of a computer system can be divided into four generations based on the electronic technology used to manufacture it.

1. First Generation (vacuum tubes)
2. Second Generation (transistor)
3. Third Generation (integrated circuit)
4. Fourth Generation (microprocessor)

While the above classification of the Central Processing Unit is a simple classification only for your understanding in grade 7, in many cases, the evolution of the Central Processing Unit has been shown in different generations in diverse ways too.

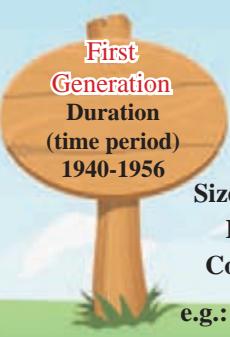
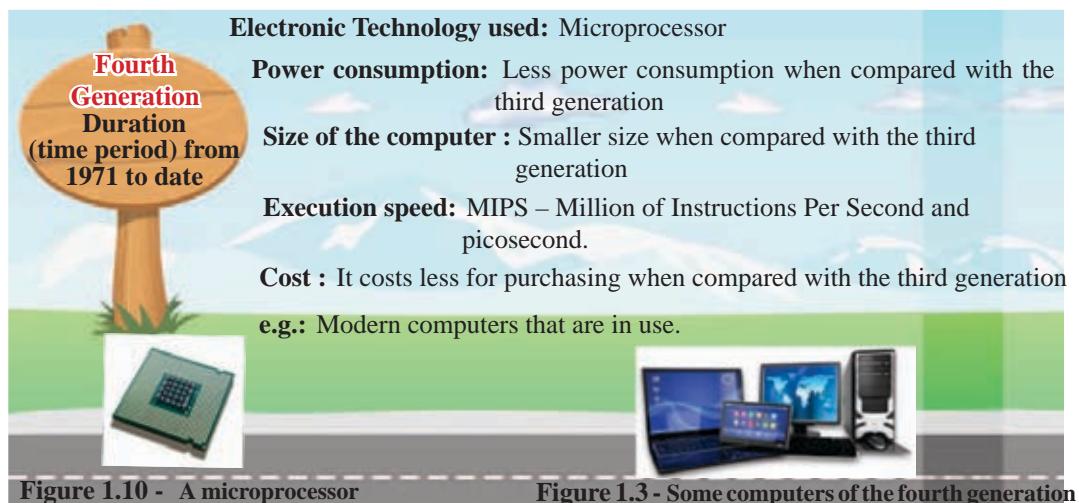
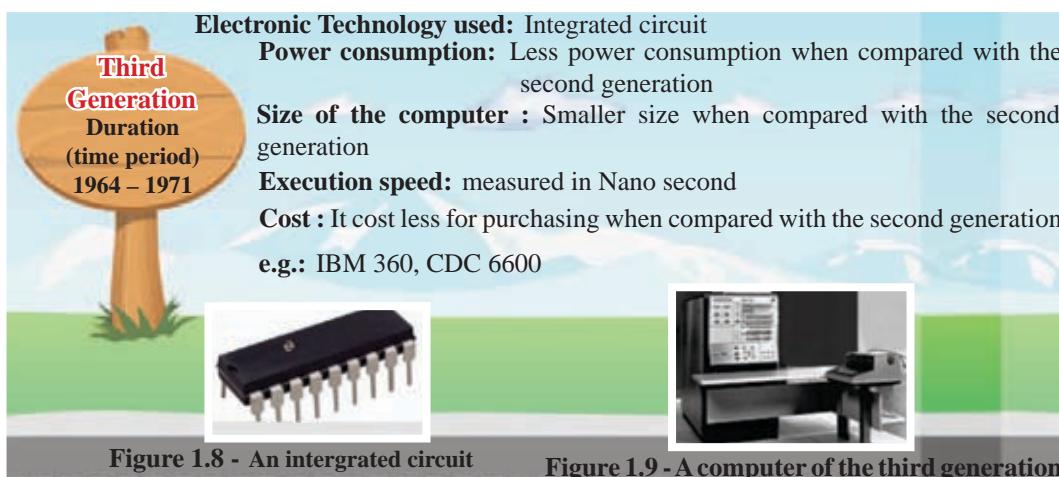
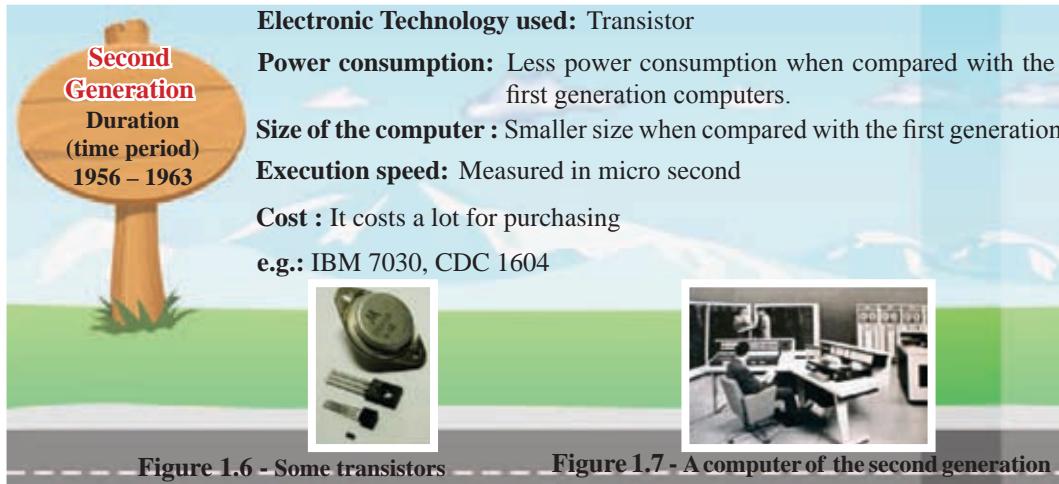
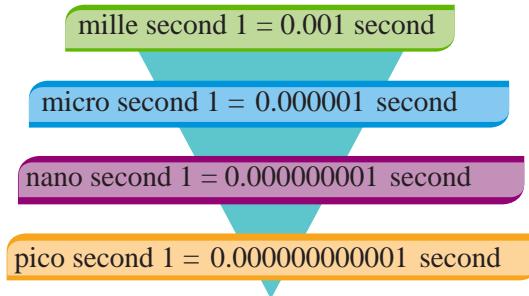
<p>First Generation Duration (time period) 1940-1956</p> 	<p>Electronic technology used: Vacuum tube Power consumption: A large amount of vacuum tubes (about 18000) were used and they emitted a lot of heat was required. A cooling system to control the heat. So, it led to a heavy power consumption. Size of the computer : As large as a room Execution speed: Measured in millisecond Cost : It cost a lot for production and maintenance e.g.: ENIAC, UNIVAC, EDVAC</p>  
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Figure 1.4 - Some vaccume tubes **Figure 1.5 - A computer of the first generation**



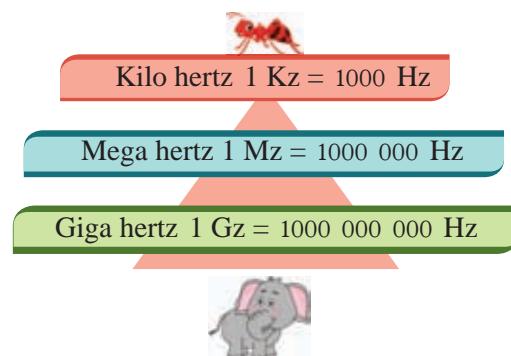




Speed of the Central Processing Unit

Speed of the Central Processing Unit also known as clock speed is the number of instructions executed in a second. The unit used to measure the speed of the Central Processing Unit is hertz (Hz).

In modern computers, the unit megahertz (MHz) or gigahertz (GHz) is used to measure the speed of the Central Processing Unit.



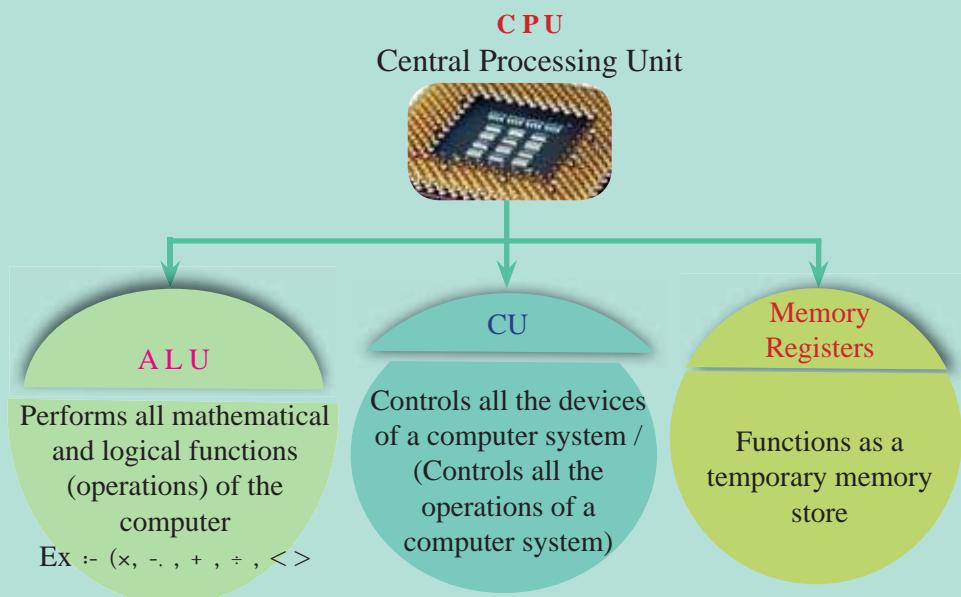
Activity 2 - see Workbook 1.2



Summary

- ★ (CPU) can be considered as the brain of the computer.
- ★ There are two main components of the Central Processing Unit.
 - Arithmetic and Logical Unit (ALU)
 - Control Unit (CU)

Additionally, memory registers too belong to the Central Processing Unit.



- ★ Speed of the Central Processing Unit increased gradually with the evolution of the computer.
- ★ Computer can be divided into four generations based on the electronic technology used in the Central Processing Unit.
 1. First Generation (vacuum tubes)
 2. Second Generation (transistors)
 3. Third Generation (integrated circuits)
 4. Fourth Generation (microprocessors)



02 Operating System



How do you work with the computer?

Ah... That's why an operating system is there as a mediator.

Operating system...?
What is that?

2.1 Let's learn about the Operating System

The operating system is a software. This software is necessary to fulfil the tasks using a computer. Many tasks are such as controlling hardware and software and providing a user interface are performed by it.



Provides a user interface to work easily with the computer.

Controls the functions of the Central Processing Unit (CPU)

Manages the computer memory efficiently.

Controls the activities related to storage devices.

Performs the tasks related to processing files and folders correctly.

Helps to protect the computer through usernames and passwords.

Manages the hardware.

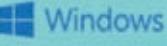


2.2 Different Types of Operating Systems

Some examples for operating systems used in computers.

Microsoft DOS (MS DOS)	
Microsoft Windows	 
Apple Macintosh or Mac OS	 
Operating systems produced using Linux	
Ubuntu	
Fedora	 

Some examples for operating systems used in mobile phones.

Android Used in smart mobile phones	 
iOS or iPhone OS Used in Apple mobile phones such as iPhone, iPad, iPod	 
Blackberry OS Used in Blackberry mobile phones	 
Windows Mobile OS Used in mobile phones like Lumia, HTC	 

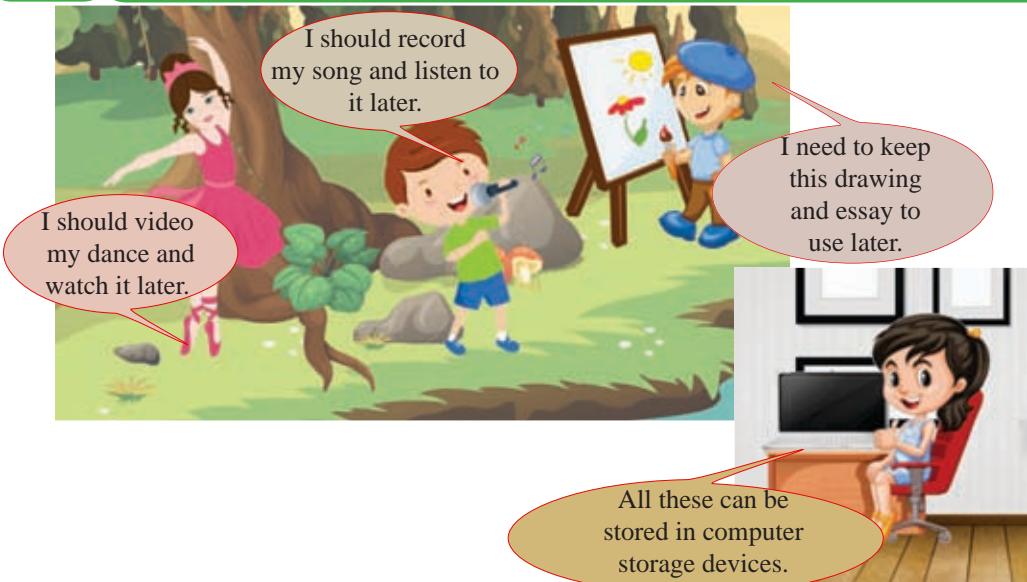




Activity 1 - see Workbook 1.1

2.3

Computer Storage Devices



Data and information are in different forms such as documents, photos, videos, animations, voices and sounds.

That data and information can be stored in computer storage devices. Similarly, computer programmes which give instructions to the computer can be stored too.

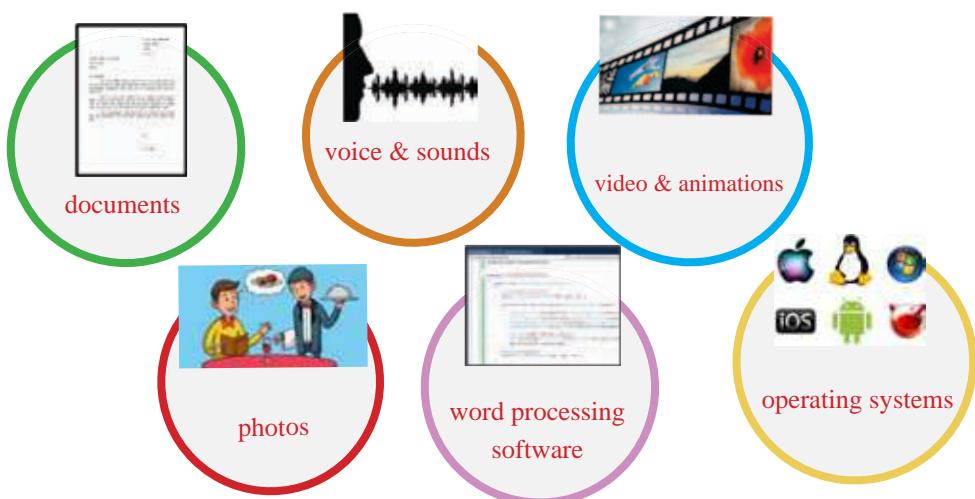


Figure 2.1 - Examples for data, information and programmes that can be stored in storage devices



Earlier, stone inscriptions and
ola leaves were used to
permanently store information.
Now, we use papers

In computers, storage
devices are used to store
information.

Then, how to store
information in a
computer?



Computer Storage Devices

Devices which are used to store data, information and programmes that belong to computer are known as computer storage devices.

Computer storage devices can be divided into several parts, according to their manufacturing technology.

1. Magnetic Media Devices. Eg: Hard Disk
2. Optical Media Devices Eg: Compact Disk
3. Solid State Media Devices Eg: Pen Drive

Functions and technology of each of the above media devices are different.

2.3.1 Magnetic Media Devices

Magnetic tapes, floppy disks and hard disks are known as magnetic media devices. They consist of a magnetic surface or a magnetic tape.

• Hard Disk

The hard disk consists of a magnetised platter and a moving metal head. There are two different types of hard disks, internal hard disks and external hard disks.



Magnetised platter and
metal head



A large amount of data can be stored permanently in the internal hard disk. It is a magnetic media device which is in the system unit. The external hard disk is a portable storage device. It can be chosen in various capacities such as 500 GB, 1 TB, 2 TB.



hard disk



portable external hard disk

- **Magnetic Tapes**

A magnetic tape is a thin plastic tape covered with a magnetic substance. It is used for recording sounds, images or computer data etc. The magnetic tape which was used often in the past has now become obsolete.



Magnetic Tape

- **Floppy Disk**

A floppy disk is a magnetic media device that can be used to store small files. It contains a capacity of 1.44 MB. It is used to carry data because it is an external storage device. But is becoming obsolete.

At present, there are disks which are produced by using the same technology used to produce the floppy disks such as zip disks and jazz disks. The capacity of these disks is greater than that of the floppy disks. But they are not used often.



floppy disk
1.44 MB



zip disk
250 MB



jazz disk
2 GB

2.3.2 Optical Media Devices

In optical media devices, data is read and written by laser beams. Optical disks are of several types. They all are portable.

- **CD - Compact Disks**

There are two types of disks such as recordable (CD-R) and rewritable (CD-RW). The capacity of these disks are 650MB and 700MB.



Compact Disks
CD-R and CD-RW



- Digital Versatile Disks (DVD)

They are of two types; DVD-R (data can be written once) and DVD - RWC (rewritable). The capacity of these disks are 4.7 GB, 8.5 GB, 15 GB and 30 GB.



Digital Versatile Disks
DVD-R and DVD-RW

- Blue Ray Disks

In these disks, data can be stored on several levels as 25 GB on each level.



blue ray disks

2.3.3 Solid State Media Devices

Solid state media devices are a type of device which write and read data electronically at a high speed. As they do not have moving parts as in hard disks and compact disks to write and read data, they are known as solid state media devices.



Solid state Drrive
(SSD drive)



Pen Drive



Memory Card

Figure 2.2 - Examples for Solid state divices media



Activity 2 : See Workbook 2.2



2.4

Let's Learn about File and Folder

There are a lot of different types of files in a computer, aren't there?

Yes, you can group them and store in folders.



File



myself.doc

Folder

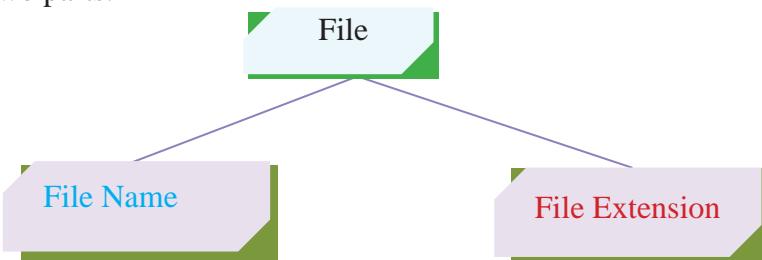


myfiles

2.4.1

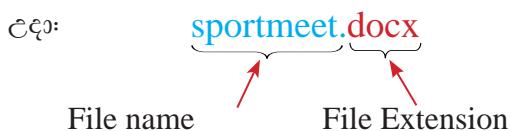
What is a File?

A file is anything that is saved in the computer such as a letter, a song or a photo. A file has two parts.



File name : Used to identify the file.

File Extension : Used to indicate the application software of the file.

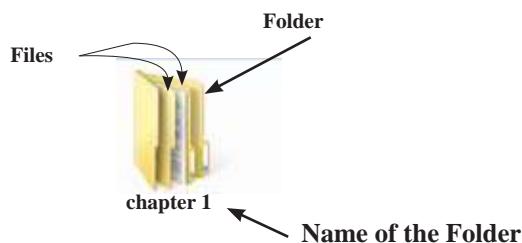


This is a file named 'sportmeet', created by a word processing software.

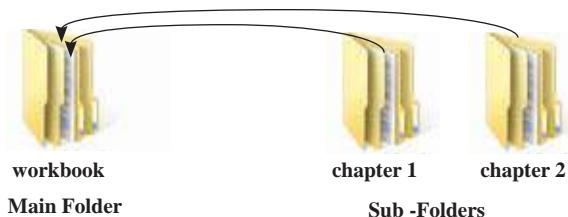


2.4.2

Let's learn about Folder



The place where files are stored is a folder. They are used to store files that are related to each other. It helps to keep files in order and to retrieve them easily and fast.



2.5

Let's create and edit a Folder

Creating a Folder

The methods used to create a folder can be different according to the operating system. Figure 2.3 shows one such method.

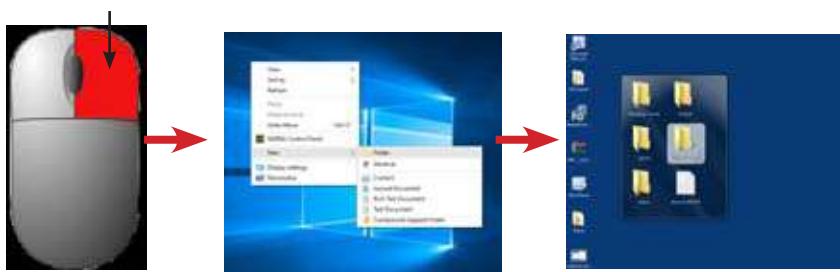


Figure 2.3 - Steps of creating a folder



Activity 3 : See Workbook 2.3



Saving Files in a Folder

Files created should be saved to reuse them later. To save a file, save or Save As commands are used.

When saving a file for the first time, despite the window selected, Save As command window will open.

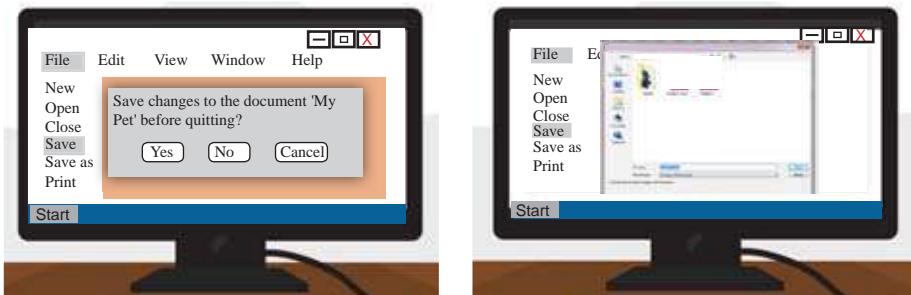


Figure 2.4 - Saving a file

After selecting the folder in which the file is to be stored, by giving the save command, the file is stored in the folder.

Opening a created Folder

The folder can be opened by taking the cursor on to the folder and double clicking on it.



Figure 2.5 - Opening a file

Coping and Moving a Folder

A folder can be copied or moved to another location. It can be internal location or an external storage device.

First, take the cursor to the location of the folder and select it.



To Copy

Step 1

- First, select the Copy command in the tool bar or the Copy command shown when the right button of the mouse is clicked.

Step 2

- Then, go to the location where it should be pasted and select Paste command.

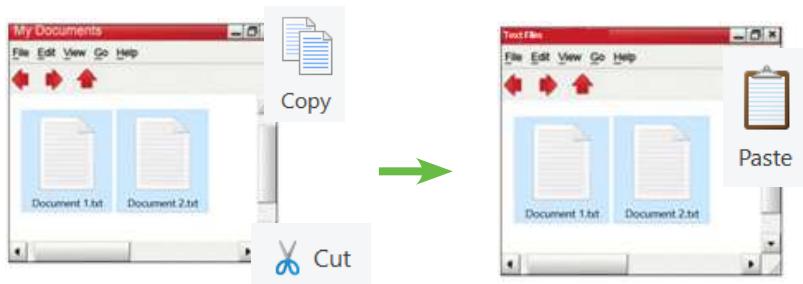
To Move

Step 1

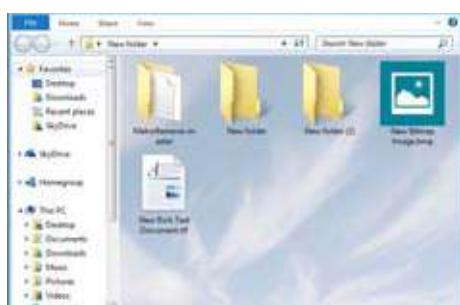
- First, select the Cut command in the tool bar or the Cut command shown when the right button of the mouse is clicked.

Step 2

- Then, go to the relevant location and select Paste command.



Changing the Name of a Folder



Step 1

To change the name of a folder, take the mouse pointer on to the folder, Then select Rename command after clicking the right button of the mouse.

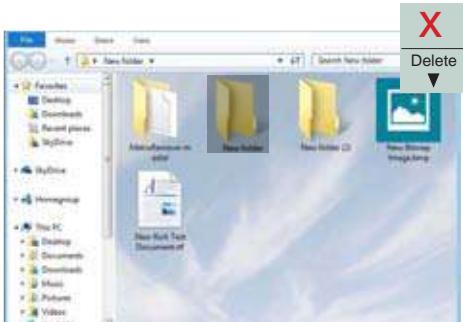
Step 2

Type the required name.



Deleting a Folder

Delete temporarily



Step 1

Select the folder that needs to be deleted.

Step 2

Press the Delete button on the keyboard.



Important

- ★ If you delete a folder that is in an internal location such as in a hard disk, it is deleted temporarily. That means, it can be retrieved when needed.
- ★ If you delete a folder that is in an external storage device such as a pen drive, it is permanently deleted. It cannot be retrieved again.

Delete Permanently



Step 1

To delete a file or a folder permanently, press Shift and Delete keys together.

Step 2

Select Yes command in the dialog box.



Activity 4 : See Workbook 2.4



2.6 Let's identify the Characteristics of a File and a Folder

There are characteristics in a file or a folder such as size, type and date modified. When the mouse pointer is taken on to the relevant file or folder and when right button is clicked a menu is displayed. Select the Properties command and you can see these characteristics.

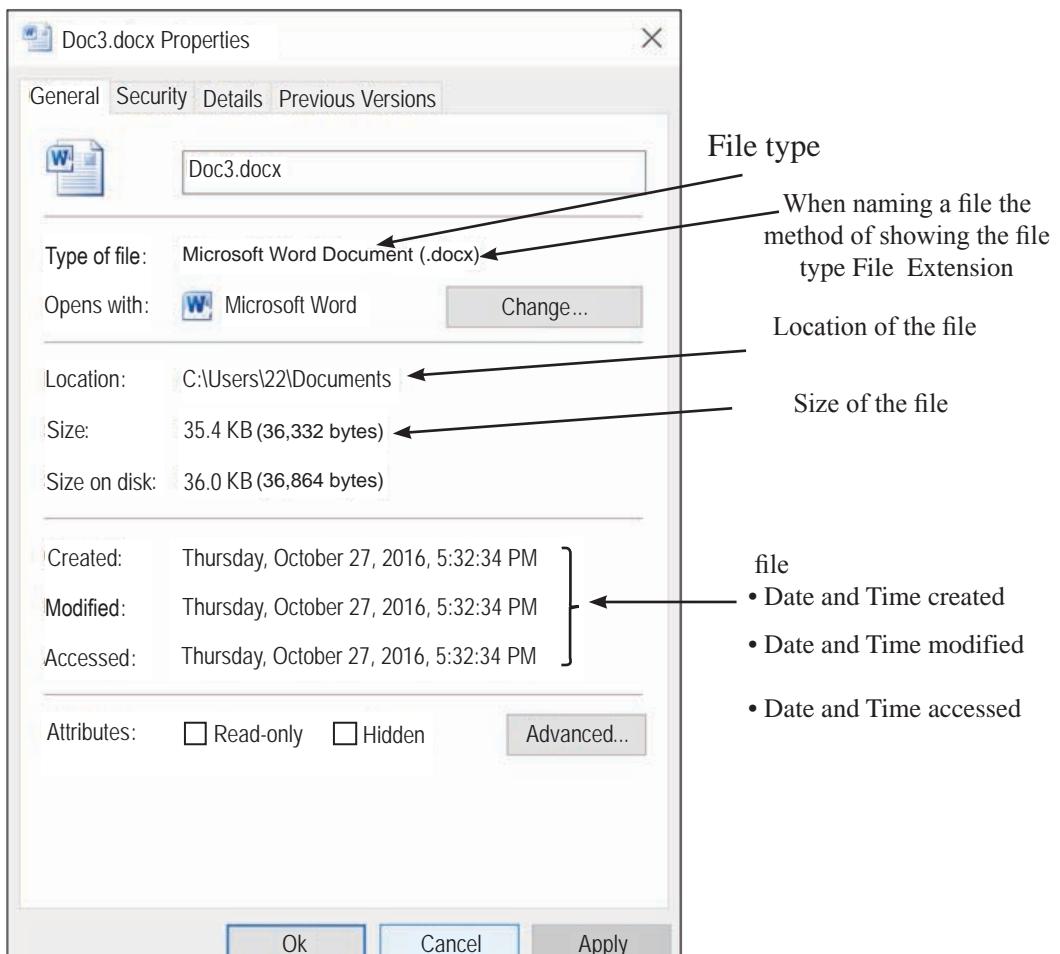


Figure 2.5 - Identifying the characteristics of a File



Summary

- ★ The operating system is the main software in a computer that enables communication between man and the computer and that controls the computer hardware and other software.
- ★ Operating systems like Microsoft Windows, Apple Macintosh, Linux are used in computers and operating systems like Android, IOS, Blackberry OS, Windows Mobile OS are used in mobile phones.
- ★ Data in various forms such as documents, photos, videos, animations, voice and sounds as well as programmes that give instructions to the computer are stored in computer storage devices.
- ★ Storage devices can be divided into three categories according to the technology used. They are magnetic media devices such as hard disks optical media devices such as compact disks and solid state media devices such as pen drives.
- ★ Several management activities such as creating files and folders, editing, saving, copying and moving can be performed.



03

Security of the Computer System



Children ...
do you know how to protect our
computers?

By locking the
computer laboratory

By locking
the system unit

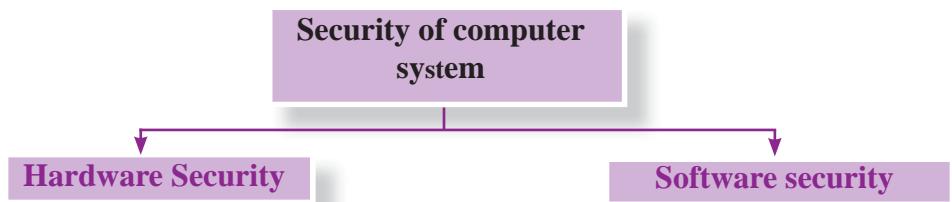
Well.., all your
answers are about the physical
security of computers.

As you know, a computer system
has both hardware and software components.
We should protect both of them.



3.1 Let's protect Computer System

It is essential to have adopted various prior protective measures for the safety and the durability of computers. The security of the computer system can be divided into two parts.



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3.2

Let's protect Computer Hardware

Computer Hardware

Any physical component of a computer that you can touch and see is called hardware. It has a definite shape. As there are hardware devices outside of a computer, there are hardware devices inside the system unit too.

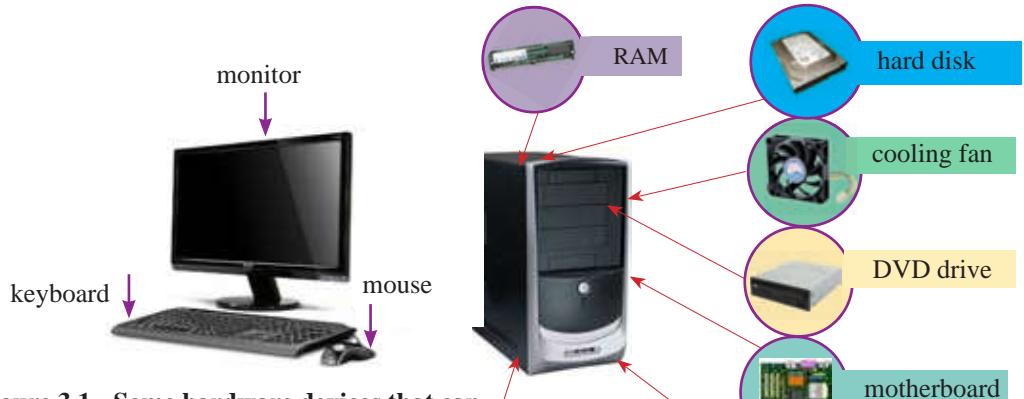


Figure 3.1 - Some hardware devices that can be seen externally



Figure 3.2 - Some hardware devices inside the system unit



Exercise 1: See Workbook 3.1

3.2.1

Possible Hardware Security Issues

Some main factors that may cause physical damage to hardware devices;

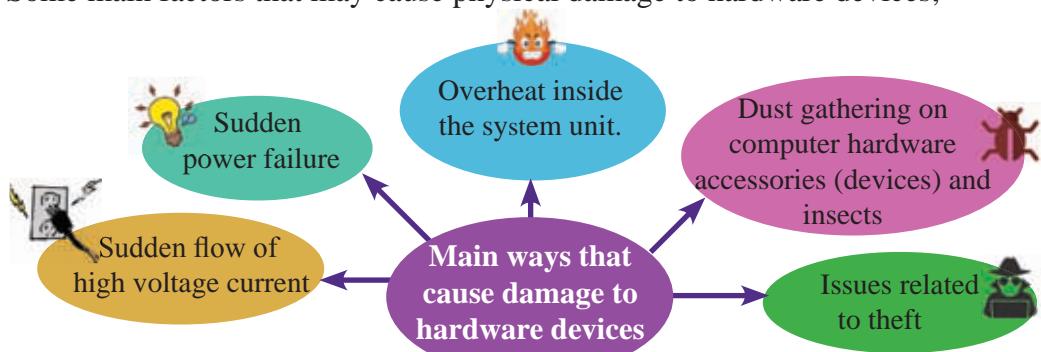


Figure 3.3 – Some ways that cause damage to hardware devices



3.2.2

Precautionary Methods to protect Physical Components of a Computer

1



Steps that can be taken to minimize damages caused to the computer by electricity

Using UPS



(Uninterrupted power supply - UPS)

Using Fuse



fuse

Using surge protection



surge protection

- ☺ During sudden power failure, UPS continues to supply power to computer without interruption for a while.
- ☺ So, it enables to give sufficient time to save the current work and shut down the computer.

- ☺ Prevents damages caused to computer due to sudden flow of high voltage current
 - ☺ It is widely used in power supply units and etc.
- However,
- ☺ Circuit Breakers-MCB are used in place of fuse due to easy use.

- ☺ Protects the computer from high voltage current and lightning
- ☺ Controls the flow of high voltage current to the devices and sends it to earth

2



Steps that can be taken to minimize overheating inside the computer

Installing air conditioners in the computer laboratory to control the heat



Fixing cooling fans on devices which get heated highly inside the computer



3

Steps that can be taken to protect the computer from physical harm



It is essential to keep the computer laboratory clean and tidy in order to protect it from physical harm such as dust gathering, high moisture and insects' menace. For that, some steps that we can follow can be shown as follows.



Let's remove the shoes when entering the computer lab



Let's avoid taking food and drink inside the lab



Let's prevent insects and rats from entering the lab



Let's make use of air conditioners whenever possible



Let's keep the lab without moisture (wetness)



Let's keep the lab clean and tidy

Let's protect the computer from physical harm

Figure 3.4 – Some steps that can be taken to protect the computer from physical harm

- By entering the lab without footwear, the computer lab can be kept free of sand and dust.
- Dust gathering on computer circuits (devices) can be prevented by cleaning all the computers in the lab at least once in every three months.
- Taking food in the lab can attract insects like ants to the food particles fallen on the ground
- Moisture in the laboratory may cause short circuit.



4

Steps that can be taken to protect from theft

- Making doors and windows of the laboratory in such a way as to be locked Property.
- Protecting system unit by locking it
- Using CCTV camera



Exercise 2 : see Workbook 3.2

3.3

Let's protect Computer Software Components

Computer Software

Data and information in the computer and programmes used for various tasks come under the category of software.

Example:

- Operating System
- Word processing software
- Files containing documents
- Files containing pictures / images



3.3.1 Possible Software Security Issues

Some instances that may cause possible threat to software are mentioned below.

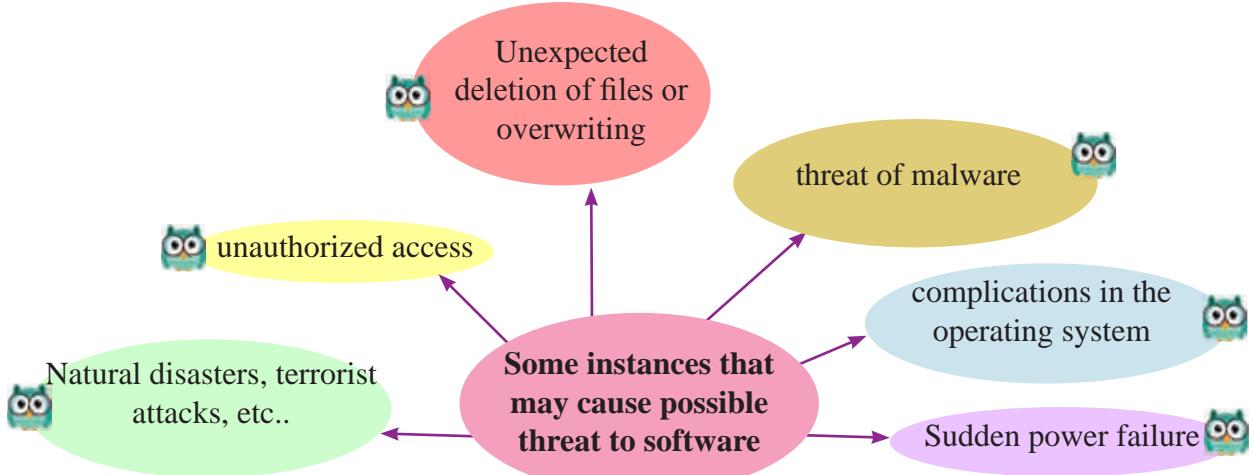


Figure 3.4 – Some instances that may cause possible threat to software

3.3.2 Precautionary methods to protect Software Components of a Computer

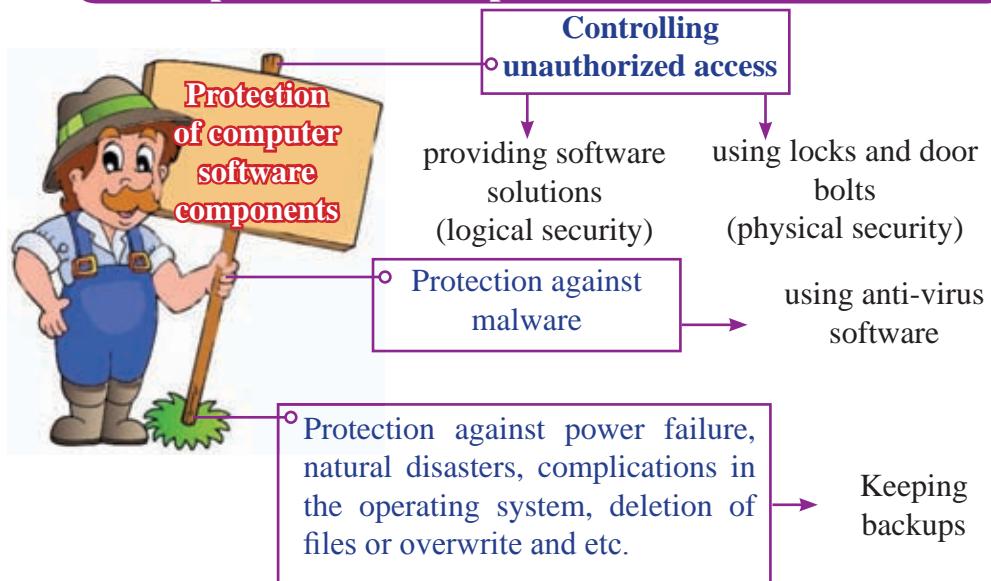


Figure 3.5 – Some steps that can be taken to protect software components



Exercise 3 : see Workbook 3.3





1

Providing Protection against Malware

Malware is a main factor that can cause a threat against the security of computer software.

What is malicious software (malware)?

Malicious software can be defined as any man-made software or part of a software that functions against the requirements of the computer user and designed to intentionally cause damage to

- software installed in the computer
- data, information stored in the computer
- computer networks
- and perhaps computer hardware devices as well.



There are several types of malware. Some of them are hybrid in nature, that is, they take different forms. From time to time they operate in different forms.

For example,

A malware that behaves as a computer virus at a time, behaves as a Trojan horse at another time.

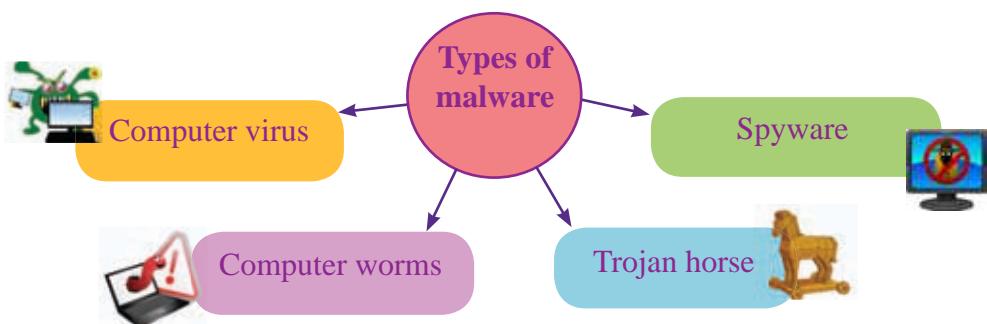


Figure 3.6 – Some types of malware



1. Computer virus

A computer virus is a main malicious software that gains entry to computer software and files and which is capable of replicating itself and designed to spread from computer to computer through portable devices. It can delete or modify data / information and it can corrupt software as well.

2. Computer worms

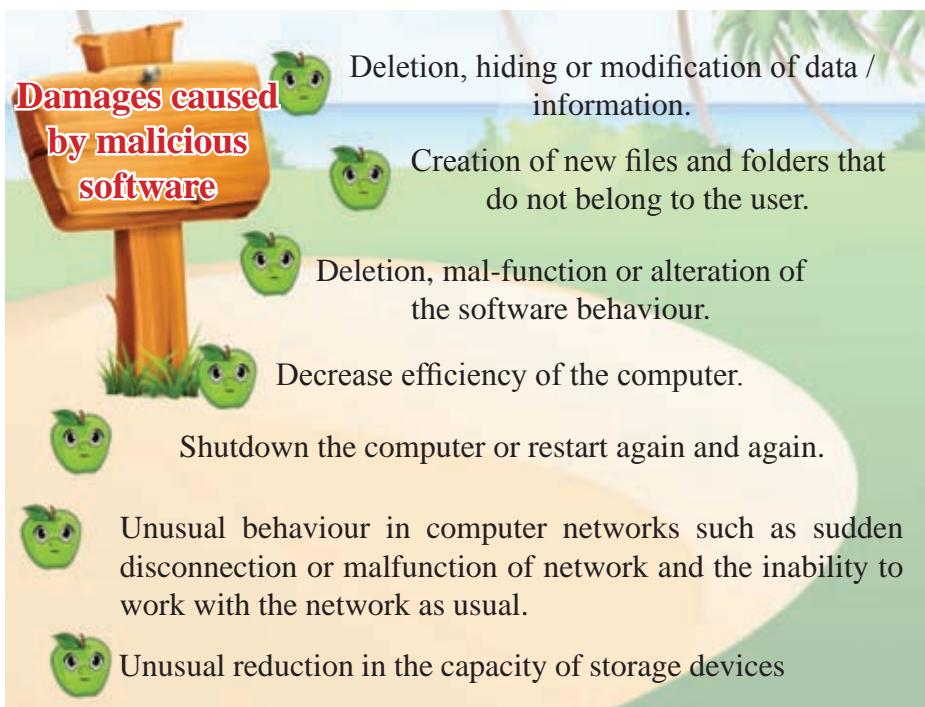
It causes damages similar to those of viruses. However, the main difference is that it spreads across computer networks or internet without the support of a host program or any human interaction.

3. Trojan horse

While it seems a useful software at first sight, it will cause damage to the user secretly once he begins to use it.

4. Spyware

It is a malicious software that secretly collects data about a person's computer usage, internet usage and etc.., and sends them to the relevant party without his knowledge. Data and information too can be provided to the other party secretly through this software.



**Possible solutions to
avoid or minimize
the harm caused by
malware**

Install an antivirus software and update it regularly.

Open an external storage device only after scanning it for possible viruses.

Activate firewall and make right settings.

If using internet, always access secure websites only.

Do not open black listed websites shown by antivirus software.

Do not click on pop-ups that suddenly appear on the screen.

Do not open suspicious emails or attachment.

For daily use, normally maintain a Limited User Account which can allow only a limited number of tasks.

Update all software installed in the computer including the operating system

Use only the original copy of licensed software. Use of pirated software may lead to the spread of malicious software.



Exercise 5 : see Workbook 3.5



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2

Keeping Backups

Keeping backups can be defined as a process of keeping copies of software components.

Copies kept as backups can be used in case the original copy is misplaced or damaged. Several storage techniques can be applied to keep backups.

eg:

- Compact disks (CD)
- Digital Video Disks (DVD)
- external hard disks
- Different location in the same computer (another folder or another drive)



3

Access Control

Providing software solutions for access control

It means the methods and services provided by several software to control access to computer and safeguard its resources.

- Using strong and difficult to guess password
- Creation of suitable user accounts
- Encryption

By following the above mentioned methods, not only access to computer can be controlled but also data and information can be protected from sudden loss.



Encryption is another way of protecting data. Encrypted data cannot be read and understood even if it falls into wrong hands. This method is adopted especially when sensitive data is to be communicated.

30

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Use of physical locks for access control

The computer system, data and information stored in the computers and software are protected by using devices and methods that are in the form of hardware in this method.

For this, following methods are used.

1. Keeping the computer at a secure place.

It is advisable to keep the computer that contains sensitive and valuable data, information at a secure place, so that it will be protected from thieves and unlawful entry of people.

2. Use of CCTV cameras and alarms

Tasks such as monitoring movements when necessary, provision of automatic urgent messages are done by this system.

3. Use biometric passwords

At present, finger prints and voice recognition methods are widely used to access computer systems and to open doors of the computer laboratory.



Unlike a conventional password, using biometric passwords is somewhat a modern method. Permission to access the system is granted only after recognizing authorized person's identity through finger prints, voice, face or iris.



Figure 3.7 Use of biometric passwords in mobile phones and laptop computers





Exercise 5 : see Workbook 3.5

Summary

- ★ When providing security to the computer system, both hardware and software components should be given equal attention.
- ★ Some possible hardware security issues;
 - sudden power failure
 - flow of high voltage current
 - overheating inside the computer system
 - dust gathering on computer hardware and insects menace
 - theft menace
- ★ For the protection of hardware, precautionary methods such as,
 - minimizing harm caused to the computer by electricity
 - minimizing overheating inside the computer
 - protecting computer from physical damage
 - protecting from thievescan be used.
- ★ Some possible software security issues;
 - attack of malware
 - unauthorized access
 - sudden power failures
 - natural disaster, terrorism etc.,
 - complications in the Operating System
 - unexpected deletion of files, or overwrite
- ★ For the protection of software, precautionary methods such as,
 - providing protection against malware
 - keeping backups
 - access controlcan be used.



04

Word processing



I have to prepare a letter. Do you know how to prepare a letter using a computer?

Is there any word processing software in your computer?

Word processing software?
What's that?

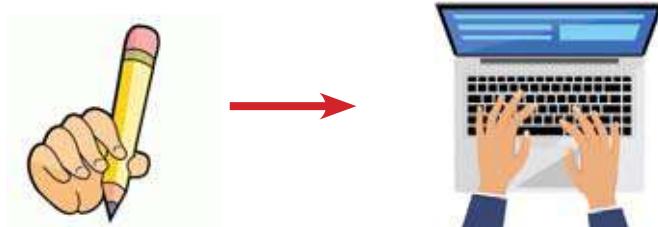


4.1

Let's identify Word Processing

Composing, editing (manipulating) and/or storing a text based document in any style is called word processing.

A word processor can be any tool from a simple pencil to a complicated computer software.



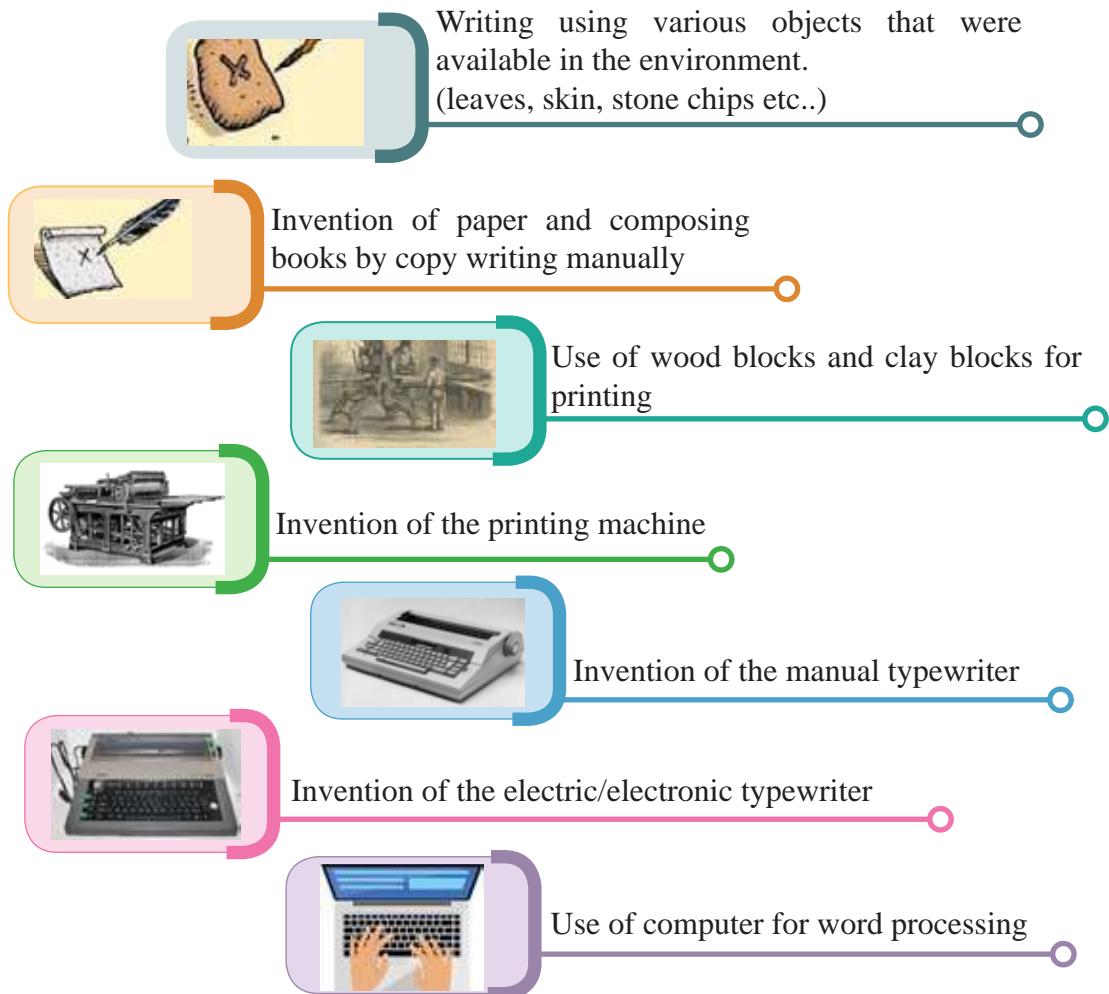
Exercise 1 : see Workbook 4.1



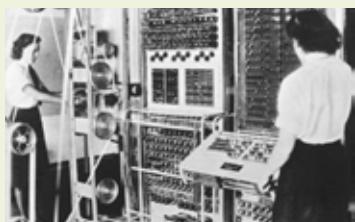
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History of Word Processing

Composing letters and documents started a long time ago. It started with writing using objects such as leaves, stone chips and skin and developed so rapidly as to use a computer software to prepare a document by now.



Special landmarks in the use of computer for word processing



Invention of the first computer for word processing (Decade 1960)



Creation of the first word processing programme (1979)



4.2 Let's learn about Word Processing Software

Word processing software can be defined as a computer programme capable of creating a document, editing its content, modifying (formatting) its colour or style and sometimes printing it in different styles.

Examples for word processing software



Microsoft Office
Word



Open Office
Writer



Corel Word Perfect

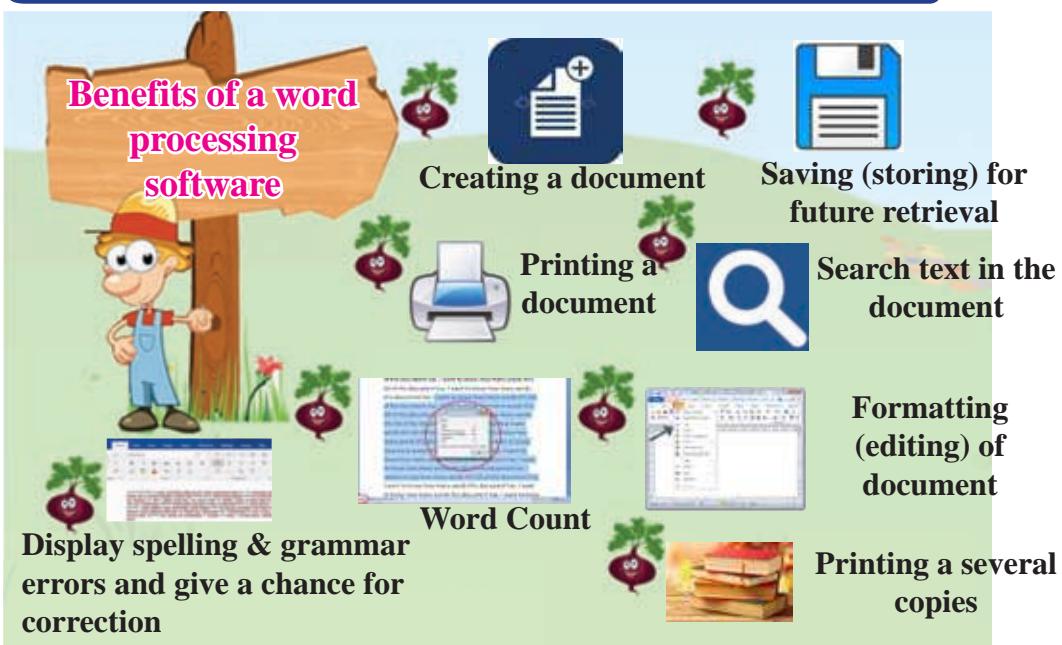


iWork Pages



Libre Office Writer

Benefits of using a Word Processing Software



Exercise 2 : see Workbook 4.2



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4.3

Let's learn about the Keyboard

It is essential to know how to use a keyboard when preparing a document with a word processing software. By practising to use the computer keyboard correctly, computer typing can become very easy and more efficient.

Typical Keyboard

The keys in the keyboard can be divided into several groups based on the function.

- **Control keys**
- **Function keys**
- **Character keys**
- **Navigation keys**
- **Numeric keypad**



Figure 4.1 Key arrangement on a typical keyboard

Control Keys

These keys are used alone or in combination with other keys to perform certain actions. The most frequently used control keys are Ctrl, Alt and Esc.

Character Keys

These keys are used to type in letters, numbers, punctuation marks and symbols when preparing a document.

Function Keys

The function keys are used to perform a specific task. The functionality of these keys may differ from programme to programme.

Navigation Keys

These keys are used for moving around on a webpage and for editing text. They include the arrow keys, Home, End, Page Up, Page Down, Delete and Insert keys.



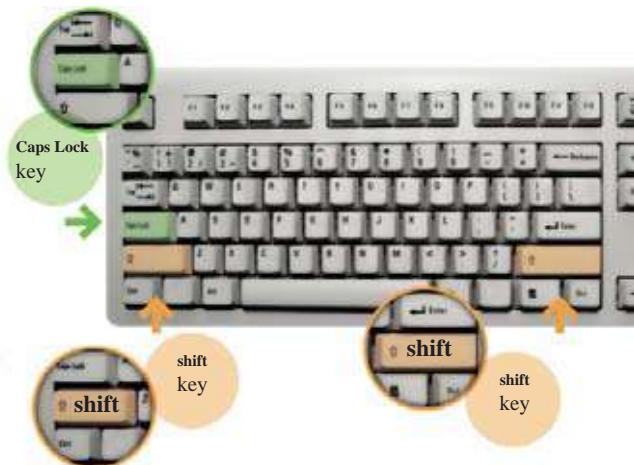
Numeric Keypad

The numeric keypad is used to enter numbers quickly.

How the keys are arranged in a typical keyboard is shown in Figure 4.1. It is also known as QWERTY keyboard considering the design for alphabets. In some cases, keyboards that are slightly different from this type of keyboard are also available.

Use of Caps Lock key

When the Caps Lock key is pressed once capital letter's are typed. When it is necessary to type normal letters, press the caps lock key again.



- Press Caps Lock key once space , C, D

- Press Caps Lock key again space a, c, d

Use of Shift Key

There are two shift keys on the right and left sides of the keyboard. When letter keys are pressed while keeping the shift key pressed, English capital letters are typed. Similarly when other keys are pressed while keeping the shift key pressed, the symbol on the top of the key is typed.

$$\text{[Shift Key]} + \text{A} \longrightarrow \text{A}$$

$$\text{[Shift Key]} + \text{?} \longrightarrow ?$$



Space bar – It is used to create an empty space between two words. If pressed once, a single space is created and if pressed twice, two spaces are created and so on.

eg:-

Pressing once Thank you
Pressing twice Thank you

Tab key – It creates a somewhat big space between two words. Pressing the tab key once creates a single space and pressing it twice creates two spaces and so on.

eg:

Pressing once Thank you
Pressing twice Thank you

Enter key – Pressing the enter key once, moves the cursor down to the next line.

eg:

Pressing once Thank
you

Arrow keys – It moves the cursor up, down, left or right on the screen.

Backspace key – When pressed once, it deletes any character, space, number or any other object to the left of the cursor. (cursor's current position)



Exercise 3 : see Workbook 4.3

4.4

Let's use the Keyboard correctly

Sitting with the correct posture



As you learned in Grade 6, computer typing can be more successful, when you sit with the correct posture in front of the computer. Improper sitting will cause pain in the hands, neck, back and in other joints.

Placing the Keyboard in the right place



When sitting for typing, it is essential to keep the body right in front of the space bar of the keyboard. So that, it will enable the user to manipulate all the keys in the keyboard more conveniently.

Refrain from keeping the wrist or palm on the table



It is to be noted that while typing on the keyboard, both hands should be raised above the keys of the keyboard. (hands should not touch the keyboard or the table). So that, it will prevent numbness and pain in the fingers. Typing with the habit of resting the palm or wrist on the table may cause prolonged pain or injury in the fingers in the long run.



Pressing the keys softly



Normally it is sufficient to press a key softly to type any character, number or symbol. Pressing a key with force is an unwanted action. By doing so, fingers may experience inconveniences and the keys in the keyboard may warn out sooner as well.

Giving rest to both hands while not engaged in typing



While working on the computer, it is essential to give a rest to both hands in circumstances where you are not engaged in typing. In such occasions, both hands can be kept freely on the table or the lap.



Exercise 4: see Workbook 4.4

4.5

Let's create a Document using the Keyboard

Before creating a document, it is necessary to know how to use a computer keyboard correctly



How to find a letter that we need out of many letters on the keyboard?

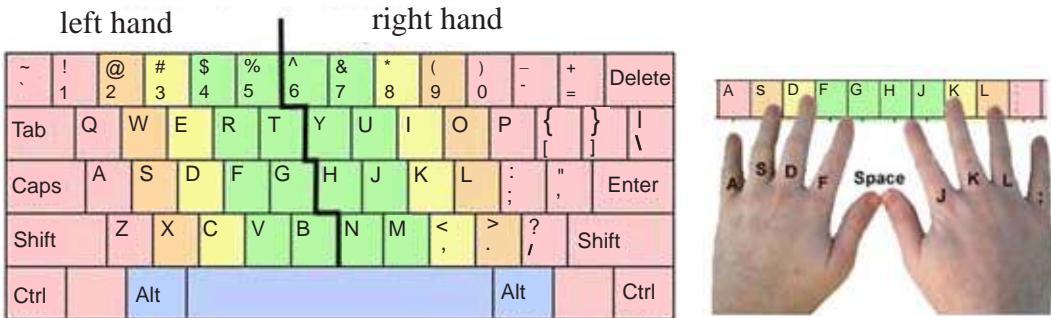
Before creating a document, one should have a good understanding about how hands should be kept on the keyboard and manipulate keys.



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It is essential to follow the measures given below in order to gain correct computer keyboard skills.

- While starting typing is started, keep the left hand fingers on keys A, S, D and F and right hand fingers on keys J, K, L.



- Use fingers of both hands and always start typing having placed both hands on the correct row of the keyboard.(as shown in the picture)



- Use appropriate keys for the appropriate fingers.





Touch typing

The act of typing quickly and accurately without looking at the keys is called touch typing.

4.6

Use of typing Tutor Software

There are a lot of benefits in learning touch typing. For this, use of a typing tutor software can be shown as the most suitable and the easiest way (method) to learn touch typing.

So, you can search and find several software by browsing the internet.

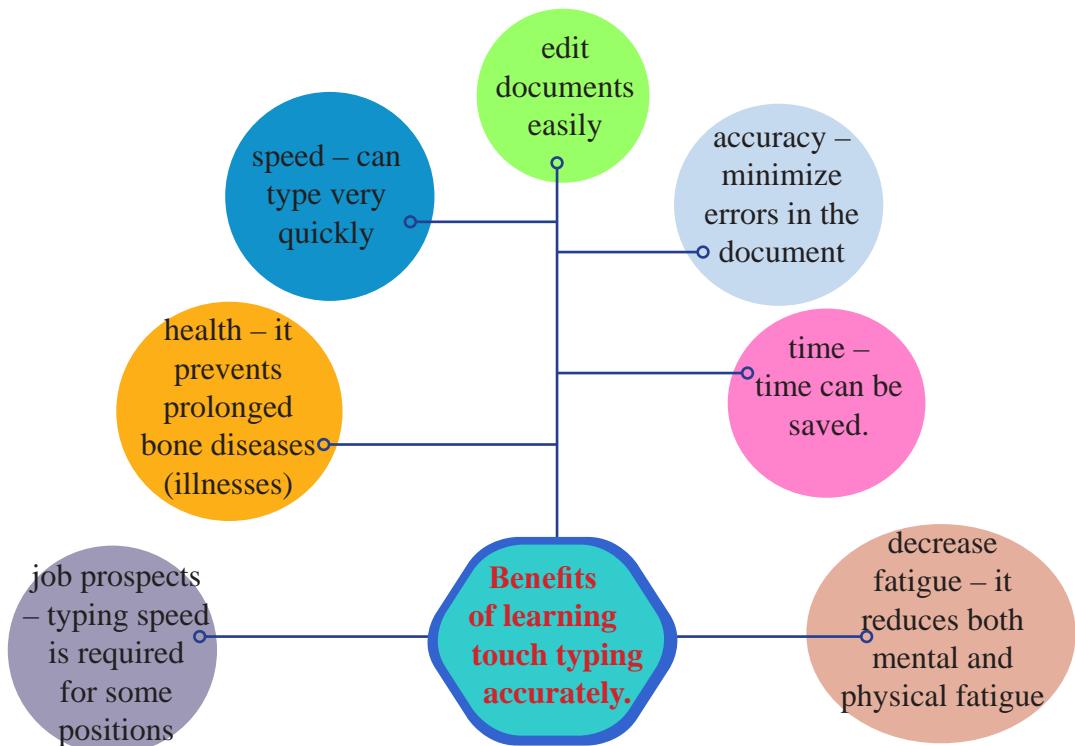


Figure 4.2 Some benefits of learning touch typing accurately



Exercise 5: see Workbook 4.5



Meanwhile, some examples for typing tutor software that can be downloaded freely from the internet and their web addresses (URLs) are shown below.

Software	Downloadable web address
Rapid Typing Tutor 	http://www.rapidtyping.com/downloads.html
TIPP10 	https://www.tipp10.com/en/download/getfile/4/
Typefaster 	http://www.typefastertypingtutor.com/



Exercise 6 : see Workbook 4.6



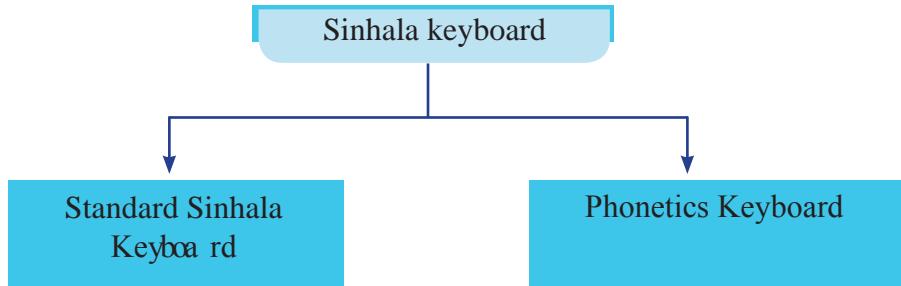
Basically the keyboard has been produced for English language. However, various techniques have been introduced into this keyboard for different nationals to type (in) their own language through this keyboard. In our country, Sinhala and Tamil keyboards are widely used.



Using Sinhala and Tamil Keyboard

Using Sinhala keyboard

Sinhala keyboards can be seen in two types based on the manner of entering Sinhala letters.



Sinhala characters can be entered to the computer both by character keys located in the keyboard and by phonetics keys too.

• Use of Standard Sinhala Keyboard

In this model, it is essential to remember the location of keys on the keyboard. This Sinhala keyboard is used (operated) in present computers and other data communication devices as well. This model is used in Unicode system too.

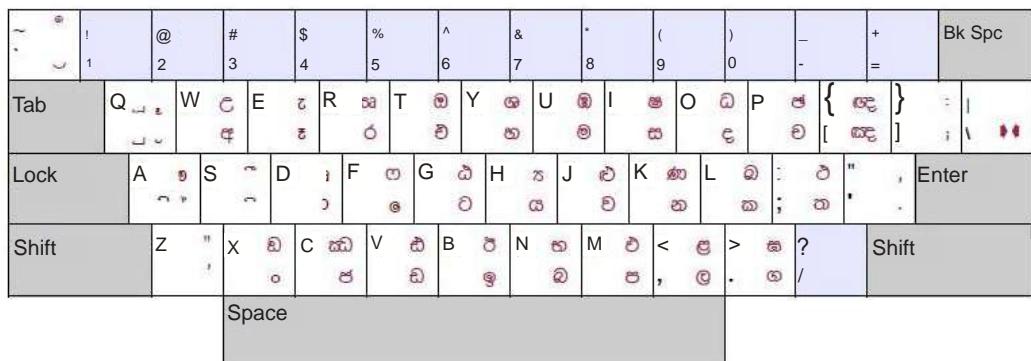


Figure 4.3 – Standard Sinhala Keyboard (Wijesekara Sinhala Keyboard)

• Phonetics Keyboard

This is somewhat an easy method and the keyboard can be used according to Sinhala sounds (based on Sinhala sound). Therefore it is not necessary to know the location of the appropriate letters. You can send SMS messages in mobile phone using this method. Therefore, you are already familiar with this method.





Figure 4.4 - Sinhala Phonetics Keyboard

Use of Tamil Keyboard

Unicode keyboard is mostly used when typing in Tamil letters.



Figure 4.5 - Tamil Phonetics Keyboard



To read a letter prepared by using Unicode font, it is not necessary to have installed Unicode font in the computer of the user. However, to read a letter prepared by using a font other than Unicode font, the relevant font should have been installed in the computer of the user (user's computer).

The Unicode font is an open source software. So it can be downloaded freely from the internet.

In addition to Unicode font, several other fonts such as FMBindumathi, FMAbhaya etc.. can be used to type in Sinhala letters while several other fonts such as Bamini, Kalaham etc., can be used to type in Tamil letters.





Exercise 7 : See Workbook 4.7

Summary

- ★ Creation of letters and documents needed in day to day life easily is called word processing.
- ★ Skill to use the keyboard correctly is essential in word processing through the computer.
- ★ The keyboard that we use normally (day to day) is identified as QWERTY keyboard.
- ★ The QWERTY keyboard can also be used for other languages such as Sinhala and Tamil.
- ★ The Typing Tutor software can be used to practice the use of keyboard correctly.





5.1

Decomposing the Problems

A problem can be simple or complex according to its nature. It is rather difficult to perceive and understand a complex problem when compared with a simple problem. It is essential to understand a problem thoroughly before going to solve it. So it will be easier to find a solution to a complex problem after decomposing it into smaller sub-problems.

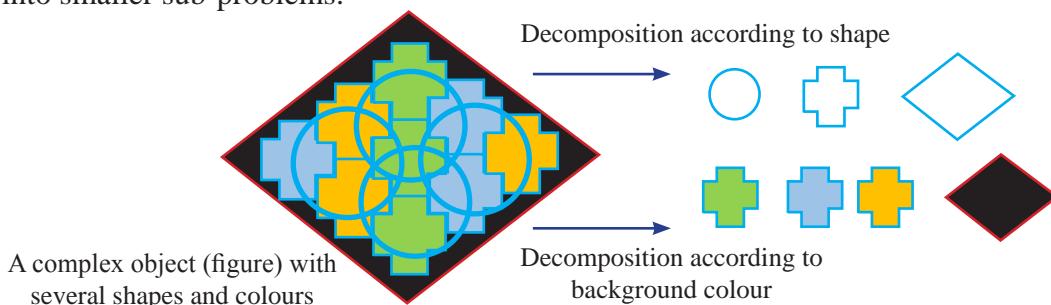


Figure 5.1 - Decomposition of a complex object

Likewise, a complex problem that seems difficult to solve at once can be broken into several smaller sub-problems as much as possible. Then these sub-problems can be solved easily one by one.

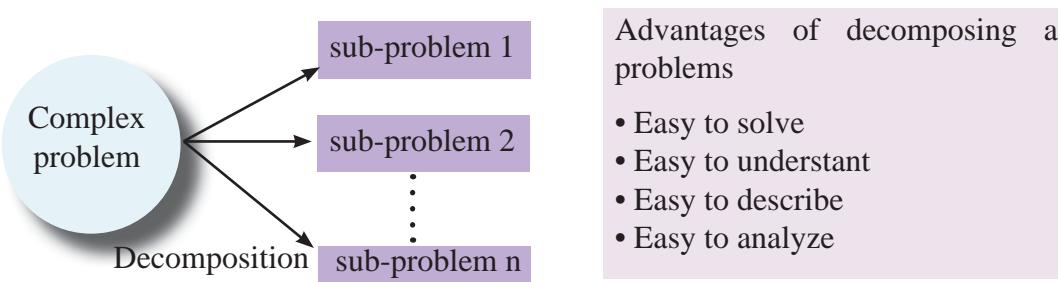


Figure 5.2 - Decomposition of a complex problem into sub-problems

eg:- In grade 06, you have learnt about the basic mathematical function which include addition, subtraction, multiplication and division of a whole number. Additionally in the first term of graded 07, you have learnt about solving sums when more than one mathematical functions are used with a whole number.

Consider the following sum (Refer Figure 5.3).



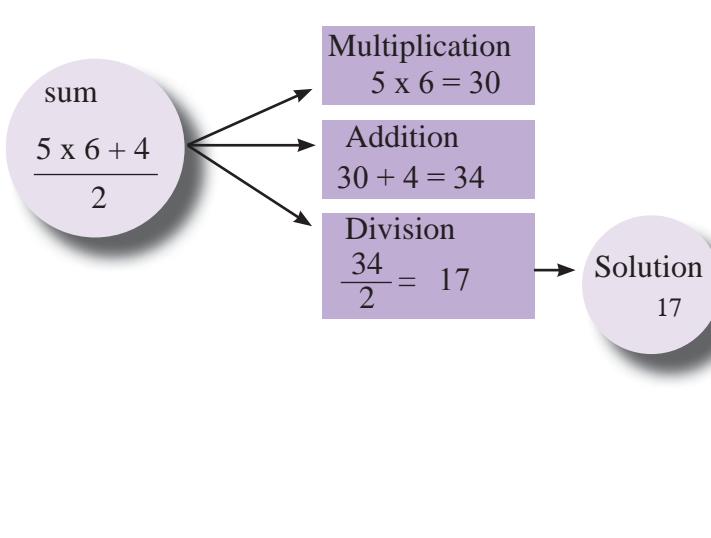


Figure 5.3 - Breaking a mathematical sum into sub-problems



Activity 1 : See Workbook 5.1

5.2

Use of Flow Chart to represent Algorithm

Symbols in flow chart to represent algorithm have been explained in grade six. An algorithm may include one or more control structures out of three. Three types of control structures are shown below.

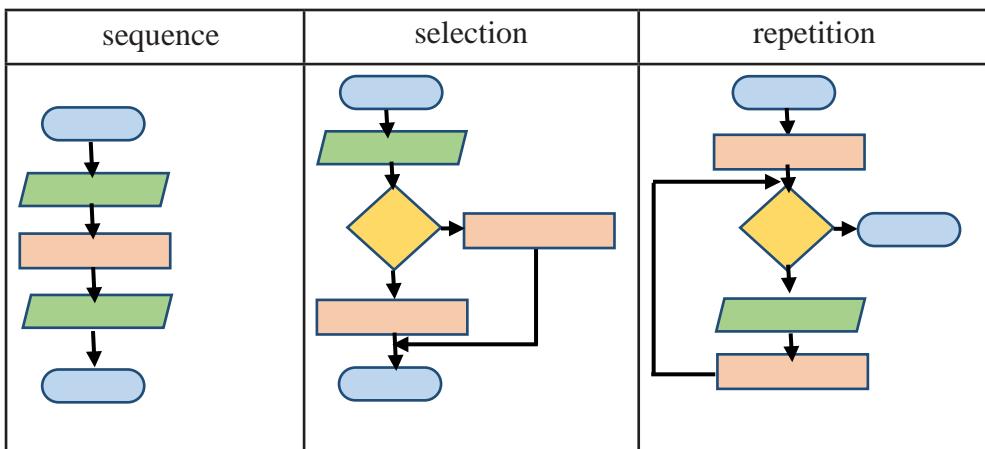


Figure 5.4 – Types of control structures shown in flow chart





Activity 2 : See Workbook 5.2

5.2.1 Sequence

Execution of instructions in an algorithm sequentially from top to the bottom is called sequence. Let's see how it is represented in a flow chart.



e.g. : Covering a textbook

Let's represent covering a textbook in a flow chart.

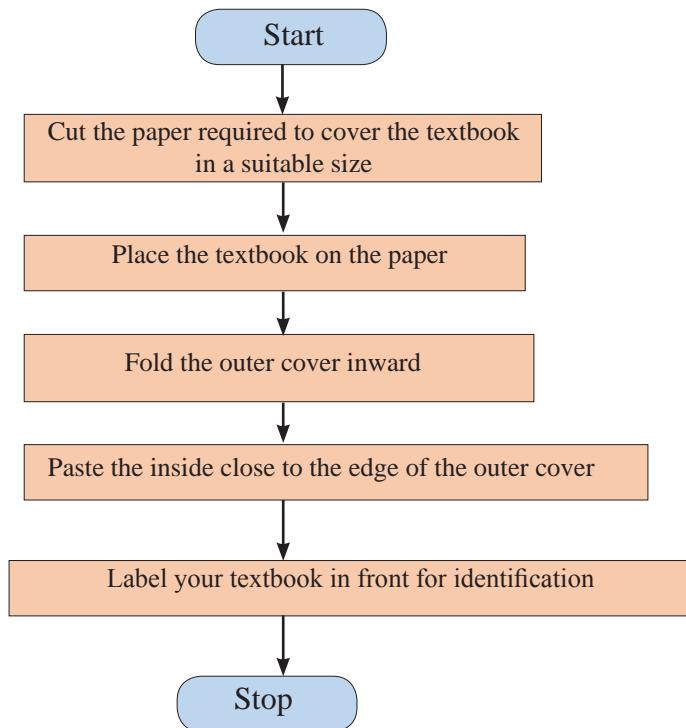


Figure 5.5 - Flow chart: Covering a textbook



Activity 3 : See Workbook 5.3

e.g. 2 :Finding the area and perimeter of a rectangle

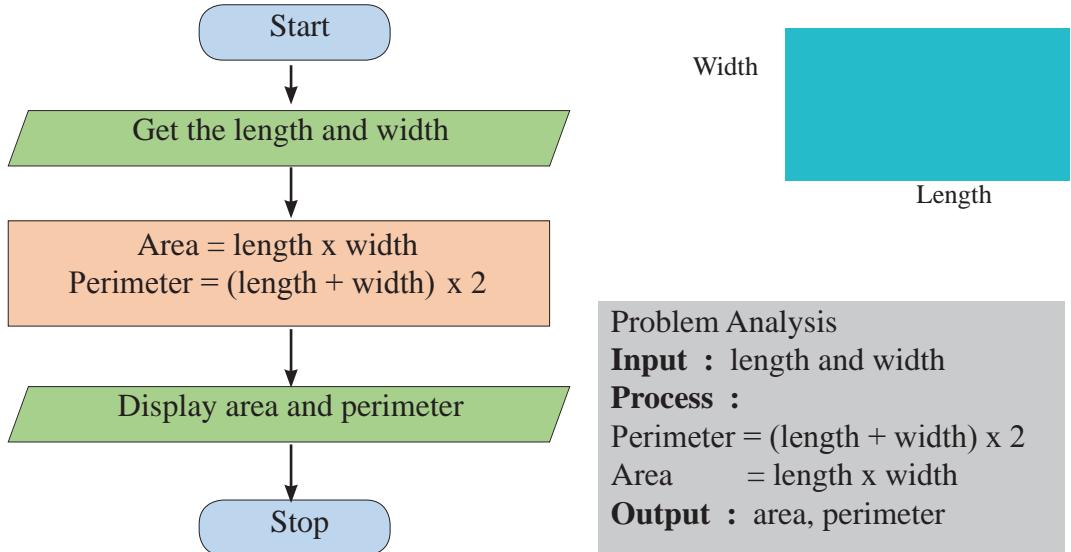


Figure 5.6 – Flow chart: Finding area and perimeter of a rectangle



Activity 4 : See Workbook 5.4

5.2.2 Selection

Here it is expected to make a making decision on which step to follow depending on the condition given by the algorithm. In a selection, the condition is checked first and the flow direction is chosen based on whether the condition is true or false.



For example, let's consider an instance where a ceiling fan is operated. When the switch is on, the ceiling fan operates if there is power. If there is no power, the ceiling fan does not operate.



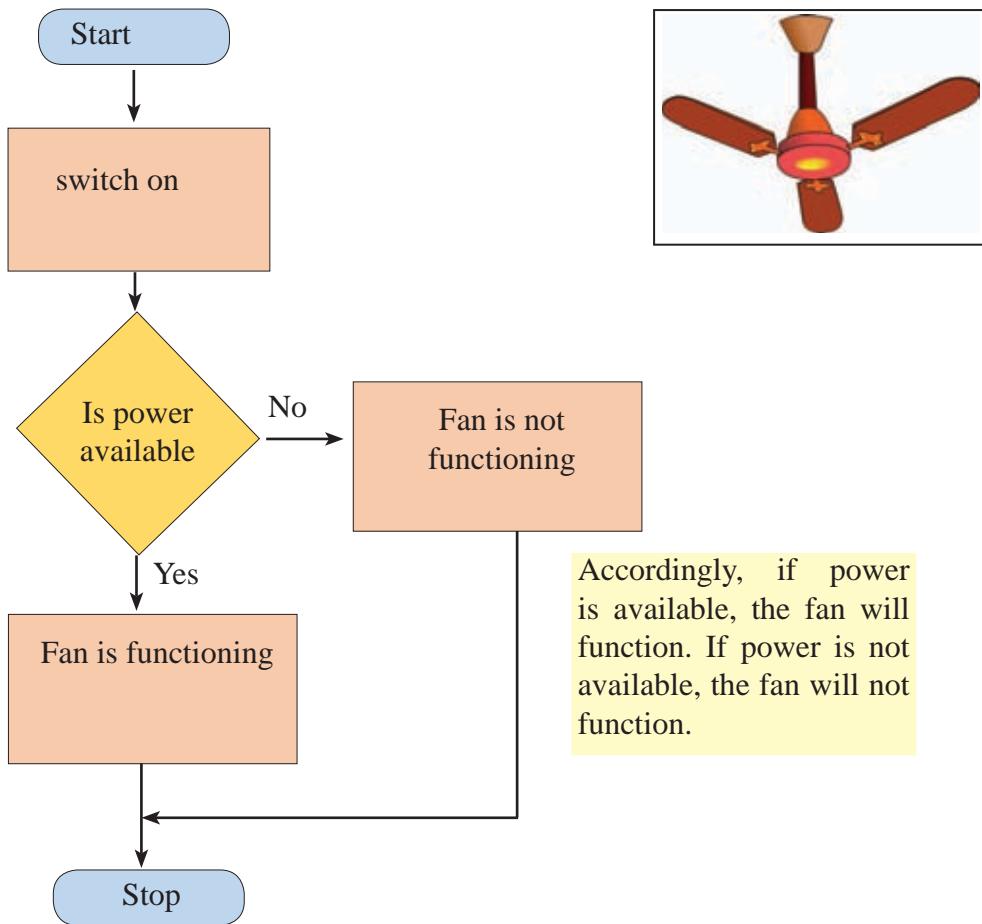


Figure 5.7 - Flow chart functioning of a font

5.2.3 Repetition

Execution of an instruction or several instructions in an algorithm repeatedly until a condition is satisfied is called repetition. A repetition will take place depending on whether a condition is satisfied or not satisfied. For example, natural water cycle is a process that takes place repeatedly.



As an example, do you know that since your childhood, you used to save money by using a till to put money? The one who is used to save money in a till, will always put money (again and again) repeatedly until the till fills. So, here the process of putting money is repeated until the condition that is ‘till becomes full’ is satisfied.

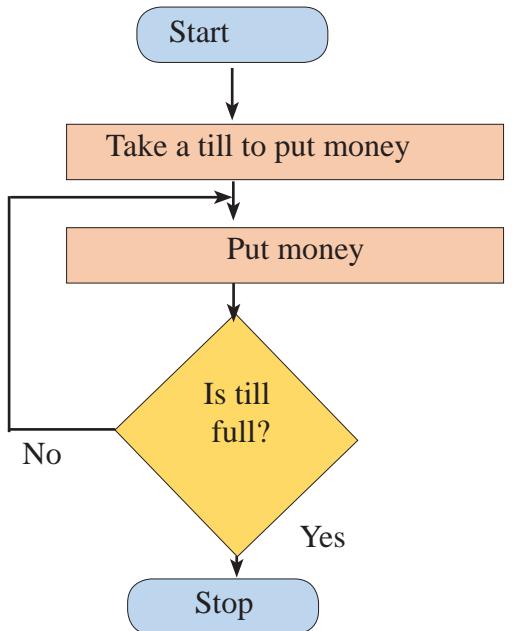
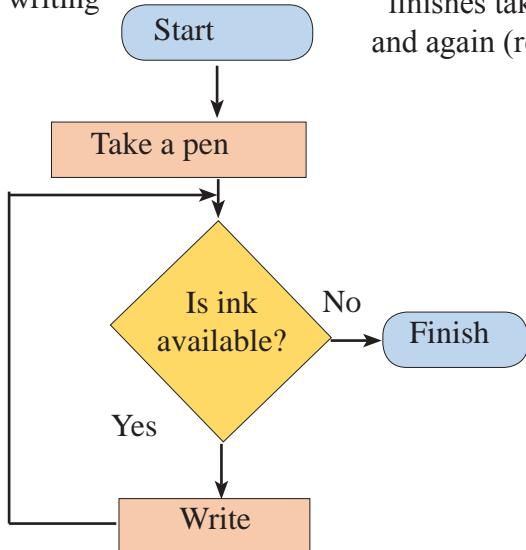


Figure 5.8 - Flow chart: Putting money into a till

Checking of condition for repetition can take place in two ways.

1. Check the condition before repetition starts.
2. Check the condition after functioning once.

Checking whether ink is available before writing



act of writing until ink finishes takes place again and again (repeated)

check whether ink is finished every time after writing

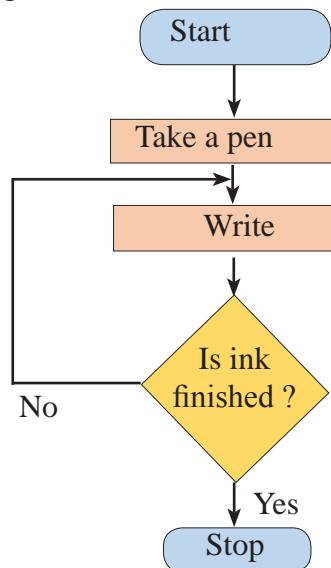


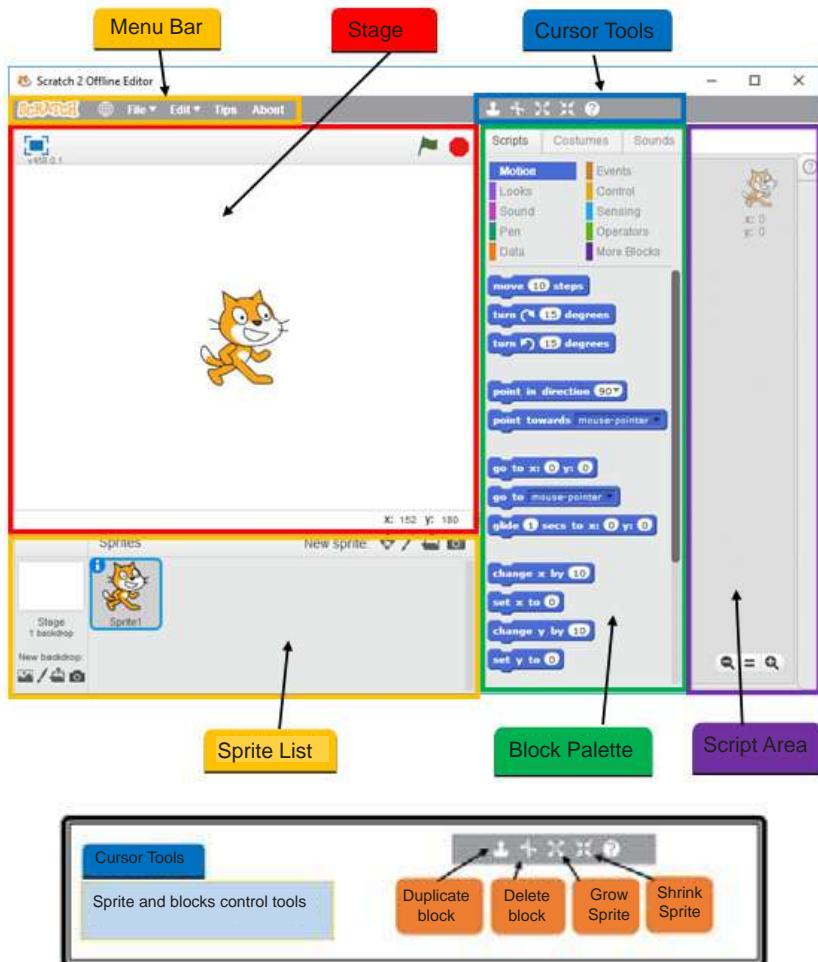
Figure 5.9 - Flow chart: Writing with a pen until ink finishes



5.3 Introduction to Scratch Programming and Programme Development

Scratch which is a visual programme development software is an interactive, attractive and a simple programme with command blocks. This is a Free and Open Source Software (FOSS) and therefore it can be downloaded freely from the following website. <http://www.scratch.mit.edu>

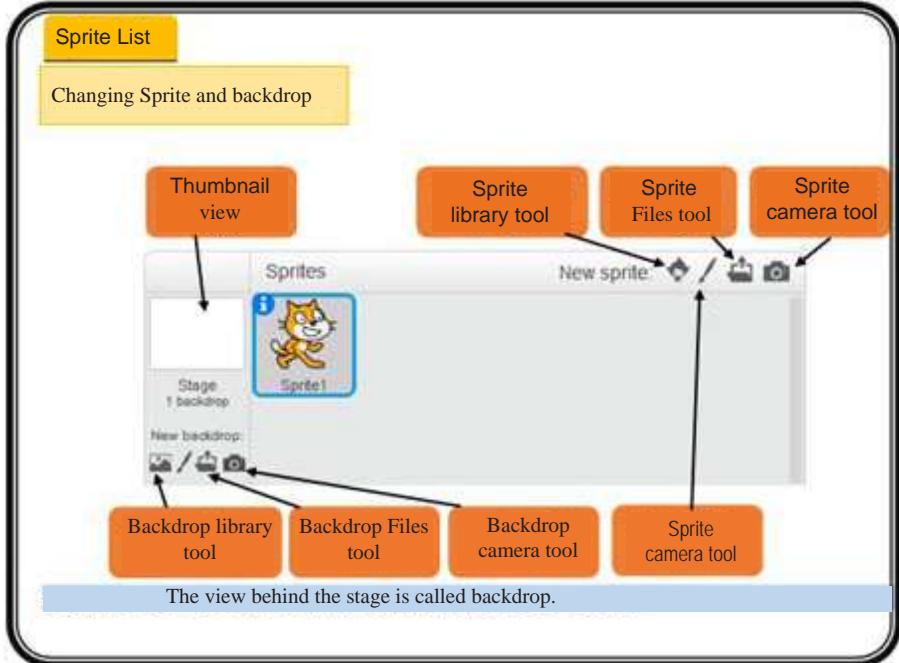
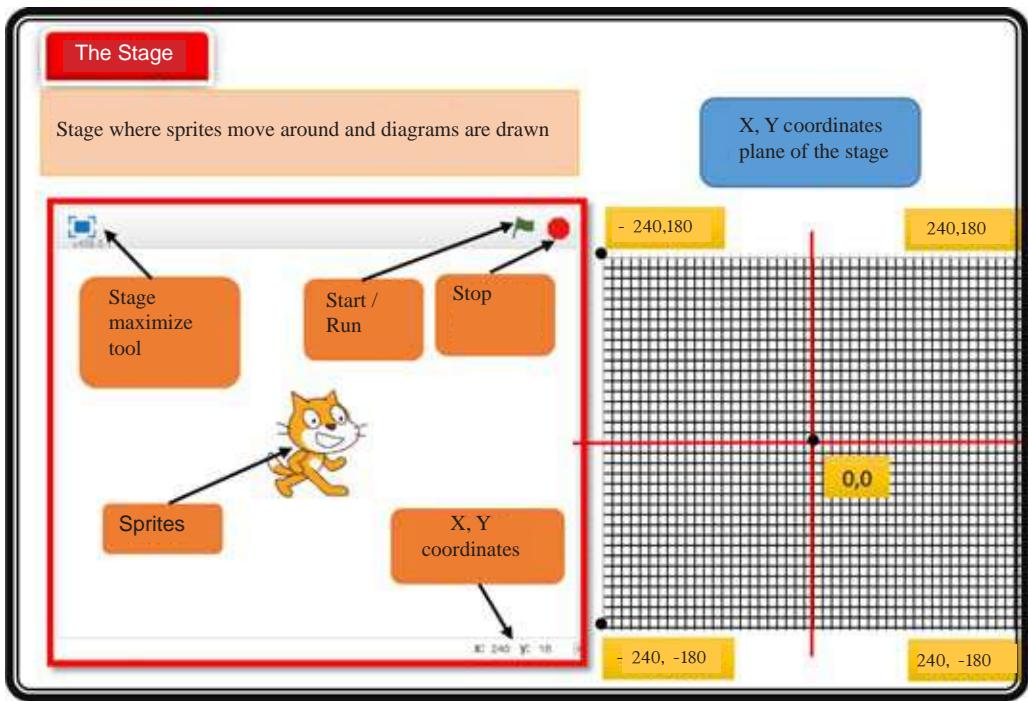
5.3.1 Scratch 2.0 introducing Interface with Visual Development Environment



Sprite and blocks control tools

Note: All these interfaces are in Scratch 2.0 (version 2).

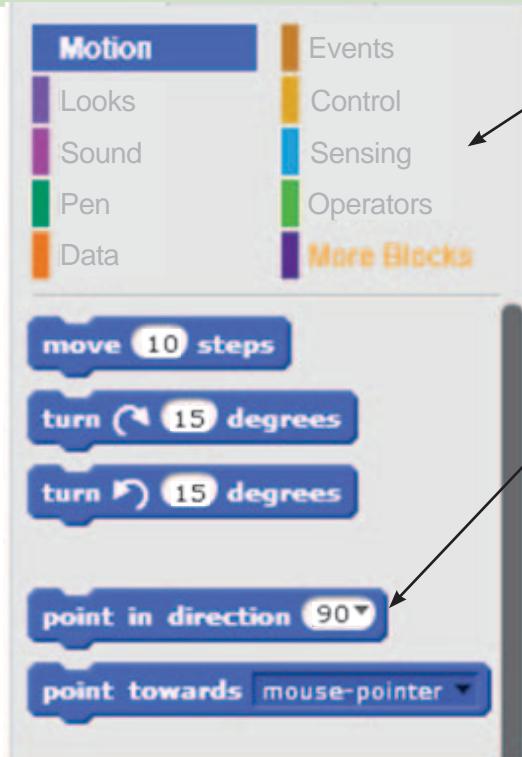




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Blocks palette

Block and the classified tab within it



Blocks Tabs

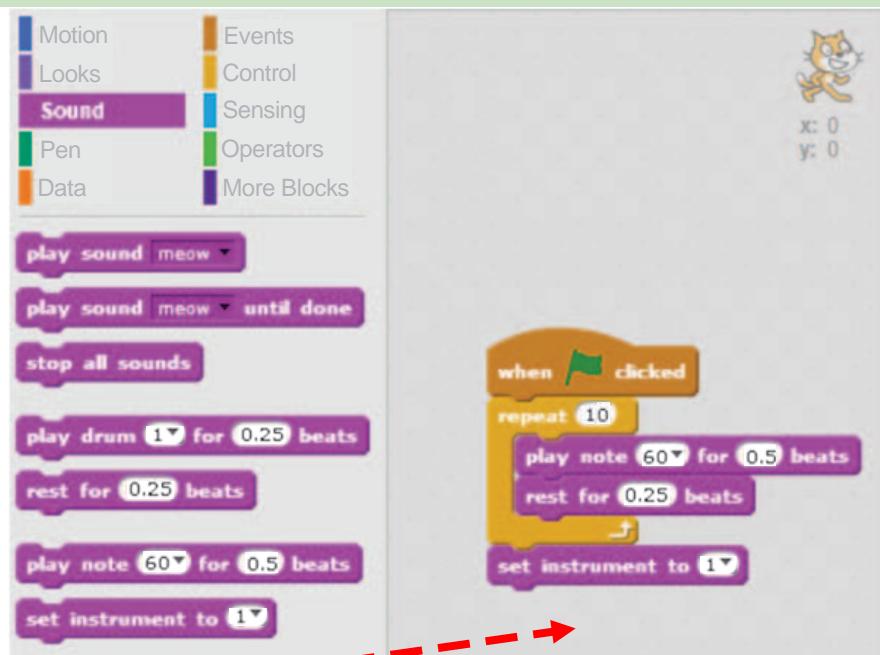
The blocks categories are all colour coded and the relevant block is displayed under the relevant tab.

Blocks

A list of blocks that shows the action on the stage is displayed.

Script Area

This is the area where you apply blocks and create (develop) programmes.



Creating a programme by dragging a block onto the ScriptsArea

Block classification	Block	Example
Motion Includes command blocks pertaining to move the sprite on the stage.		<p>Sprite moves 100 steps from the position 0, 0</p>
Looks Includes command blocks pertaining to communication among the Sprites.		<p>Sprite, after saying “Hello!, Can you win” thinks “No, I’m the winner”</p>



Sound	<p>Includes musical instruments and basic notes to create sound and sound patterns</p>	<p>When any key pressed drum sound is played and then “s” note is played</p>
Pen	<p>Includes colour and tools needed to draw lines and various shapes on the stage.</p>	<p>draws a line 50 units long in red colour</p>
Data	<p>Includes command block pertaining to make a variable and assign value.</p>	<p>Count variable value is changed by 1 and then the value is shown</p>
Events	<p>Give instructions pertaining to the execution (running) of all other blocks</p>	<p>When run tool (green flag) clicked, the total of variables a and b is shown</p>



<p>Control</p> <p>Includes command blocks with selection and repetition to control execution of other blocks(scripts)</p>		<p>According to the input, only one output out of the two is displayed.</p>
<p>Sensing</p> <p>Receive input</p>		<p>size of the sprite changes</p>
<p>Operators</p> <p>handles mathematical operations</p>		<p>display the total of numbers from 1 to 10</p>



Activity 5 : See Workbook 5.5

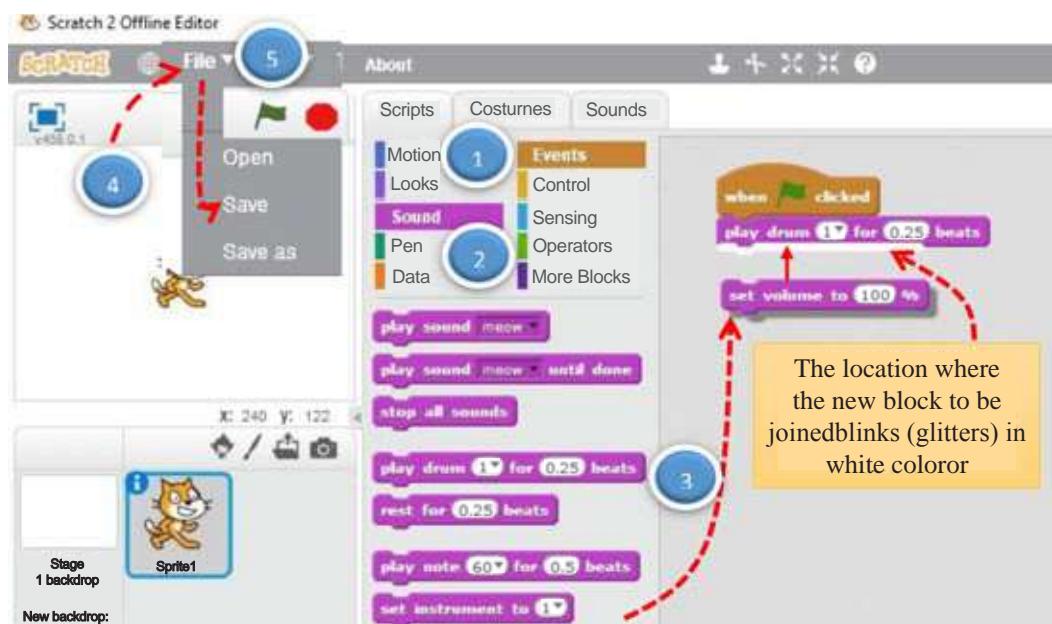


5.3.2

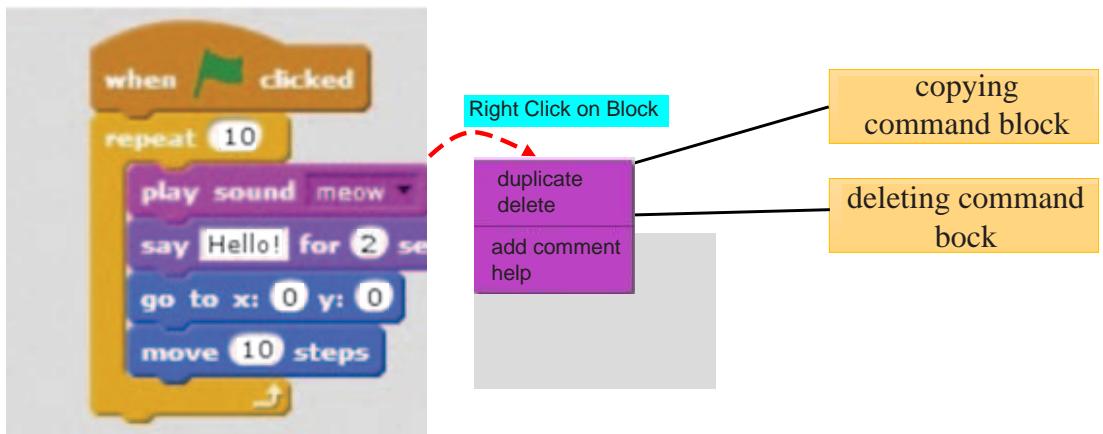
Programs Development of Programmes

Follow the instructions given below to create a programme using scratch

- Run scratch software
- Double click on scratch icon
- Select types of command blocks under Script Tab
- Click on script tab and select block types
- Drag the command block and drop on Script Area
- Drag the blocks to script area
- Develop the programme
- Save as a file
- Run the programme



Managing Command Control Blocks



5.3.3 Development of programme with a Sequence

1. Playing basic notes with piano

Connect the control blocks (scripts) shown below sequentially. Then change the values of the control blocks as shown in the figure below. Run the programme and check the voice.

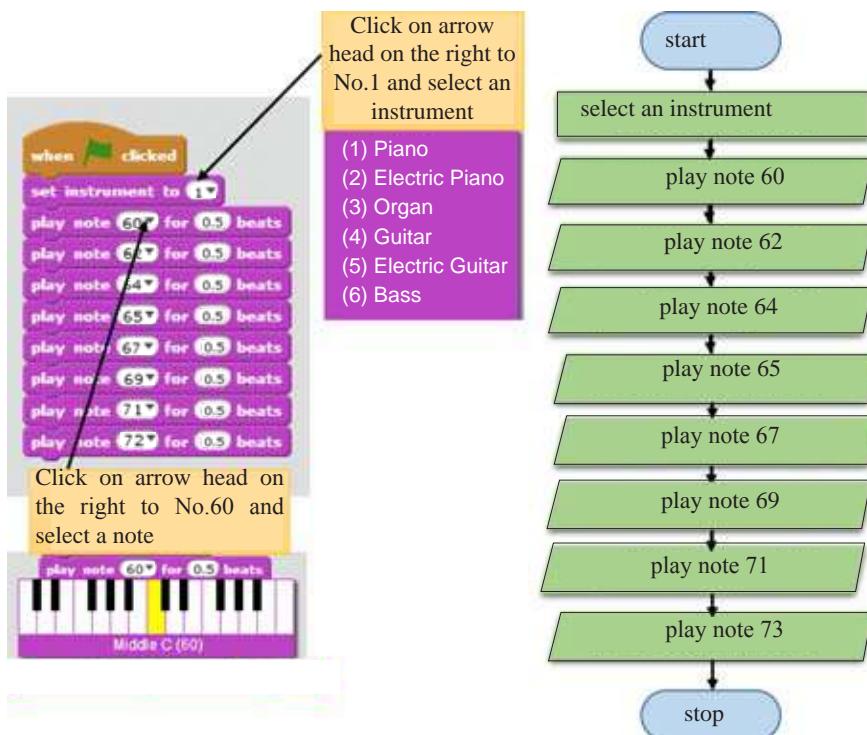


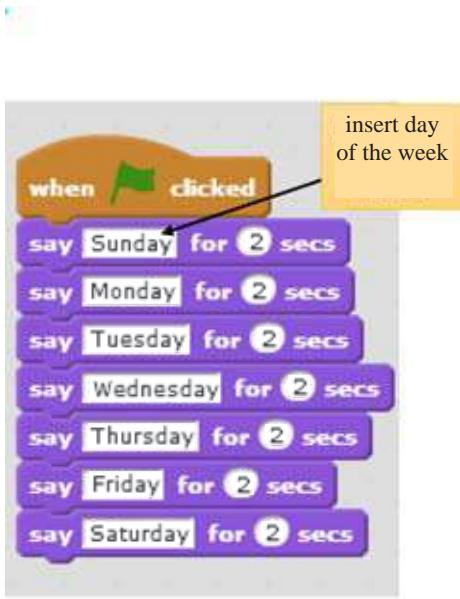
Figure 5.10 – Flow chart: Playing note





Activity 6 : See Workbook 5.6

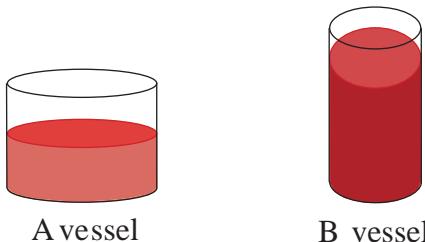
2. Expressing days of the week in order by Sprite



5.4 Use of a variable

In programming, variables are used to store a value in memory temporarily. Let's study the following activity to understand the nature of a variable.

Let's consider a situation where two types of coloured liquid have been poured into two separate glass vessels.



Now let's consider changing liquid in A vessel into B vessel and liquid in B vessel into A vessel.

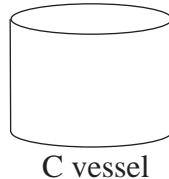
60

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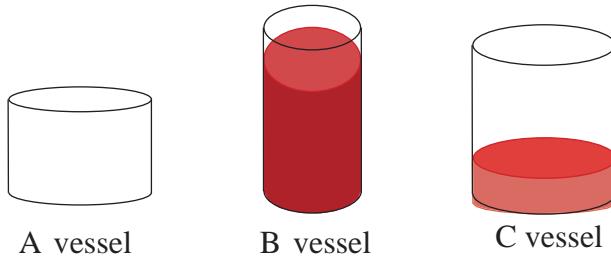


In this way, in order to change the liquid from one vessel to the other, it is necessary to have an extra vessel.

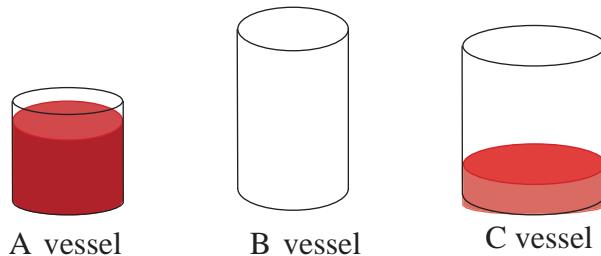
Let's name that vessel as C vessel.



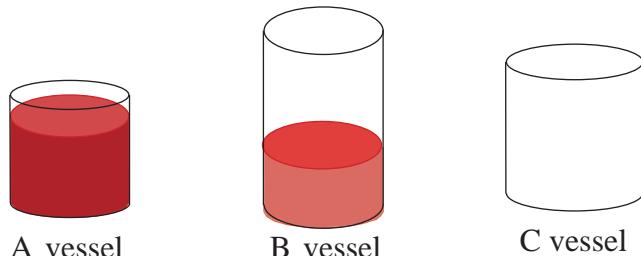
step 1 : Changing liquid in A vessel to C vessel



step 2 : Changing liquid in B vessel to A vessel



step 3 : Changing liquid in C vessel to B vessel



As a vessel can store liquid, so a variable can store a value. The above vessels named as A, B and C can be considered as variables and the liquid poured into them can be considered as values of the variables.



Assign Values to Variables

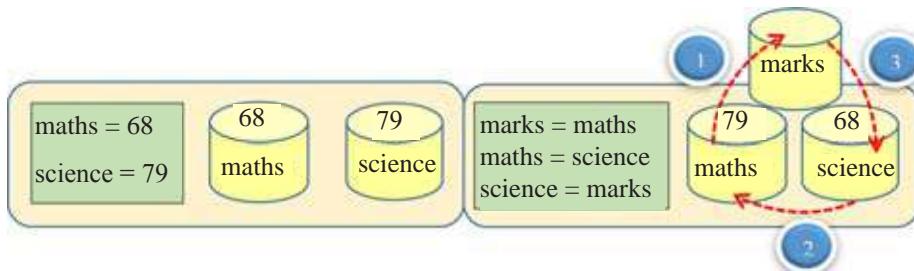
When assigning values to variables, variable name is written on the left to the equal sign and the value is written on the right to the equal sign.



Changing values of variables

e.g.

Let's change the values of variables maths and science.



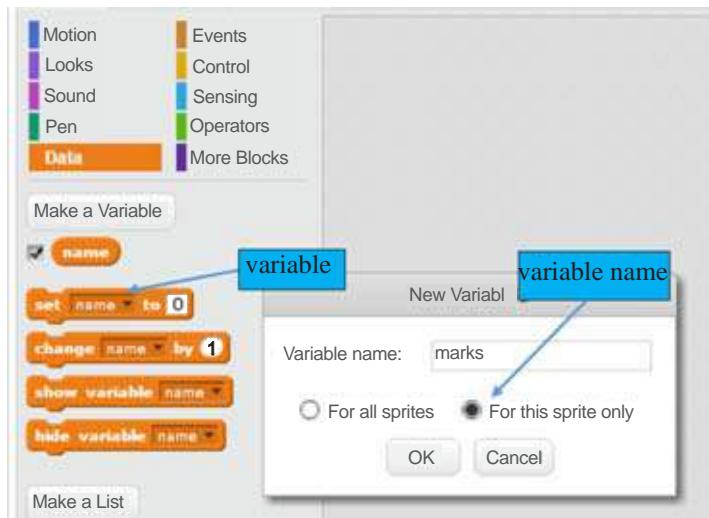
Building variable in scratch

- Run Scratch Software
 - Double click on scratch icon
-
- Select Data command block
 - Select data block
-
- Select make a variable
-
- Type name the variable
-
- Click OK

62

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assign value to a variable



(assign marks 67 to the variable marks)

change value of a variable



(change the value of the variable marks by 10)

5.4.1

Develop programme with variables

1. Multiplication of two numbers

Create two variables ($n1$, $n2$) to store values of two numbers and another variable to store the multiplication of the two numbers. Then join the control blocks shown below one by one sequentially in the given order. Change the value of control blocks as shown.



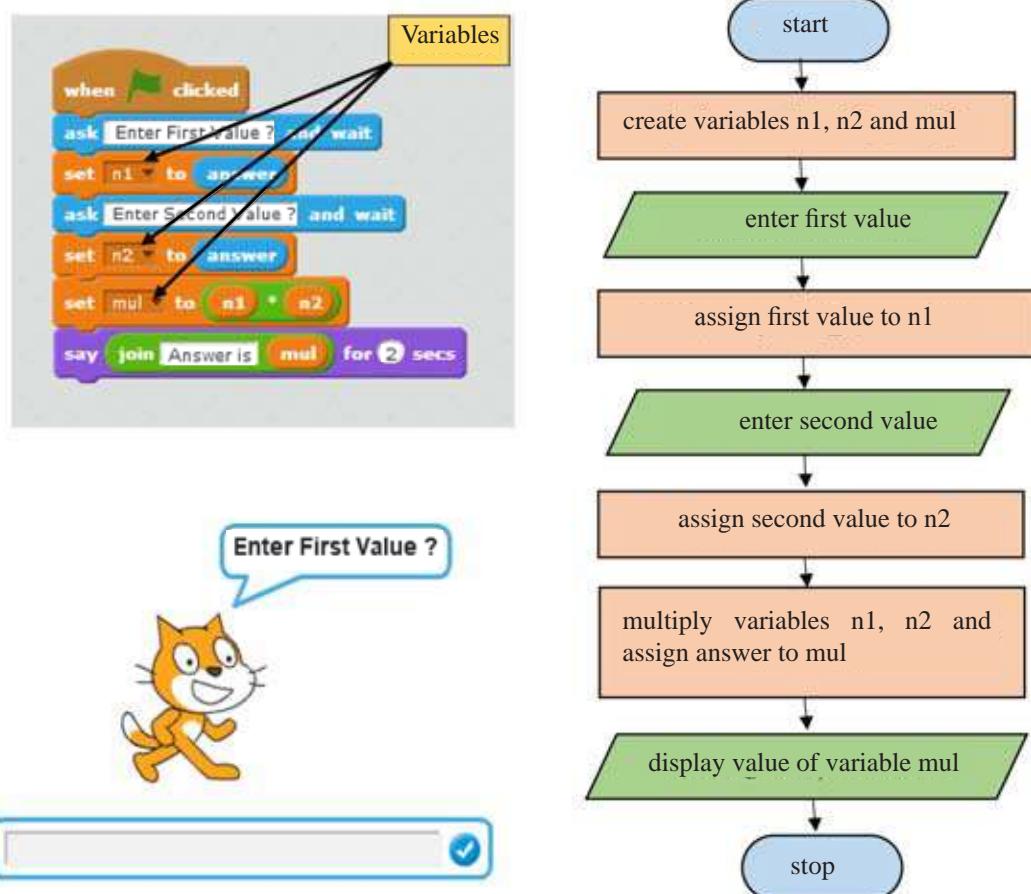


Figure 6.12 – Flow chart: Multiplication of two numbers



Activity 7 : See Workbook 5.7

2. Find Perimeter and Area of a Rectangle

The length and width of a rectangle is needed to find the perimeter and the area of that rectangle. Accordingly, four variables should be used in order to develop this programme. The length, width, perimeter and the area are shown as variables L, W, perimeter and area respectively.

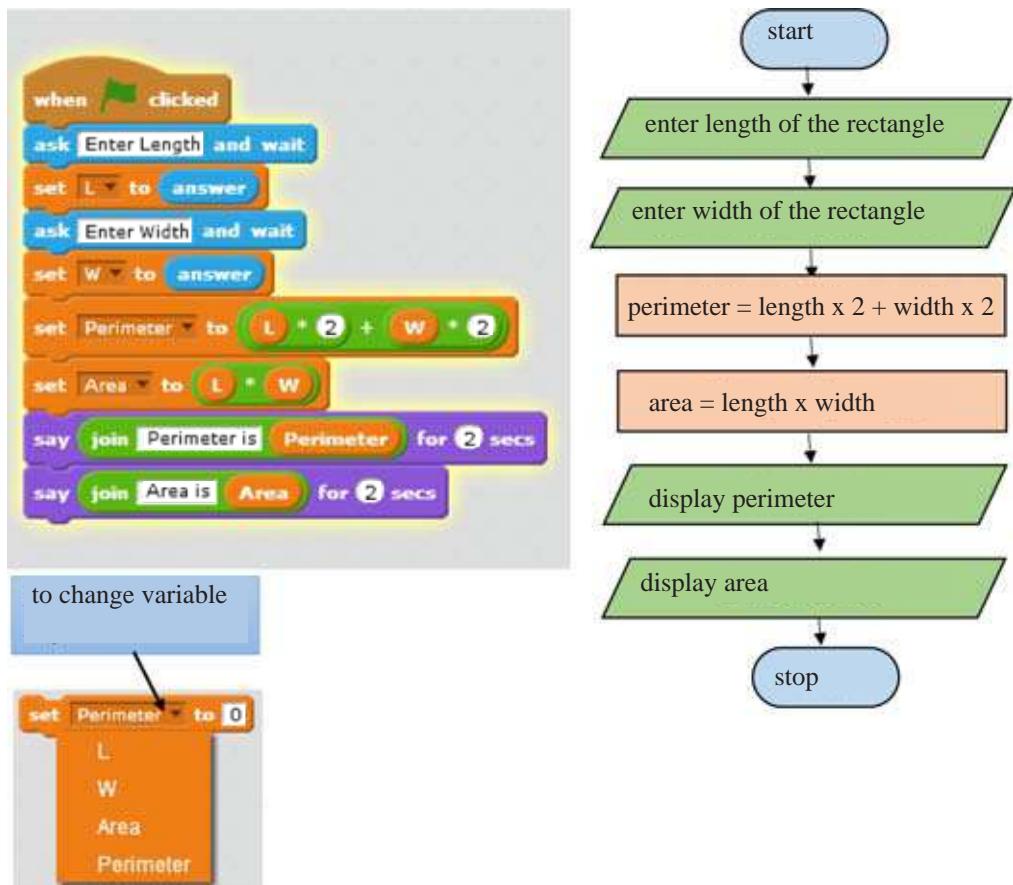


Figure 5.13 – Flow chart: Area and perimeter of a rectangle

3. Change the size of the Sprite from 10 to 100 at random

Develop the following programme to randomly change the normal size of the Sprite that we see. A value randomly chosen from one to ten is stored in the variable X. The size of the Sprite changes up to the value obtained by multiplying the value of variable X by 10. In addition, the colour too changes in proportion to the value of variable X.



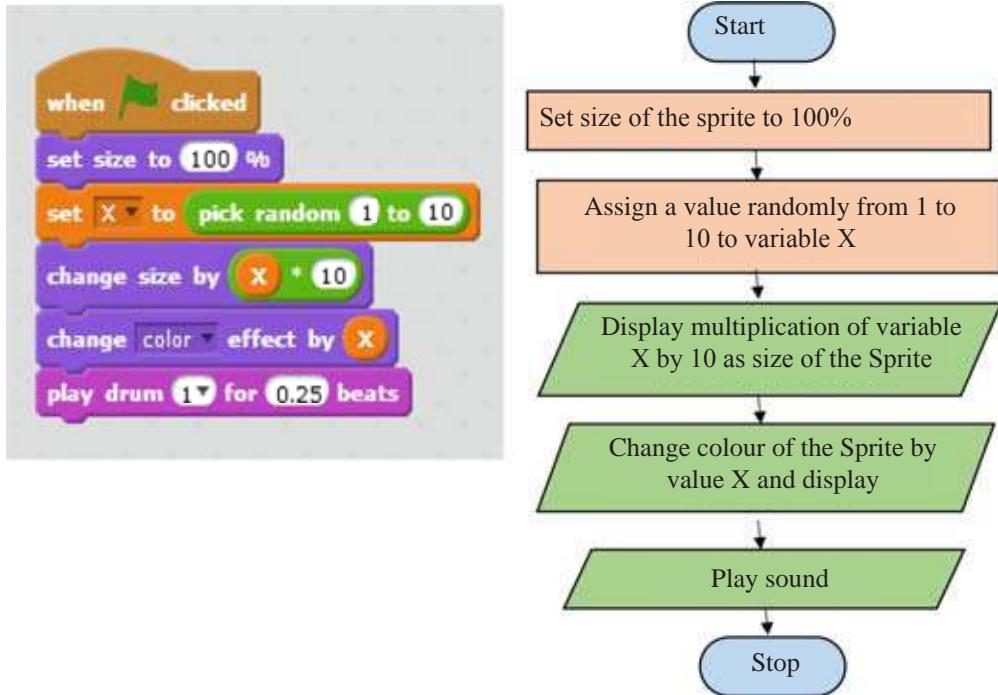


Figure 5.14 - Flowchart: Changing size of the Sprite

5.4.2 Bugs

Bugs may occur when developing a programme. Errors in a programme are called bugs, while the elimination of such bugs is called debug. In such a situation, unexpected problems are to be faced when a program with bugs run. Programmes with bugs may not run properly. Therefore before running a programme, bugs that may occur in that program should be eliminated.



Elimination of Bugs

Bugs may occur in such situations as change of order in the instructions (block), omission of instructions (block) or non-mentioning of correct variables and their values. Bugs in a programme can be eliminated by correcting bugs in the instructions(block) or arranging the order of the instructions (block) sequentially.

Let's compare the following programme with bugs and the programme without bugs developed to draw a rectangle with length and width 200 and 100 respectively.

Programme with bugs

```
when green flag clicked
set pen color to orange
set pen size to 4
go to x: -50 y: -50
point in direction 90°
pen down
move 200 steps
wait 2 secs
move 100 steps
turn ⚡ 90 degrees
wait 2 secs
turn ⚡ 90 degrees
move 200 steps
wait 2 secs
turn ⚡ 90 degrees
move 100 steps
pen up
go to x: -200 y: 0
point in direction 90°
```

correct

an instruction omitted

order changed

incorrect



Incorrect output

```
when green flag clicked
set pen color to orange
set pen size to 4
go to x: -50 y: -50
point in direction 90°
pen down
move 200 steps
turn ⚡ 90 degrees
wait 2 secs
move 100 steps
turn ⚡ 90 degrees
wait 2 secs
move 200 steps
turn ⚡ 90 degrees
wait 2 secs
move 100 steps
turn ⚡ 90 degrees
pen up
go to x: -200 y: 0
point in direction 90°
```

Programme without bugs

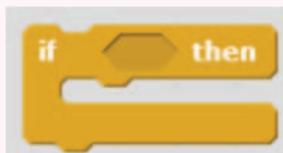
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A program with bugs may not run properly. After eliminating the bugs, the programme can run properly.

Summary

- ★ Program development can be made easy by decomposing a complex problem
- ★ There are three control structures used to develop a programme. They are sequence, selection and repetition.
- ★ Execution of instructions (sequentially) step by step in an algorithm is called sequence.
- ★ Making decision as to which step to follow based on the condition given by the algorithm is called selection.
- ★ Flow direction in a flow chart is determined based on the condition of the flow chart.
- ★ Scratch open source programme can be used for visual programme development.
- ★ Command blocks are used in the development of Scratch program
- ★ Following command blocks can be used to display the decision
 - The block to be used to show steps to follow only if the condition becomes true



- The block to be used to show steps to follow if the condition becomes true or not



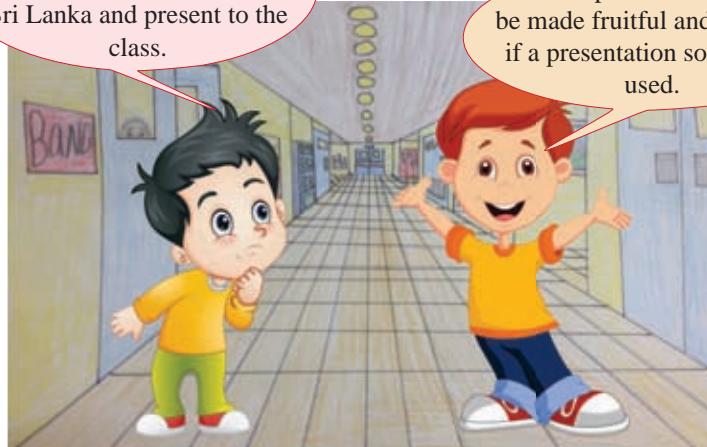
- ★ In programming, variable is used to store value in memory.
- ★ Error in a programme is called bug.
- ★ Elimination of bug in a programme is called debug.





Teacher asked me to find information on kingdoms of Sri Lanka and present to the class.

Your presentation can be made fruitful and attractive if a presentation software is used.



6.1

Let's learn about Presentation

Presentation is a method used to communicate information and ideas to a certain person or a group. There is more liveliness in this method than other methods because a quick interaction between the speaker and spectators takes place.

Electronic Presentation

Electronic presentation is a tool used to make a presentation attractive and fruitful.

Electronic Presentation like a book

An electronic presentation like a book. But it is not totally similar.

Why do you say so?





Activity 1 : See Workbook 6.1



- A book is composed of pages.
- Pages can be turned.
- Words, pictures are included in the book.
- Videos, songs, links cannot be included in books. Liveliness of them cannot be included in books.
- After a book is printed, changing the content is difficult.



- Presentation is composed of slides.
- Can move from slide to slide.
- Words, pictures, etc. are included in slides.
- Videos, songs, links can be included in a presentation. Liveliness of them can be included.
- Even after presenting several times, content of a presentation can be changed again and again.



Examples for Presentation Software



Microsoft
Powerpoint



Apple Keynote



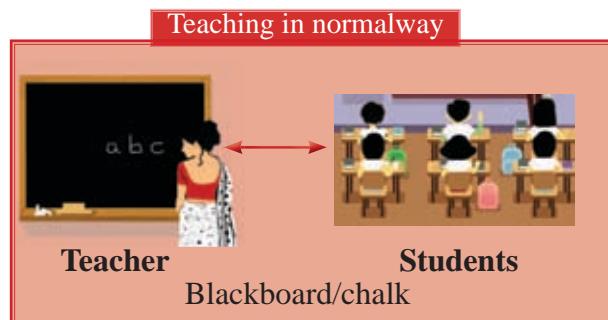
OpenOffice
Impress



Corel Presentations



There are many advantages in an electronic presentation



- Should use so many words.
- More effort is needed to explain facts.
- More chances to change concentration.
- More effort should be made to acquire information.



- No need of using so many words.
- Less effort to explain facts.
- Less chance to change the concentration.
- Less effort to acquire facts.

6.1.1 Let's design a Presentation

In order to design a new presentation, presentation software in the computer should be opened.

Design a presentation using a blank presentation

When you open the electronic presentation software in the school computer, you will get a blank presentation as shown in Figure 6.1.



Figure 6.1- A blank presentation

When you click on that blank presentation, you will get blank slides which you need to prepare the presentation.



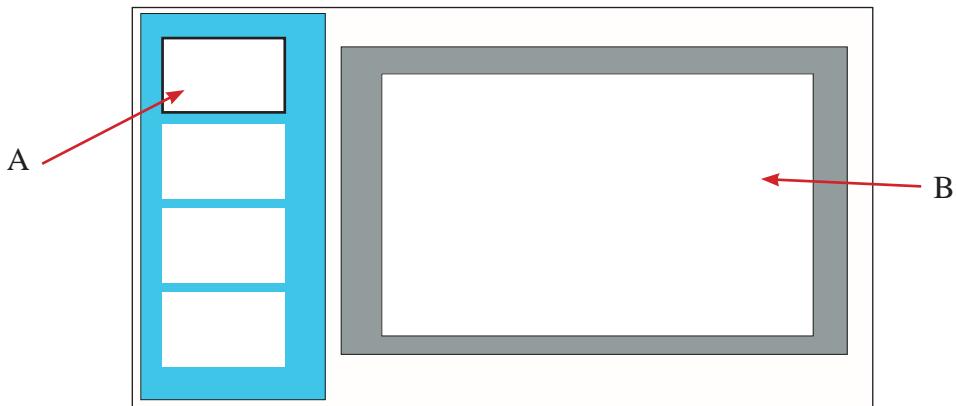


Figure 6.2 - A Presentation window

The Slide in Figure 6.2 A indicates a slide related to the content which is open on the slide pane (In Figure 6.2 B indicates a slide pane) is highlighted, Eg: The content of the slide indicated by A in Figure 6.2 is displayed on slide pane.

Start designing presentations using presentation models provided by Presentation Software

You will get blank slide when you open the presentation software, to be designed. Or if you wish, you can select from pre-designed slide templates which have been saved. They are designed with various shapes, colours, designs.



Figure 6.3 - Some presentation templates

If the slide matches your need, one of the slides can be selected.

After opening a presentation, it appears as shown in Figure 6.4.



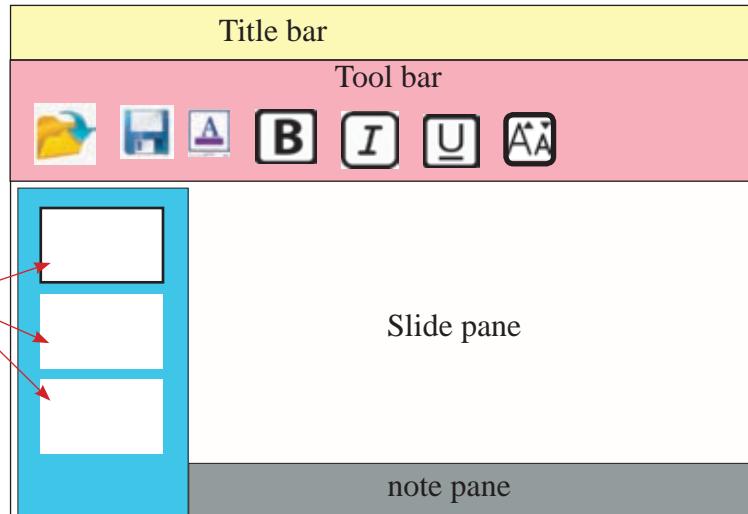
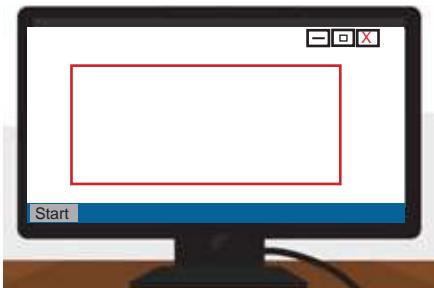


Figure 6.4 - Basic features of a Presentation window

Your presentation can be prepared using tools in the tools bar. The prepared presentation can be saved in any place for reuse when needed.



6.1.2 Closing Presentations



To close a presentation, the mark which appears on the right hand side should be clicked.

If the presentation was not saved, a dialog box relevant to save it will open.



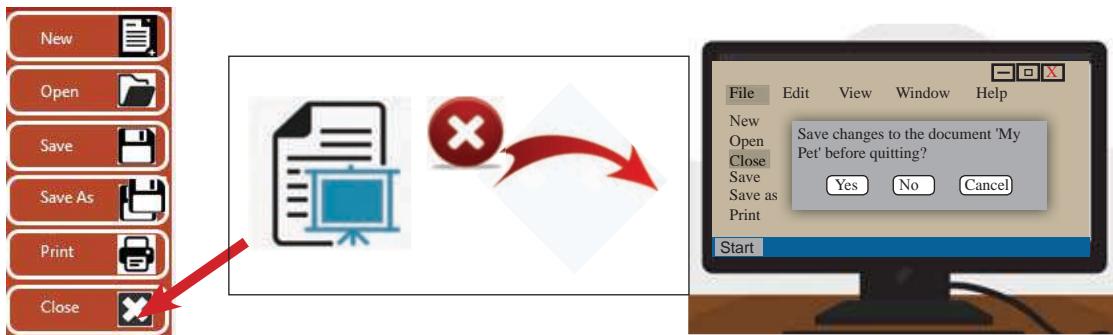


Figure 6.5 - Close a Presentation

If you want to save the presentation select **Yes** command. If not, select **No** command.



6.1.3 Saving a Designed Presentation

After designing a presentation, it should be saved in the computer for late use.



Figure 6.6 - Save a Presentation

It is good to use a name of your own to save it rather than using a common name given by the presentation software. It helps to find it easily among the other files.





Activity 4: See 6.4 Workbook

6.1.4

Opening a Saved Presentation

There are several ways to follow in opening a presentation.

- Select the name of the presentation using presentation software.
- Click twice on the presentation file.

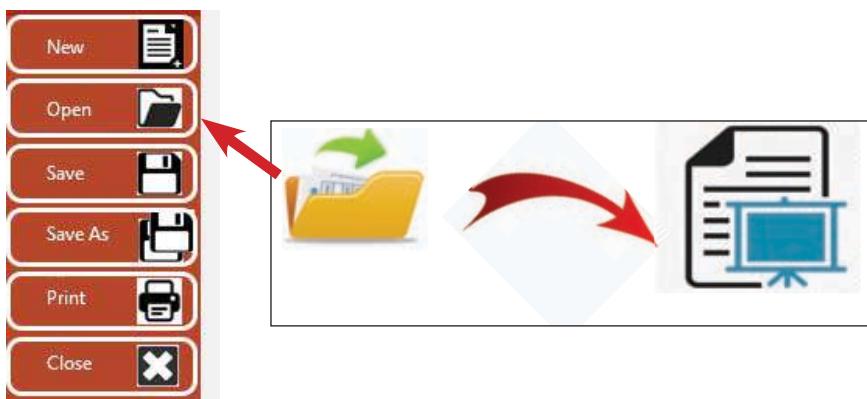


Figure 6.7 - Open an existing Presentation



Activity 5: See Workbook 6.5



6.2

Let's add New Slides to a Presentation

There are several slides which can be used in preparing a presentation.

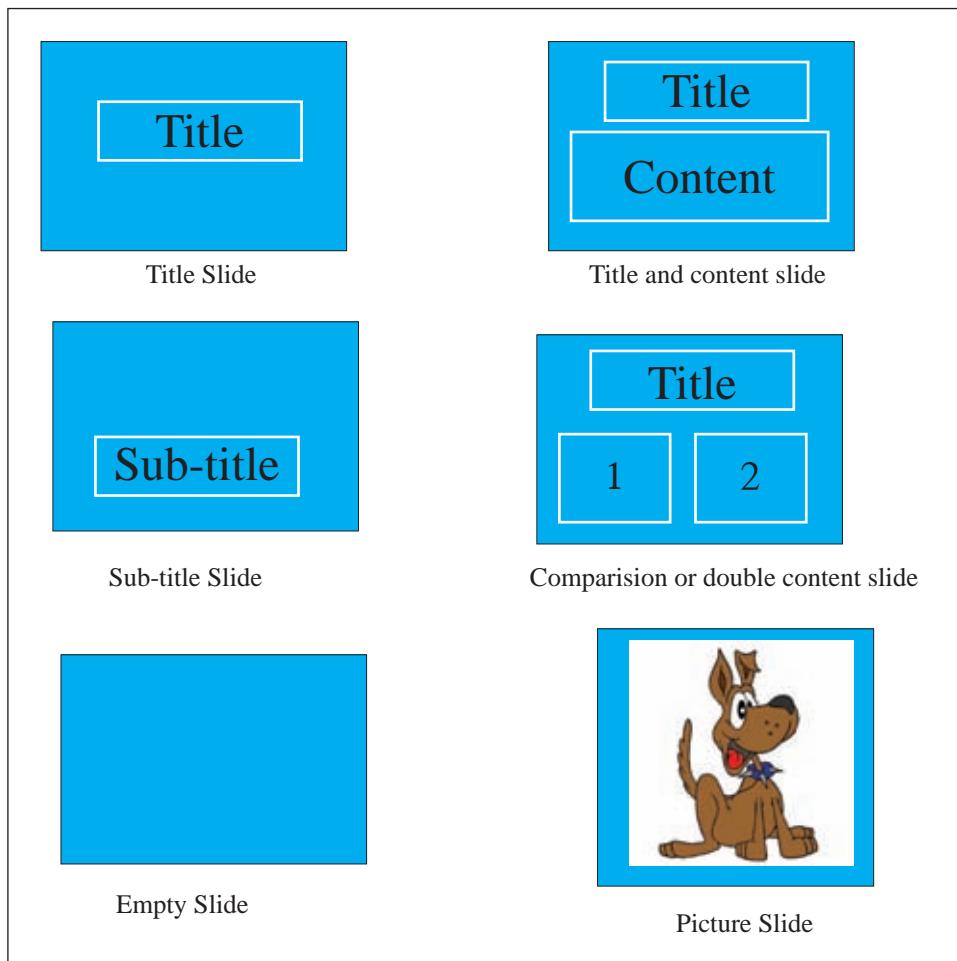


Figure 6.8 - Examples for types of slide

In addition to these, different slides can be used using a blank slide according to the need.



Activity 6 : See Workbook 6.6



6.3

Designing a Slide

Understanding about how to insert texts and pictures to a slide, how to draw sketches using shapes and add multimedia and tables to a slide is needed to design a slide.

6.3.1

Including Words and Word Art

There is a specific place in a slide to include words in a slide. It is shown as dotted lined boxes on a slide.

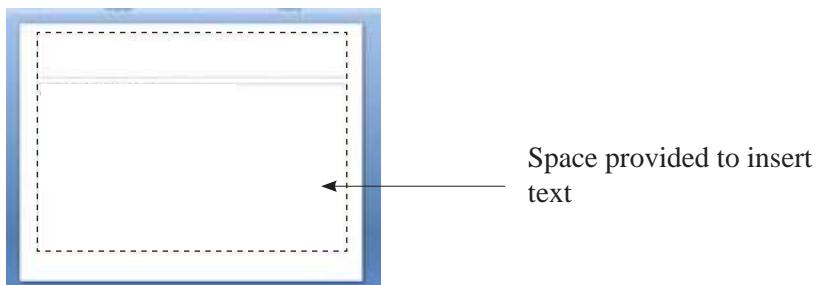


Figure 6.9 - Space Provided to insert text

Following tools should be used to prepare letters as needed.

Change the font colour



Size of the font



Bold the font



Italicize the font



Underline



Activity 7 : See Workbook 6.7



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6.3.2

Inserting Pictures to a Slide

Presentation software facilitates inserting pictures to a slide.

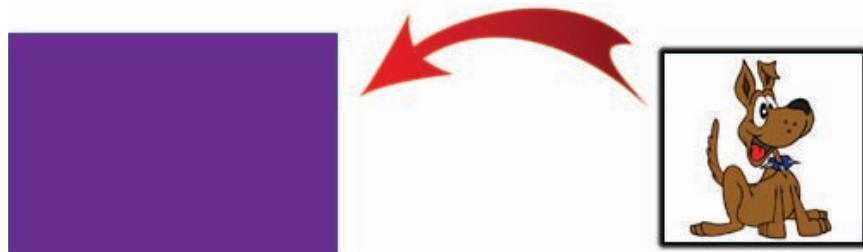


Figure 6.10 - Insert pictures to a slide

There are two ways to insert pictures.

One way is to copy a saved picture and paste it on the slide. The other way is using clip art provided by presentation software.

Clip Art is a type of pre-designed images



Activity 8 : See Workbook 6.8

6.3.3

Inserting Shapes

We can insert shapes like circles, squares, as well as triangles lines, arrows, shapes for flow charts and stars in to presentation slides.

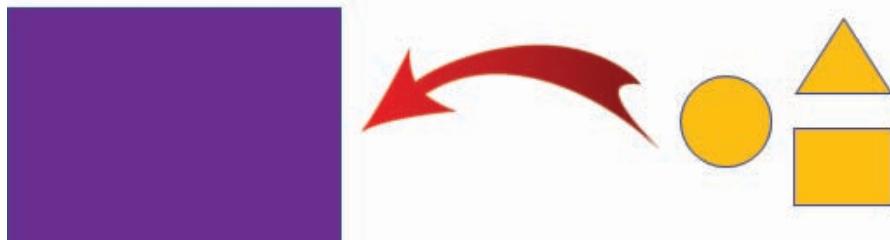


Figure 6.11 - Inserting shapes to a slide



Activity 9 : See 6.9 in Workbook

6.3.4

Inserting Multimedia to a Slide

Video and audios can be inserted to a slide. It makes the presentation more interesting rather than inserting pictures.

Inserting saved audios in the computer is allowed. Some presentation software allows to record audios at the time it is being designed. There are presentation software which provide library facilities with pre-recorded sounds.

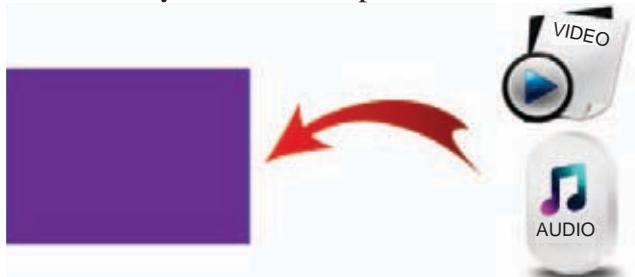


Figure 6.12 - Insert multimedia to a slide



Activity 10 : See Workbook 6.10

6.3.5

Inserting Tables in to a Slide

Table designing tools are provided in presentation software.

Tables drawn in Ms words or Ms excel can be inserted in presentation slides.



Figure 6.13 - Inserting tables in a slide

Table can be drawn giving the number of rows and columns needed. Even after designing changes can be done.

Insert table

Number of columns

3

Number of rows

5

OK



Activity 11 : See Workbook 6.11

6.4

Using Slide Designs

Slide designs are given in order to design the background of slides colourful and attractive. When slide designs are used, it is possible to change the size of the slide to fit to the screen or to standard sizes to suit the screen size.



Figure 6.14 - Several Slide designs

Background and colour of letters should match. It is better if the font or the content can be highlighted with a background. In slide designs font colour and backgrounds are suitably designed. Therefore, by using slide designs in a presentation no extra time is wasted to match font colour and background.



Activity 12 : See Workbook 6.12

6.5

Silde Transition

Slide transition can be used to move from slide to slide. The objective of this is to make it attractive. But if it is designed in a way which takes more time, it would be tiresome for the audience.

There are methods to control speed, select slide transition type and making selected sounds in transition in presentation software.



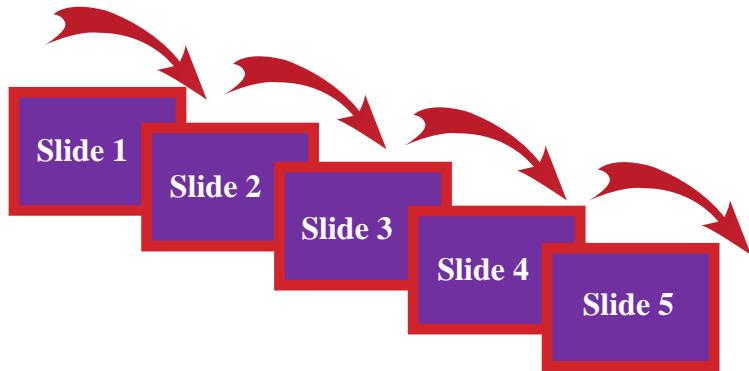


Figure 6.15 - Slide transition



Activity 13 : See Workbook 6.13

6.6

Deleting, Coping, Moving and Hiding of Slides

In order to delete, copy, move or hide, a slide the particular slide should be selected. Using a suitable Slide view provided by the presentation software to select slides is easy. The slide view presents slides in an organized way.



Figure 6.16 - A Normal slide view

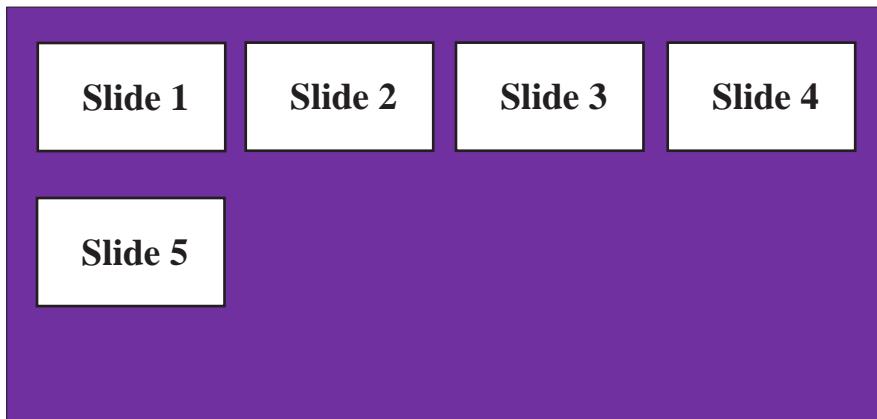


Figure 6.17 - Slide sorter view

Activity 14 : See Workbook 6.14

A decorative banner with rounded ends, colored orange at the bottom and red at the top. On the left side, there is a small illustration of a blue bird with yellow feet and a red beak. To the right of the bird, the text "Activity 14 : See Workbook 6.14" is written in a bold, black, sans-serif font.

Deleting Slides

Deleting slides can be done using the following methods.

- Using the delete key on the keyboard
- Using the back space key on the keyboard

For this, relevant slide should be selected using the mouse head.

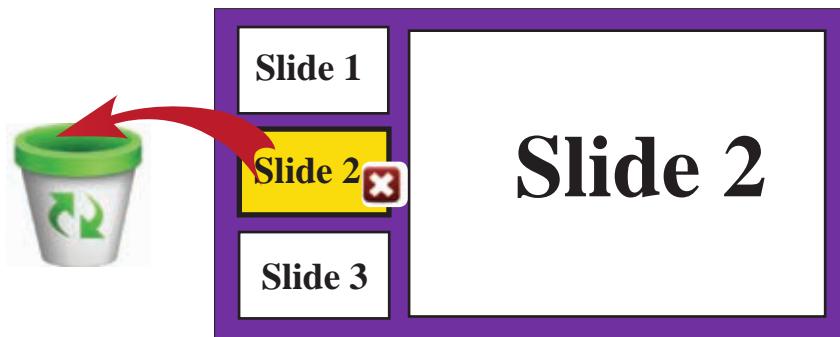


figure 6.18 - Deleting Slides



In addition to this, you can use other methods provided by the software to delete slides. (Your teacher will guide you).

You can delete multiple slides at once.



5

Activity 15 : See Workbook 6.15

Copng Slides

You may need to use a slide of a presentation more than once. Or else you may need to design another slide using none slide. You will have to change a copy of a slide in doing so.

If you want to copy the slide, you can copy and paste the slide by the facility provided by presentation software.

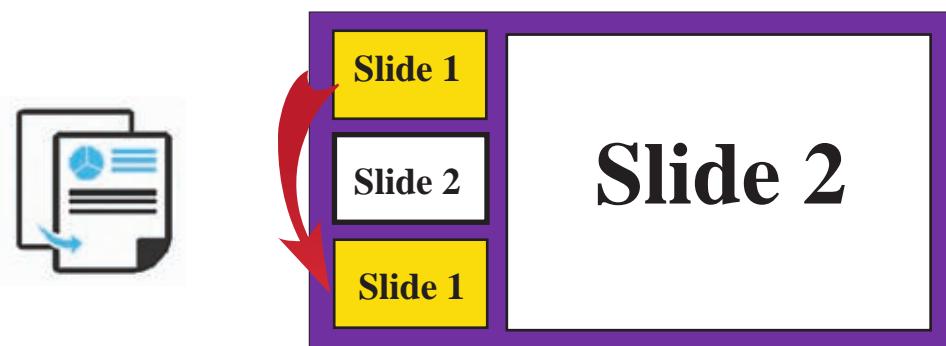


Figure 6.19 - Copying Slides

For this you have to take the mouse pointer to the relevant slides. There you have to click paste command from the tools bar or the menu you get when you right click the mouse.



Activity 16 : See Workbook 6.16



Moving Slides

It is not necessary to prepare slides in the same order you want to present. Presentation software allows to change the order after designing. For that, you have to move slides.

To move a slide, selected slide should be dragged and dropped in the relevant place. You can cut and paste the slide too. For this, you can use cut and paste command in tools bar or in the menu you get when you right click the mouse.

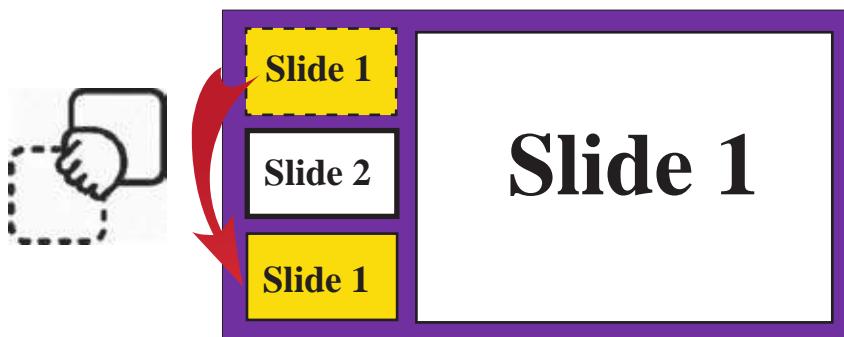


Figure 6.20 - Moving Slides



Activity 17 : See Workbook 6.17

Hiding Slides

You may not need to show all the prepared slides in a presentation. You can hide a slide without deleting it in such a situation. When a slide is hidden, it does not appear but you when need you can prepare it in such way that it can be seen.

For this you have to select hide slide command in the menu bar of file menu or in the menu you get when the mouse is right clicked.



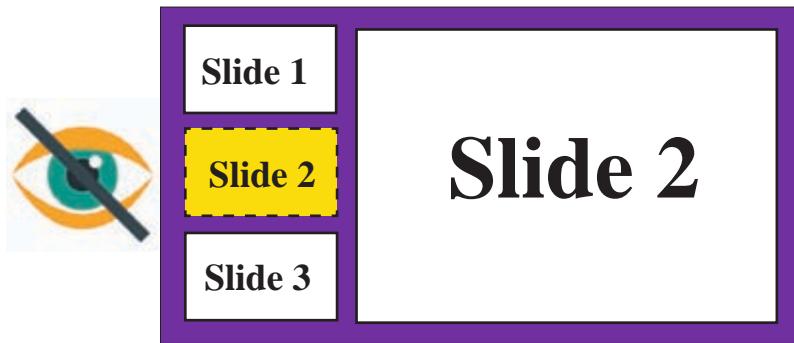


Figure 6.21 - Hiding Slides



Activity 18 : See Workbook 6.18

Summary

- ★ Presentation software is a software that can make presentations attractively by using words, images, pictures and sounds.
- ★ Presentations can be made using blank slides or pre-designed presentation slide templates. To open, save and close presentations, open save and close buttons are provided respectively in the software.
- ★ When inserting slides to the presentation, special types of slides are provided. Topic slide, topic and content, sub-heading slide, comparison or double content slide, empty slide, image slide are examples for different types of slides.
- ★ When inserting text into a presentation, different tools are provided to change the font colour, change the font size, to bold, to italic and to underline.
- ★ Images, shapes, video sound tracks and tables can be inserted to the slides. In a presentation, to change from slide to slide. attractive slide change methods are provided by many presentation software.
- ★ When using presentation software, deleting, copying, moving and hiding of slides can be done.



07 Using Internet for Information and Communication



Nimal what is called as internet?

A computer network that consists of a large number of inter-connected computers.



7.1 Let's learn about the Internet

A network that consists of two or more computers can be considered as a computer network. The internet is an extra-large network with a large number of such computer networks. There are millions of computers on the internet.

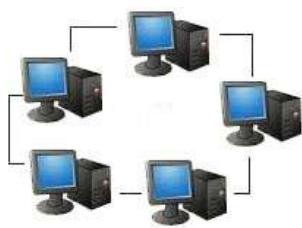


Figure 7.1 - Computer Network

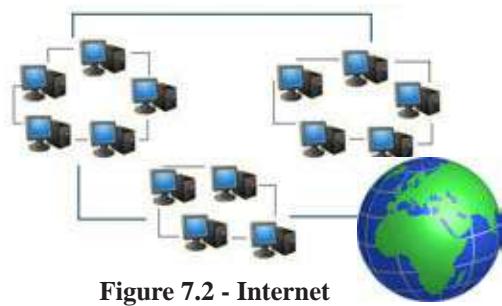


Figure 7.2 - Internet

At present, students can expand their knowledge by using resources like information, videos, images about any subject area by connecting to the internet.

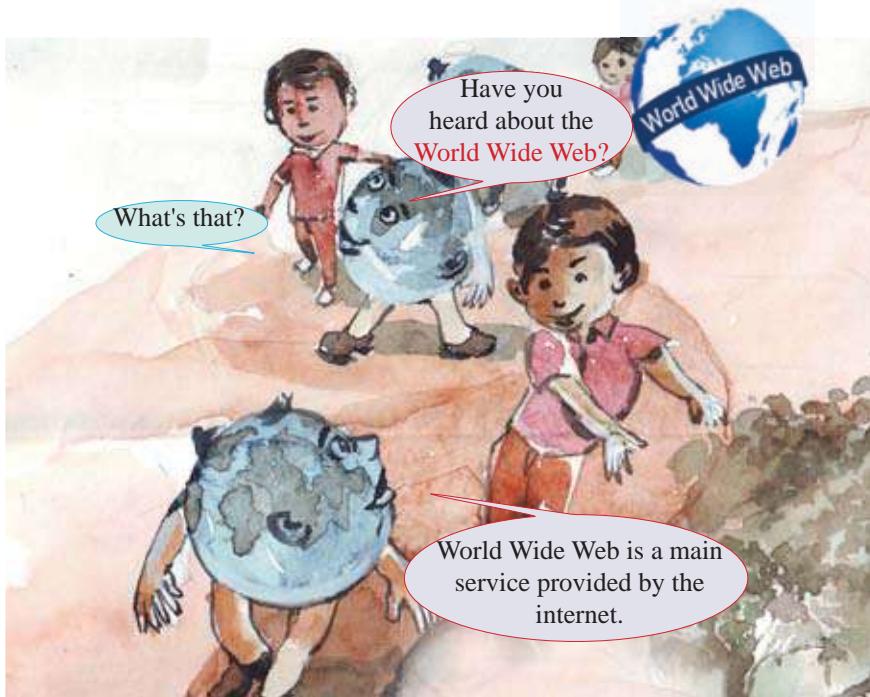




There are many services rendered by the internet apart from providing educational knowledge. The ability to obtain information quickly on any incident in the world is one such service.

7.2

World Wide Web and Uniform Resource Location





A website is formed with many web pages. The world wide web is formed with many websites. There are millions of websites in the world wide web. The world wide web is also known as www.

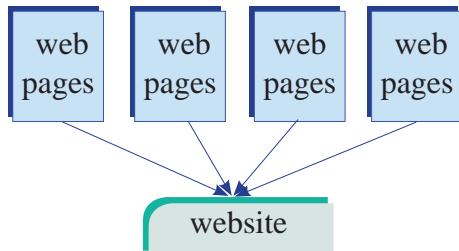


Figure 7.3 - How a website is created

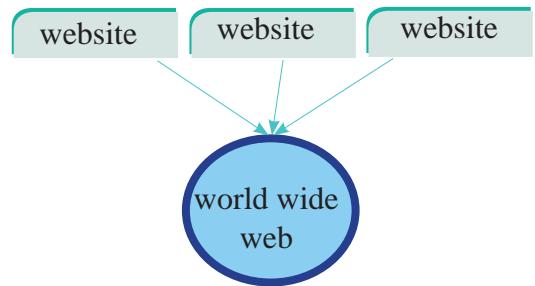
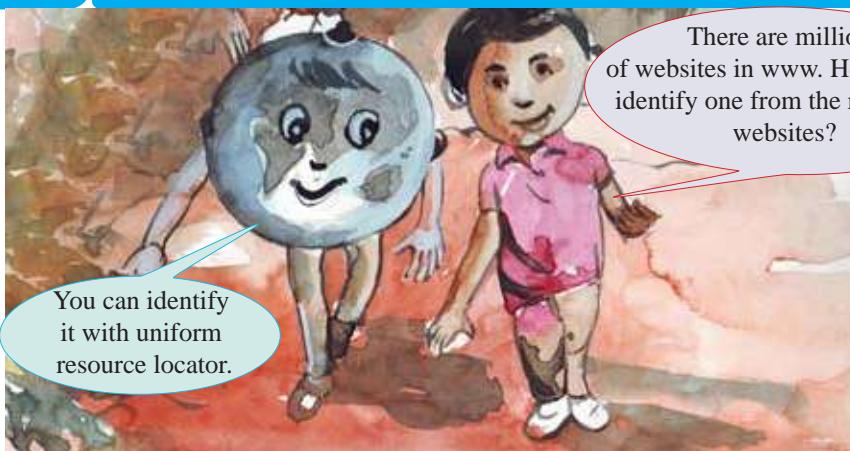


Figure 7.4 - How a world wide web is formed

7.3

Let's learn about Uniform Resource Locator



The uniform resource locator is the address used to identify one resource among the huge number of resources in the World Wide Web. The uniform resource locator is also known by its short name URL.

e:g: <https://www.moe.gov.lk>

Given above is the uniform resource locator or the address of the website of the ministry of Education.

With this website address, the Ministry of Education of Sri Lanka can be identified among many websites in the www.



7.3.1 Let's identify Secured and Unsecured Websites



In order to identify secured and unsecured websites separately different methods are used. The main two methods are given below.

The address of the website starts with https.

e:g: <https://moe.gov.lk>

After logging in to a website symbol is displayed on the address bar.

e:g: <https://moe.gov.lk>

7.3.2 Video Conferencing



Video conferencing is known as conducting discussions using video technology on the internet between two persons or a two groups who are geographically located at a distance from each other.

Advantages of conducting video conferencing

- The initial cost of conducting conferences can be minimized.
- There is no need to travel to the location of the conference and therefore there is no transport cost or waste of time.
- It can be quickly arranged.



What are the software and hardware required to conduct a video conference?

- A computer
- A web camera

• Internet connection and a software to conduct a video conference are required.



Examples for software used for video conferencing



★ Zoom 

★ Skype 

★ GoToMeeting 

★ Webex 



Activity 1 : See workbook 7.1

7.3.3 E-mail

Brother, I need to send this letter to one of my friends.
Can you post it?

It's easy if you send
an e-mail.

What is e-mail?

E-mail means an
easy way of sending a letter
on the internet.



E-mail is electronic letters which are electronically exchanged between two people or among several people who have an e-mail address. Many things such as letters, photos, videos and documents can be sent as messages through e-mail.

E-mail Account

First, a suitable service providing website should be selected to create an e-mail account. In most cases such websites provided free e-mail accounts.



The characteristics of E-mail

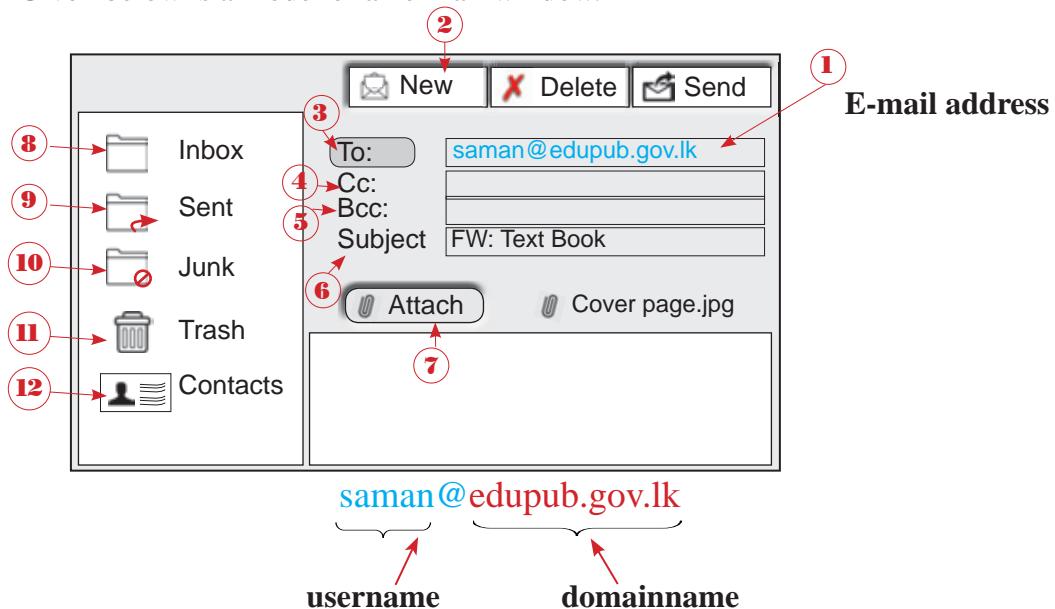


- The ability to send copies of one e-mail message to several people at once.
- When the letter couldn't be sent properly to the relevant e-mail account, it is notified with a reply message.
- The ability to save e-mail addresses and retrieve them with the address book.
- The time and date of the sent e-mail is automatically entered to the copy of the e-mail.
- The ability to forward an e-mail message to another person.
- The ability to attach data or information file easily into the e-mail (a photo, a document).

7.3.4

E-mail Window

Given below is a model of an e-mail window.



In the e-mail address **saman@edupub.gov.lk**, **saman** in the user name.

@ symbol is used to connect the username to the other part.

edupub.gov.lk after @ symbol is the domain name.

.lk means it is an e-mail address in Sri Lanka.

② compose/new

A new e-mail window can be obtained by clicking on Compose or New after logging on to the e-mail account

③ To

Here, the e-mail address of the receiver is mentioned

⑤

Bcc (Blind Carbon Copy)

The e-mail addresses in this section are not visible to people whose e-mail addresses are in To and Cc. But all the addresses in To and Cc are visible to people whose e-mail addresses are in Bcc.

④ Cc (Carbon Copy)

The e-mail addresses of the people to which the copies of this letter should be sent, are mentioned.



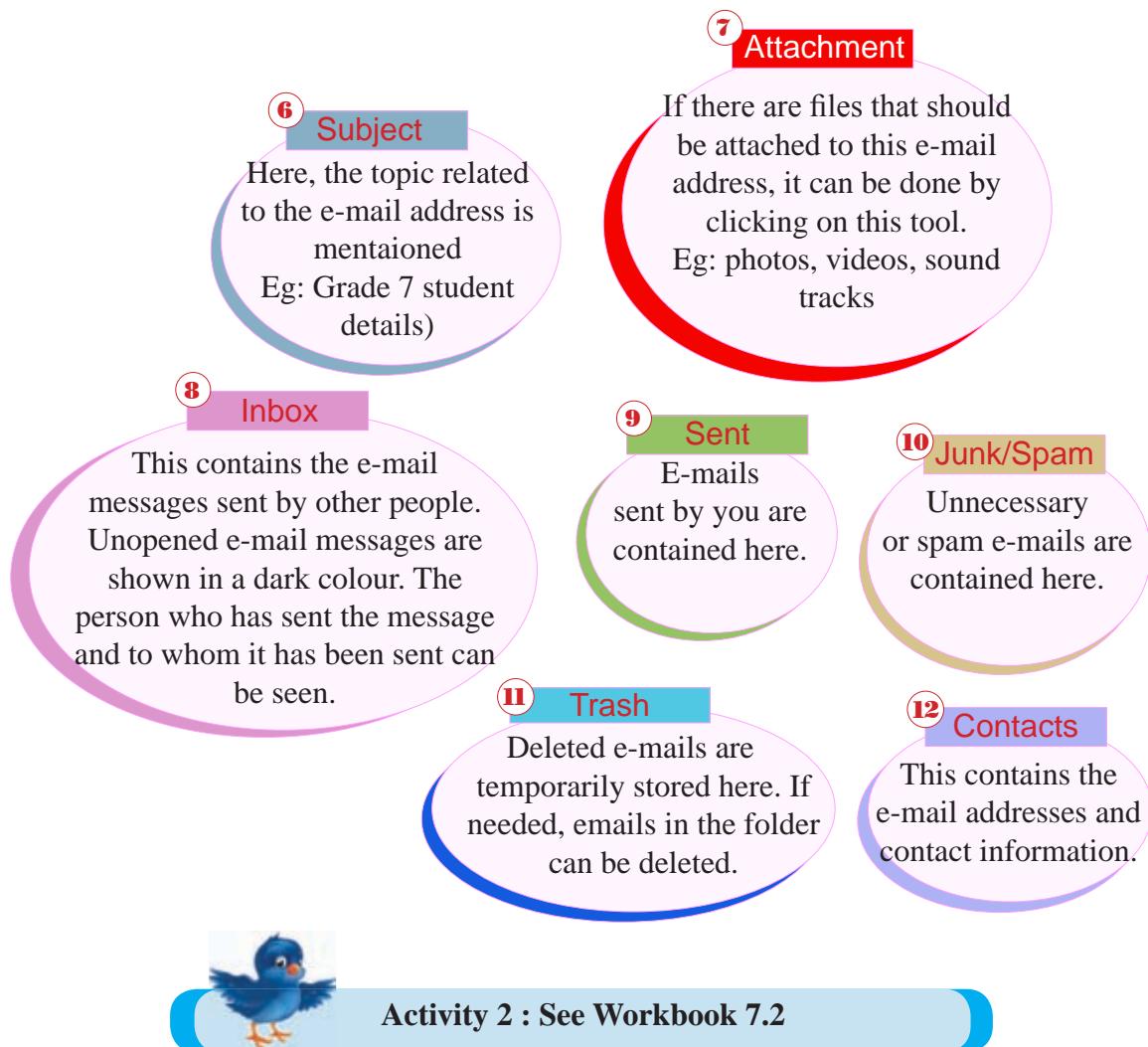
Examples

- ★ E-mail address of Amara - amara@yahoo.com
- ★ E-mail address Nayana - nayana@gmail.com
- ★ E-mail address Meena - meena@yahoo.com

Given below are e-mail addresses mentioned in To, Cc and Bcc of an e-mail message created to send a greetings message.

To: amara@yahoo.com Cc: nayana@gmail.com Bcc: meena@yahoo.com

Here, Meena can see both e-mail addresses of Amara and Nayana. Nayana can only see the e-mail address of Amara. Similarly, Amara can only see Nayana's e-mail address.



7.4

Let's develop Webpages using HTML

Sister, our teacher told that she would teach us how to create web pages in the next lesson.



7.4.1

HTML Codes

HTML (hyper text markup language) is the language used to create web pages. It has its own codes and a webpage is created by using these codes. Given below are several basic codes used in html.

<html>	- Beginning of a web page
<head>	- The first part of the web page
<title>	- The topic of a web page
<body>	- The part in which the items that should appear on a web page are shown
 	- Go to the next line (break line)
<h1>	- Get larger font for the heading (heading 1)
<h6>	- Get smaller font for the heading (heading 6)
<center>	- Centering the letters on the page
<p>	- Start a paragraph
<bgcolor >	- Use a background colour in the web page
<background>	- Use a background images in the web page
	- Use an image in the web page
<A href>	- Link another file to the web page
	- Change the font style
	- Bold the font
<i>	- Italicize the font
<u>	- Underline text

7.4.2

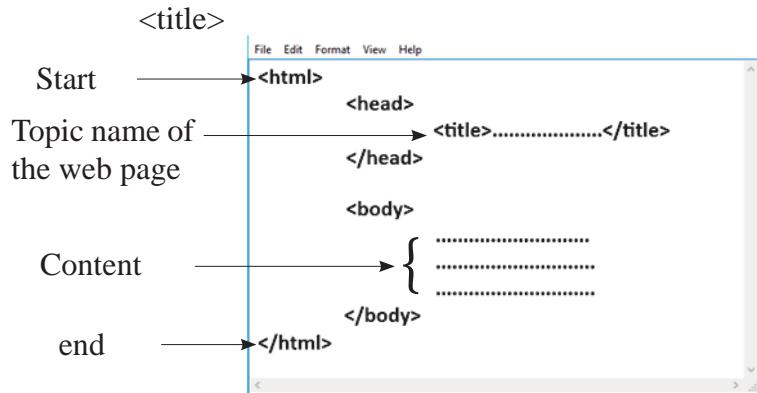
Let's create a Simple Web Page

A simple text editing software could be used to enter html codes to create web pages.

E:g:. notepad



There are occasions where complex software is used to create web pages. Here, we will not focus on that.



Here, among the <title> codes, a suitable name for the web page should be used.

It appears on the title bar of the web page. Here what is mentioned in <body> - <body> section is visible in the web page.

All codes should be written between '<' and '>' symbols. In most html codes, there is a beginning and an end. To indicate an ending code '/' symbol should be used.

e:g: <title> beginning end - <title>

The following table contains examples of how html codes are used to create a web page. The first column indicates the use of html codes and the second command indicates how it is visible in the web page.

Usage of html codes	How it appears on the web page
center a line (center) <center> <pre> <html> <head> <title> welcome </title> </head> <body> <h1> Welcome to Sri Lanka </h1> <center><h1>Welcome to Sri Lanka </h1> </center> </body> </html> </pre>	
change size of text <h1> <h2><h6> <body> <pre> <h1> Welcome to Sri Lanka </h1> <h2> Welcome to Sri Lanka </h2> <h6> Welcome to Sri Lanka </h6> </pre> </body>	



<p>add underline, italic and bold</p> <p><code><u>,<i>,</code></p>	<p>Welcome to Sri Lanka</p> <p><i>Welcome to Sri Lanka</i></p> <p>Welcome to Sri Lanka</p>
<p>change font colour and font style</p> <p><code> හා </code></p> <pre><h1> Welcome to Sri Lanka </h1> <h1> Welcome to Sri Lanka </h1> <h1> Welcome to Sri Lanka </h1> <h1> යුතුවත සාදරයෙන් පිළිගනිමු Y%S ,xldjg idorfhka ms,s.uq</pre>	<p>Welcome to Sri Lanka</p> <p>Welcome to Sri Lanka</p> <p><i>Welcome to Sri Lanka</i></p> <p>ශ්‍රී ලංකාවට සාදරයෙන් පිළිගනිමු</p>
<p>add background colour</p> <p><code><bgcolor></code></p> <pre><body bgcolor="Gold"> <h1> Welcome to Sri Lanka </h1> <h1> Welcome to Sri Lanka </h1> </body></pre>	<p>Welcome to Sri Lanka</p> <p>Welcome to Sri Lanka</p>
<p>insert a paragraph</p> <p><code><p></code></p> <pre><body> <h1> Web browser </h1> <p> A web browser is a piece of software that enables the user to access web pages and web apps on the internet. There are a range of browsers available, and they are usually free to download and install. </body> </html></pre>	<p>Web browser</p> <p>A web browser is a piece of software that enables the user to access web pages and web apps on the internet. There are a range of browsers available, and they are usually free to download and install.</p>
<p>insert a background image</p> <p><code><background></code></p> <pre><head> <title> welcome </title> </head> <body background="baby.jpg"> <h1> Web browser </h1></pre>	<p>Web browser</p>  <p>A web browser is a piece of software that enables the user to access web pages and web apps on the internet. There are a range of browsers available, and they are usually free to download and install.</p>



insert a picture

```
<img src>
```

```
girl.html
File Edit Format View Help
<html>
  <head>
    <title> girl</title>
  </head>
  <body>
    <center><h1> Baby Girl </h1>
    
  </body>
</html>
```



change the height and width of a image

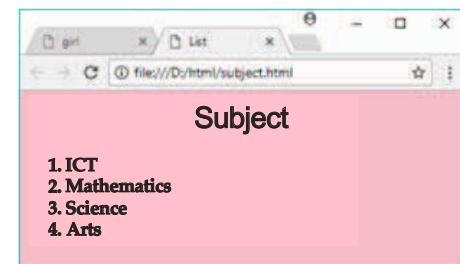
```
<center><h1> Baby Girl </h1>

```

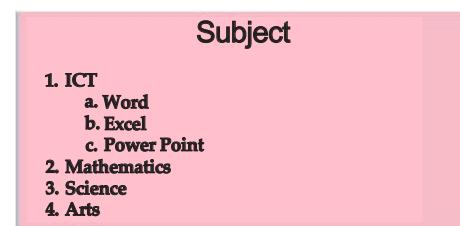


insert a numbered list

```
<ol>
<body bgcolor="pink" >
  <center><h1> Subject </h1></center><h3>
  <ol>
    <li>ICT
    <li>Mathematics
    <li>Science
    <li>Arts
  </ol>
```



```
<ol>
  <li>ICT
  <ol type="a">
    <li> Word
    <li> Excel
    <li> Power Point
  </ol>
  <li>Mathematics
  <li>Science
  <li>Arts
</ol>
```



insert a bulleted list <pre></pre> <pre> ICT Word Excel Power Point Mathematics Science Arts </pre>	<h2 style="text-align: center;">Subject</h2> <ul style="list-style-type: none"> • ICT <ul style="list-style-type: none"> ◦ Word ◦ Excel ◦ Power Point • Mathematics • Science • Arts
link an external web page, website or a file	Office package MS-Word MS- Excel MS- Power Point For more information Click here
click on the 'click here' to open the internet. html web site. <a href>	<pre><body> office package

 MS-Word
 MS-Excel
 MS-Power Point

 For more information Click here </body></pre>



Activity 3 : See Workbook 7.3



7.5

Let's use the Internet Safely and ethically

7.5.1

Let's use the Internet safely

We obtain different advantages by using the internet. However, we must use the internet safely and carefully.



Let's protect ourselves from hacking

Hacking is accessing data and information in a computer or in a computer network without permission.



- Safeguarding the accounts on the internet by using usernames and passwords.
- Protect the computer or the mobile phone used to enter the internet by using a username and a password.
- Protect the files, folders and programmes by using passwords.

- Encrypt the hard disk of the computer.
- Service used to access internet should be protected by using a username and a password.
- Keep back ups of data and information in the computer.
- Update the facilities such as antivirus software used for safety.

Protection from Virus Attacks

A virus is a type of malware software. (Revise the facts you learnt about malware software in lesson three).



Computer viruses disrupt the activities in a computer. When a virus enters a computer, it duplicates the virus inside the computer. It reduces the efficiency of the computer. It also corrupts data and sometimes deletes them.



-  Install antivirus software and update it regularly.
-  If the internet is used, use safe websites.
-  Refrain from using black listed websites shown by antivirus software.
-  Refrain from clicking on pop-up windows.
-  Refrain from opening suspected emails and attachments.

Protection from Software Piracy

Amal what is software piracy



That is obtaining pirate copies of software which do not have the right to be copied by the user.

Software Piracy

Software piracy is copying or keeping duplicate copies or selling them without legal permission.

(Here, we have paid our attention to several measures that can be taken when using software)



-  Study the licence agreement before installing a software.
-  When buying a software, purchase them from a trusted company.
-  If you download a software, use the website of the production.
-  Obtain the help and advice of a knowledgeable person when purchasing, downloading or installing a software.



7.5.2

Let's use the Internet ethically

Cyber bullying

Cyber bullying is releasing false information which can make a person or an institution uncomfortable and that which can cause harassment and insult.

Ways in which cyber bullying can be caused



- ─ On websites such as Facebook, Instagram, Snapchat and Twitter.
- ─ By short messages sent via SMS.
- ─ Through instant messages : Applications and social media websites that provide instant message services.
- ─ By e-mails



Cyber bullying caused by posting insulting photos, making comments on them, uploading videos are categorized under unlawful crimes.

Stealing data which shows the identity of a person

When using the computer we may have to face hazards such as stealing data that indicate the personal identify of a person. If you use the internet, that risk is high.

Examples for data that indicate the identity of a person.

Name	Address
Telephone	Brithday

When the internet is used most of these stealings are done by accessing the computer or the tasks done by the user without his or her permission.

Examples for the misuse of data related to personal identity.

Obtain the information related to the computer and the user without permission and use them for frauds.

Misuse the infromation provided when entering websites.
e:g: Use for business aims without permission.



7.5.3

Precaution on Online Security

Precaution is important when working online using the internet. Several measures that can be taken are given below and they are already discussed under different topics.



Update the antivirus software installed in the computer.



Install the latest edition of the web browsers and update them regularly.



Set the settings as to turn on automatic updates so that new updates of malware software and operating systems (windows 8 and 10) are enabled in the computer.



Use a strong password: A password with at least eight letters should be used. Here it's better to contain simple letters, capital letters, numbers and special characters, (\$, *, # ,@) eg: kanDY#4599



Protect the wifi router with a password to provide security to the internet connection.



Be careful about phishing attacks.



Phishing attacks are obtaining information on bank account details and e-mail account details by appearing to be trustworthy and cheating the users. To protect from those, we should refrain from clicking on suspected e-mail messages, pop-up messages and hyperlinks.



Activity 4 : See Workbook 7.4



Summary

- ★ The internet is a collection of networks formed by a large number of computer networks. By connecting to the internet, we can expand our knowledge by obtaining information on any subject area, and resources such as photos and videos.
- ★ Among the services provided by the internet, e-mails, video conferencing, world wide web, file sharing, search engine facilities and downloading videos, songs and photos are the most common.
- ★ The main service provided by the internet is world wide web.
- ★ The uniform resource locator is the method used to identify different resources in each web site separately.
- ★ A web browser is an application software used to make a web site visible on the computer screen.
- ★ Electronic mail or e-mail is a type of letters sent to a person or several people by a person who has an e-mail address by using the internet.
- ★ Software with which free e-mails can be created - Gmail, Yahoo Mail, Outlook Mail.
- ★ An email address is mainly divided into two parts; username and domain name.
- ★ E-mails can be divided into inbox, sent, draft, trash and spam.
- ★ HTML (hyper text markup language) is a basic language used to create web pages.
- ★ To change the font colour and style, , and codes are used. To use a background colour <bg colour> code and to insert a picture code are mainly used.



- ★ Hacking is stealing information and data in a computer without permission.
- ★ Viruses duplicate in a computer. The memory time which is used to perform other activities is used for this and therefore the computer becomes slow.
- ★ Mainly viruses enter a computer through the internet, computer, networks, compact disks and USB drives.
- ★ Software piracy is obtaining unlawful copies of software which do not have the right to be copied by a user.
- ★ Cyber bullying is releasing negative and false information which can cause discomfort, harassment and insult to a person through social media, forums, computer games using digital tools.
- ★ Phishing attacks are obtaining information on bank account details and e-mail account details by appearing to be trustworthy and cheating the users.



English-Sinhala-Tamil Glossary

No	English	Sinhala	Tamil
1.	abstract model	විශ්වාස ආකෘතිය	கருத்தியல் மாதிரி
2.	acceptance testing	ප්‍රතිநிடல் பரிசீலனை	ஏற்புச் சோதனை
3.	access privilege	ප්‍රාවේிஷ්‍යம් விரல்கூடிய	அணுகல் உரிமை
4.	agile model	භුවල ආකෘතිය	சுறுக்குப்பு மாதிரி
5.	alternate key	විශ්වාස යෙදු	மாற்றுச் சாவி
6.	American Standard Code for Information Interchange (ASCII)	தொரතூர் ஒலிமார்டு கட்டுப்பு ஆமெரிக்கான் சிலிக்கேஜேஷன்	தகவல் இடைமாற்றுக்கான அமெரிக்க நியம விதிக்கோவை
7.	amplitude	විශ්චாரன	வீச்சம்
8.	amplitude modulation	විශ්චார மிருங்கலை	வீச்சுப் பண்பேற்றம்
9.	analog	ප්‍රතිசம	ஒப்புமை
10.	anchor	யොටும்	நிலை நிறுத்தி
11.	application layer	அனுபவேஷ சீர்ய	பிரயோக அடுக்கு
12.	architecture	தீர்மிக்கை	கட்டமைப்பு
13.	arithmetic and logical unit (ALU)	அங்க வசீக நு கார்க்க ரீக்கை	எண்கணித மற்றும் தர்க்க அலகு
14.	array	அரාவி	அணி
15.	artificial intelligence	கால்ட இடீடிய	செயற்கை நுண்ணறிவு
16.	Affective computing	இடீடிமிக் கை வිශ්චාரேஷன் பரிசுகளை	நுண்ணறிவு உணர்த்திறங்மிக்க கணித்தல்
17.	associative law	கணக்க கூடுதல்	கூட்டு விதி
18.	attenuation	விரைவு/குடும்ப	தொழிலமை
19.	attribute	பிரலைகை /ஒள்கை / பிரலைக்கணக்கை	பண்புகள்
20.	authoring tool	கமිடுகை மேவුலம்	படைப்பாக்கக் கருவி
21.	Automated Teller Machine (ATM)	எலියங்கை மூடுத் தனிலே வைத்துக் கொள்கை	தானியங்கள் பணம் கையாள் இயந்திரம்



22.	autonomous	செல்யங்காலக்/ செல்தன்று/செல்வதை	சுயாதீன
23.	axiom	செல்லிட்டிய/பூதகவீசய	வெளிப்படை உண்மை
24.	backups	ரூபங்கள்	காப்பெடுத்தல்
25.	bandwidth	கலாப பல்ல/விடை பல்ல	பட்டை அகலம்
26.	batch processing	காஷ்டி சூக்கமாக	தொகுதி முறைவழியாக்கம்
27.	big data	மினா இயீத	பெரிய தரவு
28.	binary	டிரிமய	துவிதம், இருமம்
29.	binary coded decimal (BCD)	டிரிமய கேதிக இயீமய	இருமக் குறிமுறை தசமம்
30.	bio-inspired computing	ஷேவ பேர்க பரியங்காய/ ஷேவ அனபேர்க பரியங்காய	உயிரியல் உள்ளிரப்புக் கணிப்பு
31.	bit coin	இரு காசி	நுண்கடன் பணம் செலுத்தல்
32.	bitwise	இரு அனுகாரித	பிட் வாரி
33.	bitwise logical operation	இரு அனுகாரித கார்கிக மேனையுமி	பிட் வாரி தர்க்கச் செயற்பாடு
34.	black box testing	கால மின்சா பரிச்சாவ	கறுப்புப்பெட்டிச் சோதிப்பு
35.	blogging	வேஷி சுவகங்கா	வலைப்பதிவிடல்
36.	boot-up	பூவேரிங்கா	தொடங்குதல்
37.	broadcasting	லீகாங்கா	தொலைப்பார்ப்பல்
38.	browsing	அகர்க்கீம	மேலோடல்
39.	bubble sort	இழில் கேரிம/ யா-சூக்கமாகி கேரிம	குமிழி வகைப்படுத்தல்
40.	built-in	ஒலுவிசீ / திலை	உட்பொதிந்த
41.	business process re-engineering (BPR)	வினாபார கியாவிலிங் பிரீ ஓபீனேர்காரங்கா	வணிக செயல்முறை மீன்கட்டமைப்பு
42.	candidate key	கிருபாக காஷர்	பிரதிநிதித்துவச் சாவி
43.	cardinality	கணக்கியதாவ	எண்ணளவை
44.	cathode ray tube (CRT)	காதோட் கிரஸ் கலங	கதோட்டுக் கதிர் குழாய்



45.	central processing unit (CPU)	மீடிக் கருவில் வீக்கம்	மத்திய செயற்பாட்டு அலகு
46.	characteristics	கரி குத்து / சீவிலுத்து	சிறப்பியல்புகள்
47.	check box	கலூக்கு கொடுவி	சர்பார்ப்புப் பெட்டி
48.	client-server model	கேவு கேவு-கேவு மூன்று அமைப்பு	சேவைப் பயனர் மாதிரி
49.	clock	சீபந்தீகம்	கட்காரம்
50.	cloud computing	வினாக்கல் பரிசுத்தம்	மேகக் கணிமை
51.	coaxial cable	கமிக்கை கேவிலை	உரச்சு வடம்
52.	code editor	கேவு கங்கைரகி	குறிமுறை தொகுப்பி
53.	comment	லீவர்ண்டு	விளக்கக் குறிப்பு
54.	commutative law	தகைவேங் தகை	பரிமாற்று விதி
55.	compact disc	ஸ்ரீகை சிகிகம்	ஒளியியல் வட்டு
56.	compatibility	கைபூரு	பொருந்துகை
57.	compiler	கமிபாடுகம்	தொகுப்பான்
58.	component	கங்கைகம்	கூறு
59.	composite key	கங்கை கூரு	கூட்டுச் சாவி
60.	constant	தியதம்	மாறிலி
61.	content management system (CMS)	அன்றைக்கு கலுமினாகர்ண் பட்டினிய	உள்ளடக்க முகாமைத்துவ முறைமை
62.	context switching	ஒந்தெங் ஜிவிவுகம்	நந்தர்ப்ப நிலைமாற்றல்
63.	contiguous allocation	யாழில் வீக்கம்	அடுத்தடுத்தான் ஒதுக்கீடு
64.	control structure	பாலுக் கீழ்க்கம்	கட்டுப்பாட்டுக் கட்டமைப்பு
65.	control unit (CU)	பாலுக் கீக்கம்	கட்டுப்பாட்டலகு
66.	credit card	ஷாலத	கடனாட்டை
67.	customization	அனிருக்காதம்	தனிப்பயனாக்கல்
68.	data	ஒத்து கை பாலுக் கரி	தரவு
69.	data and control bus	ஒத்து கை பாலுக் கரி	தரவும் கட்டுப்பாட்டுப் பாட்டையும்



70.	database management system (DBMS)	டத்த கமிட்டை கலூக்காகர்ண ரட்டிடி	தரவுத்தள முகாமைத்துவ முறைமை
71.	data definition language (DDL)	டத்த திரிவிவக காணு	தரவு வரையறை மொழி
72.	data dictionary	டத்த கெடிட்டேஷன்	தரவு அகராதி
73.	data flow diagram	டத்த கெல்லி கெபிள	தரவு பாய்ச்சல் வரைபடம்
74.	data flow model (DFM)	டத்த கெல்லி அகானிய	தரவு பாய்ச்சல் மாதிரி
75.	data link layer	டத்த கல்லீ ஸ்ட்டர்க	தரவு இணைப்பு அடுக்கு
76.	data manipulating language (DML)	டத்த கெஸ்ட்டர்லி சிக	தரவு கையாளல் மொழி
77.	data migration	டத்த பர்யவகய	தரவு பெயர்ச்சி
78.	debugging	திடோக் கிரிம	வழு நீக்கல்
79.	decision support system (DSS)	கிரிம கூட ரட்டிடி	தீர்மான உதவு முறைமை
80.	declarative	பூகாகார்டிக	அறிவிப்பு
81.	default values	பேர்திலி அகய	இயல்புநிலை மதிப்பு
82.	defragmentation	பிரிவினிஹக	துணிக்கை நீக்கல்
83.	demodulation	பிலிர்ப்பகய	பண்பிறக்கம்
84.	device	புராங்க / புராங்க	சாதனம்
85.	device driver	புராங்க பொகுகூங்க	சாதனச் செலுத்தி
86.	digital	அங்கீக	இலக்க முறை
87.	digital camera	அங்கீக கூசுரூவி	இலக்கமுறைப் படக்கருவி
88.	digital economy	அங்கீக ஆரீகய	இலக்கமுறைப் பொருளாதாரம்
89.	digitizer	குவிவாங்ககய	இலக்கமாக்கி
90.	direct implementation	கூப்பிரூபகய	நேரடி அமுலாக்கம்
91.	disk formatting	கூவீ/கீகக கூவிக்கு கூங்கிம	வட்டு வடிவமைப்பு
92.	distortion	கீகங்க	திரிபு



93.	distributive law	ரீக்குக கூடாய்	பங்கீட்டு விதி
94.	document flow diagram	தேர்தல் கூட்டு கூறுகள்	அழுவணப் பாய்ச்சல் வரைபடம்
95.	domain	உரிமை	ஆஸ்களம்
96.	domain name server (DNS)	உரிமை கூடு கேவ்லாய்கை	ஆஸ்களப் பெயர் சேவையகம்
97.	domain name system (DNS)	உரிமை கூடு பட்டினிய	ஆஸ்களப் பெயர் முறைமை
98.	dynamic host configuration protocol (DHCP)	கடிக விருத்தி பாலுக தியமாவலிய	மாறும் விருந்தோம்பி உள்ளமைவு நெறிமுறை
99.	dynamic web page	கடிக வெளி திறி	இயக்குநிலை வலைப்பக்கம்
100.	e-commerce	ஏல்கூத் வாகிக்கை	மின் வர்த்தகம்
101.	economical feasibility	அரசீக கைங்கூடு	பொருளாதாரச் சாத்தியம்பாடு
102.	elementary process description(EPD)	இல்லிக கியாவலி தீக்கரிய	அடிப்படைச் செய்முறை விபரிப்பு
103.	e-market place	ஓ-வெல்ட் போடு	இலத்திரனியல் சந்தை இடம்
104.	encryption	ஒரேத் கேத்தகை	முறைக்குறியாக்கம்
105.	enterprise resource planning system (ERPS)	நிதிகை கூலியன் கூட்டு பட்டினிய	நிறுவன மூலவள திட்டமிடல் முறைமை
106.	entity	ஒதுரைய/அதிகாரத்துய/காத்துவ	நிலைபொருள்
107.	entity identifier	ஒதுரை/அதிகாரத்துய கடங்களை	நிலைபொருள் அடையாளங்காட்டி
108.	entity relationship(ER) diagram	ஒதுரை கூலியை கூடு கூறுகள்	நிலைபொருள் உறவுமுறை அட்டவணை
109.	executable	கியாய்மை கூடு கூட்டு	இயக்கத்தகு
110.	executive support system (ESS)	நிதிகை கூடு பட்டினிய	நிறைவேற்று உதவு முறைமை
111.	expert system	ரிக்ஷேஷன் பட்டினிய	நிபுணத்துவ முறைமை



112.	extended binary coded decimal interchange cod (EBCDIC)	සිංහල දුර්ව්‍ය කේතක දැනම	නිශ්චත තුවිත ක්‍රියාරෘති ත්‍යාමාත්‍රක කුරි
113.	extended entity relationship (ER) diagram	පිළිගෙන ඇතාරේ සම්බන්ධා රුප සටහන	විශ්වාස්‍යපාලා නිශ්චාල්‍ය මූල්‍ය ප්‍රතිඵලිය ප්‍රතිඵලිය ප්‍රතිඵලිය
114.	feasibility study	අක්‍රාමා අධ්‍යාපනය	සාම්ප්‍රදායික ක්‍රියාවලීය
115.	feedback loop	ප්‍රතිඵලිය ප්‍රපය	පිළිගෙන ඇතාරේ ප්‍රතිඵලිය ප්‍රතිඵලිය
116.	fetch-execute cycle	අභරණ-ක්‍රියාකාරවූම් ව්‍යුහ	තරුවිඩු නිශ්චාල්‍ය ප්‍රතිඵලිය
117.	fiber optic	ප්‍රකාශ තත්ත්වය	උග්‍රී ඉංජිනීයෝලොජිස්ටික්ස් ප්‍රතිඵලිය
118.	file	ගොනුව	කොට්ඨාසිය
119.	file hierarchy	ගොනු දිරාවලිය	කොට්ඨාසිය ප්‍රතිඵලිය
120.	firewall	ගිණ පාරුර	ත්‍රික්වර්
121.	normal form	ප්‍රථම ප්‍රමිත අවස්ථාව	උග්‍රී ප්‍රතිඵලිය ප්‍රතිඵලිය
122.	fixed internal hard disk	අවල අනෙකුතර දැක් තැව්	නිශ්චාල්‍ය ප්‍රතිඵලිය
123.	flash memory	සැන් / ක්ෂේත්‍රික මෙහෙයු	ප්‍රතිඵලිය ප්‍රතිඵලිය
124.	flash memory card	සැන් / ක්ෂේත්‍රික මෙහෙයු පත	ප්‍රතිඵලිය ප්‍රතිඵලිය
125.	flat file system	එක ගොනු පදනම්වීය	සම්බන්ධා කොට්ඨාසිය ප්‍රතිඵලිය
126.	flip-flop	පිළි-පොල	සුළු-විෂු
127.	float	මුළුම්/මුළුම්	මිත්වෙ
128.	floppy disk	කම්ප තැව්	නෙක්ම් ප්‍රතිඵලිය
129.	flow chart	ගැඹුම් සටහන	පාය්සර් කොට්ඨාසිය ප්‍රතිඵලිය
130.	folder	ගොනු බිඟුල්	කොට්ඨාසිය
131.	foreign key	ආගත්තුක යොරු	අන්ත්‍රීය ප්‍රතිඵලිය
132.	formatting	භාෂික ගැන්වීම්	ව්‍යුහ ප්‍රතිඵලිය
133.	frame	රාම්ව	ස්ට්‍රෑක්ස්
134.	frequency modulation	සංඛ්‍යාත මුරුපනය	අනිර්වෙන් ප්‍රතිඵලිය



135.	full adder	පුරිතාකලකය	මුශ්‍යමෙක කාට්ඨ
136.	function	මූතය / කාරියය	සාර්ථක
137.	functional dependency	කාරිය බිඳී පරායන්තතාව	සෞයේ සාර්ථකීයෙල
138.	functional requirement	කාරිය බිඳී අවශ්‍යතාව	සෞයේ තොවෙ
139.	quantum computing	යෝගාත්මික පරිගණකය	සොට්‌ටු කණිප්පු ආද්‍ය්‍යතා
140.	gateway	ඩොරටු මග / වාසල් ද්වාරය /වාහල්දොර	නුෂ්‍යවායිල
141.	genetic algorithm	යැයැ ඇල්ගොරිත්මය	මරපණු වෘෂ්මයෙ
142.	geographical information system(GIS)	ඩැයෝලික තොරතුරු පද්ධතිය /මිශිතයේ තොරතුරු පද්ධතිය	ප්‍රජාවායිල තකවල් මුශ්‍යමෙ
143.	graph plotter	ප්‍රස්ථාර උක්තුකරණය	පෑවරුයි
144.	graphic tablet	චිලුකරුලකය	වැරුව්‍යියෙල ඩිඟ්‍රැම්ප්‍රෙසුරු
145.	grid computing	ජාලක පරිගණකය	කොට්ස්ස්ස්ට්කක් කණිමෙ
146.	guided media	හියම් මාධ්‍ය	වෘෂ්ප්‍රාග්‍රැන්ඩ් නොකම්
147.	half adder	අර්ධාකලකය	අරුර කාට්ඨ
148.	hand trace	තයෝගානුරේඛනය	කෙස් ක්‍රියාකාලීන
149.	hard disk	දැක්වී තැබේය / දැක්වී තැබේය	වෙනත් ප්‍රාග්‍රැන්ඩ්
150.	hardware	දැක්වී තැබේය	වෙනත් ප්‍රාග්‍රැන්ඩ්
151.	hexadecimal	ඡැඩි දැයෙමය	පතිනුම්
152.	hierarchical model	ඩිරාවලි ආකෘතිය	පැහැදිලිය මාත්‍රි
153.	host	සැක්කාරකය	විශ්වාසීය ප්‍රාග්‍රැන්ඩ්
154.	hub	කානිය	ක්‍රියාකාලීන
155.	human operator	මිනිස්ත්‍රියාකරුවාට්	මනිත ත්‍රියාකාරුවාට්
156.	hybrid approach	ඩෙම්ප්‍රෙෂන් ප්‍රාග්‍රැන්ඩ්	කළඹු ප්‍රාග්‍රැන්ඩ්
157.	hyperlink	අධිසම්බන්ධකය	ම් ත්‍රියාකාලීන
158.	Integrated circuits (IC)	අනුකූලික පරිපාර	ඉගුණකිණීන්ත කරුවා
159.	icon	තිරුපෑකය	සිරු පෑම



160.	identity	கரிவகாலை	அமையாளம்
161.	image	ரெபர	படிமம்
162.	imperative	லீடிங்கால்க	கட்டளை
163.	incremental	விரேகால்க	ஏறுமான, அதிகரிப்பு
164.	indexed allocation	அனுகூல விதாரண	கட்டி ஒதுக்கீடு
165.	information	கொரதூர்	தகவல்
166.	inkjet printer	திண்ட ரீட்டில் இடுகை	மைத்-தாரை அச்சுப்பொறி
167.	instant messaging	கீதீக பணிவிட யீடீ	உடனடிச் செய்தியிடல்
168.	integrated development environment(IDE)	கூமர்வெளிக கங்கால பரிசர்ய	ஒருங்கிணைந்த விருத்தி கூழல்
169.	integration test	அனுகலன பரிசீலனை	ஒருங்கிணைந்த சோதிப்பு
170.	intelligent and emotional computing	இட்டிமலர் கூ வித்தலேகி பரிசுங்கை	நுண்ணறிவும் உணர்நிறுமிக்க கணித்தல்
171.	interface	அதூர் இடைஞ	இடைமுகம்
172.	internet service provider(ISP)	அந்தர்ப்பால ஷேவர் கபைங்கூ	இணையச் சேவை வழங்குனர்
173.	interpreter	அரிபிளகாகை	மொழிமாற்றி
174.	interrupt	அதூர் ரீட்டு	இடையூரு
175.	intranet	அந்த:புலை / அந்தே:புலை	அகவிணையம்
176.	internet of things (IoT)	கூறு டுவிட அந்தர்ப்பாலை/ கமிஷன் டுவிட அந்தர்ப்பாலை	பொருட்களின் இணையம்
177.	iteration	பூதர்கரணை	மீன் செயல்
178.	karnaugh map	காநோ சிதியம்	கானோ வரைபடம்
179.	knowledge management system(KMS)	டெக்னிகல் கலெக்டாகரண் பட்டினை	அறிவு முகாமைத்துவ முறைமை
180.	large scale integration (LSI)	விகால பரிமாணதே அனுகலனை	பாரிய அளவு ஒருங்கிணைப்பு
181.	latency	பமால/ஒத்தைவு	மறைநிலை



182.	least significant	அடிமேலேகை	சிறும மதிப்பு
183.	legend	வீட்டர் காட்சி	குறிப் பிளக்கம்
184.	life cycle of data	டய்த கெள விழுக	தரவு வாழ்க்கை வட்டம்
185.	light emitting diode(LED) display	அலோட் வீலோவிக் டியேஸ் கண்டிரைக்கை	ஒளிகாலும் திருவாய்த் திரை / ஒளி உமிழும் திரு முனையம்
186.	linked allocation	கமிலை வீகாப்பகை	இணைப்பு ஒதுக்கீடு
187.	linker	கன்பிரகை	இணைப்பி
188.	liquid crystal display(LCD)	டிவிஸ்ட்ரீக் கண்டிரைக்கை	திரவப்பளிங்குக் கணினித் திரை
189.	list	ஒருக்கீடு	பட்டியல்
190.	liveware	கீலாங்கு	உயிர் போருள்
191.	local publishing	கீலாக் கூகிட்டி கிரும	உள்ளக வெளியீடு
192.	local area network (LAN)	கீலாக் கூகீடு காலுக	இடத்துறி வலையமைப்பு
193.	logic gate	கார்கிக் டீவாரக	தர்க்கப் படலை
194.	Logical Data Modeling(LDM)	கார்கிக் டய்த ஆகஸ்டிகரன்கை	தர்க்கத் தரவு மாதிரியுள்ளக்கல்
195.	logical data structure	கார்கிக் டய்த விழுகை	தர்க்கத் தரவுக் கட்டமைப்பு
196.	logical design tools	கார்கிக் கூலூஸ் மேவில்டி	தர்க்க வடிவமைப்புக் கருவி
197.	looping	இடபை	வளைய வரல்
198.	machine code	யன்று கேட்கை	இயந்திரக் குறியீடு
199.	machine-machine coexistence	யன்று-யன்று கூடுதலின்மீ	இயந்திர- இயந்திர ஒருங்கிருத்தல்
200.	magnetic ink character reader(MICR)	மிக்ரோக் கீல்க அனு ஒழுது கீடுகை	காந்த மை எழுத்தஞ்சு வாசிப்பான்
201.	magnetic stripe reader	மிக்ரோக் கீர்க கீடுகை	காந்தப்பட்டி வாசிப்பான்
202.	magnetic tape	மிக்ரோக் கீர்க	காந்த நாடா
203.	malware	அதிக்க மாட்காங்கு	தீம்போருள்



204.	management information system (MIS)	கலூமினாகர்ண கோர்ட்டர் பட்டினிய	முகாமைத்துவ தகவல் முறைமை
205.	man-machine coexistence	மிகீச்-யெறு கையைகளே மேலே	மனிதன் - இயந்திரம் ஒருங்கிருத்தல்
206.	media access control (MAC)	மாடிச பிரேரண ராடுக	ஊடக அணுகல் கட்டுப்பாடு
207.	memory management unit(MMU)	மினக கலூமினாகர்ண ரீக்காய	நினைவக முகாமைத்துவ அலகு
208.	mesh topology	மிஶீ சீர்க்காய	கண்ணி இடத்தியல்
209.	microprocessor	கீழ்க்கு கைக்காய	நுண்செயலி
210.	microwave	கீழ்க்கு கர்ங்க	நுண்ணோலை
211.	mini disk	ஒடிச கைக்காய	சிறு வட்டு
212.	mobile computing	ரெஞ்சு பரிசீலனகாய	செல்லிடக் கணிமை
213.	mobile marketing	ரெஞ்சு அலூரீகர்ணகாய	செல்லிடச் சந்தைப்படுத்தல்
214.	modularization	மோடிலூகர்ணகாய	கூறு நிலையாக்கம்
215.	modulation	மூர்க்காய	பண்பேற்றும்
216.	most significant	வீசீம் வேகேஷி	அதியுயர் மதிப்பு
217.	mother board	மீறி சுறுங்கி	தாய்ப்பலகை
218.	multi agent systems	மினு கார்க பட்டினி	பல்முகவர் முறைமை
219.	multi user-multi task	மினு பரிசீலுக - மினு கார்காய	பற்பயனர்-பற்பணி
220.	multi-core processors	மினு கர கைக்காய	பல்கரு செயலி
221.	multimedia objects	மினு மாடிச விள்ளு	பல்லுடக் பொருள்
222.	multiplexer	மினு பர்கார்காய	பல்சேர்ப்பி
223.	multiplexing	மினு பர்கராஞ்சகாய	பல்சேர்ப்பு
224.	multiprocessing	மினு கைக்கூடும்	பஸ்முறைவழியாக்கி
225.	multitasking	மினுகார்க கிரிம	பற்பணி
226.	multi-threading	மினு-அனுகூலியாக்காய	பல் செயல்கூறு
227.	nature inspired	புகாரி ஸ்ரீரங் பரிசீலனகாய/	இயற்கை உள்ளிரப்புக்



	computing	பூகாதி அனுப்பேற்ற பரிசுத்தனய்	கணிப்பு
228.	nested loop	கிடீத இடை	நீடித்த வளையம்
229.	network addresses translating (NAT)	ரூடு கொடு பரிவர்த்தனய்	வலையமைப்பு முகவரி பெயர்ப்பு
230.	network architecture	ரூடு திருத்தனய	வலையமைப்புக் கட்டமைப்பு
231.	network layer	ரூடு ஸ்ட்ரை	வலையமைப்பு அடுக்கு
232.	network model	ரூடு அகாரிய	வலையமைப்பு மாதிரி
233.	neural network	கேணுகு ரூடுய	நரம்பியல் வலையமைப்பு
234.	non-functional requirement	காரியவிடீசு கோவித அவசியத்தாவி	செயல்சாராத் தேவைகள்
235.	normalization	பூரித்தார்த்தனய்	இயல்பாக்கல்
236.	null	அதிகாரி	வெற்று
237.	object code	விசேஷ கேது/	பொருள் குறி
238.	object oriented	விசேஷ கணக்கு / பாடக	பொருள் நோக்குடைய
239.	object- relational model	விசேஷ-கலிசின்சிக் அகாரிய	பொருள் உறவுநிலை மாதிரி
240.	octal	ஏஷ்ட்டிமை	எண்மை
241.	office automation system (OAS)	கார்யால சீவியங்கர்த்த பட்டினிய	அலுவலகத் தன்னியக்க முறையை
242.	offline	மார்க அபகது/ மார்கதை கோவித	தொடர்யு நிலை
243.	one's compliment	ஒரைகி அனுப்புர்த்தனய்	ஒன்றின் நிரப்பி
244.	online	மார்கதை	தொடர்யா நிலை
245.	open source	சீவிக இலாகு	திறந்த மூலம்
246.	operational feasibility	ஒலேகேட்டுக் கைந்தாவி	செயற்பாட்டுச் சாத்தியம்பாடு
247.	operator category	கார்க பூவிர்த்தனய்	செயலி வகை
248.	operator precedence	கார்க பூமிக்கு	செயலி முன்னுரிமை
249.	optical character reader (OCR)	பூகாக அனு உடல்கு கிளிவிதனய்	ஒளியியல் எழுத்துரு வாசிப்பான்



250.	optical mark reader (OMR)	பிரைசு கெஷ் கியவினாக	காந்த மை எழுத்தரு வாசிப்பான்
251.	output	பிரிடூகல்	வெளியீடு
252.	packet switching	போட் இல்லோரை	பொதி மடைமாற்றல்
253.	paging	பிலைகர்ணாக	பக்கமிடல்
254.	paradigm	ஸ்ரீகாட்டர்காக / பிரிமிங்காக/பிரிடைகாக	கோட்பாட்டுச் சட்டகம்
255.	parallel implementation	கூடுதல்கீர்த்திப்பாக	சமாந்தர அமுலாக்கம்
256.	parameter passing	பராட்டிக் காரீம்	பரமானக் கடத்தல்
257.	parity	கூடுதல்	சமநிலை
258.	password	இரு படிக	கடவுச்சொல்
259.	payment gateway	கேவுக் கொக்குப்பனவு	பணக் கொடுப்பனவு நுழைவாயில்
260.	periodic refreshing	அாவர்த பிரேரிக்கார்ணாக	காலமுறை புதுப்பித்தல்
261.	peripheral device	பரைஞ்சு உபாங்கம் / உபங்கம்	புறச் சாதனம்
262.	phablet	ஈடீலூரி	பெப்லட்
263.	phased implementation	அவி஦ீக்கீர்த்திப்பாக / கியாவில்கீர்த்திப்பாக	கட்ட அமுலாக்கல்
264.	phase modulation	கலு இருப்பாக	நிலை பண்பேற்றம்
265.	phishing	கடுகிளம்	வழிப்பறித்தல்
266.	physical layer	கோஞ்ச கீர்த்திப்பாக	பொதீக் கடுகுகு
267.	physical memory	கோஞ்ச மிக்காக	பொதீக் நினைவகம்
268.	pilot implementation	கியாலிக் கீர்த்திப்பாக / கியாலிக் கிரிம்	முன்னோடி அமுலாக்கல்
269.	piracy	வெங்கள்விய / பிரேரிக்காக	களவு
270.	pirated software	வெங்கள்விக் கூடுகாங்க	திருட்டு மென்பொருள்
271.	plagiarism	ஒன்றி/ரவிகு வேங்காக	கருத்துத் திருட்டு
272.	point to point connection	கூட்டு கூக்கூக் கூலிக்கீர்த்திவை	ஒன்றுடனொன்று கினைப்பு



273.	pointing device	උක්වුම් උපාංගය	සුදු සාත්‍යම
274.	port	කොට්ටිය	බායිල්, තුරෙ
275.	portable external hard disk	ජංගම/දුවහැනිය බාකිර දැක්වා යෙටිය	කාවත්තකු පුර බණ්තැංු
276.	portal	දේවාරය/ ආමුඩ්වාරය	වෙළවාසල
277.	Point of sale (POS) machine	විකුණුම් පොල යන්තු	විශ්‍ර්භණ තිශ්‍රීර්ම
278.	postulate	උපකල්පනය	එනුකොස්
279.	power supply	ඡියුල් සැපයුම්/ජව සැපයුම්	මිෂ ව්‍යුත්කි
280.	presence check	තරිතතා පරික්ෂාව	இருத்தல் சரிபார்த்தல்
281.	presentation layer	கமிறபத/ஓடිරුපත් தீர்மை ஸ්யரය	முன்வෙப්பு அடுக்கு
282.	primary key	ப්‍රාථමික/මුළු යතුර	முதன්‍යமේச සාධී
283.	primitive data type	ප්‍රාථමික දත්ත වර්ගය	පුර්වීகත் தரவு வகை
284.	privacy	පෙර්‌ගැරුණகள්වය	அந்தரங்கம்
285.	private key	පෙර්‌ගැරුණ யதුර	பிரத்தியேகச் சාධී
286.	process	திரියාවලිය/திரියාயනය/ சூக்கடுමி	செயல்/ முறைவழியாக்கல
287.	process control block(PCB)	திரියාயන பாலுன மின්‌விய	செயல் கட்டுப்பாட்டுத் தொகுதி
288.	process management	திரියාயන கலூகினாகர்ணய	செயல் முகாமைத்துவம்
289.	process states	திரියාயන தற்கொலி	செயல் நிலை
290.	process transition	திரියාயන சங்கூலிணුය	செயல் நிலைமாறல்
291.	product commercialization	தில්‌பාடු வානிரக்காரணය	தயாரிப்பு வர்த்தகமயமாக்கல்
292.	product of sum (POS)	வෛක்கன්ஞ்ச டූඩ්‌கය	සුදුதුதொகையின் பெருக்கம்
293.	program translator	ஒம්‌லේඛ பரிவர்தக	செய්‌நිர්ல் மொழிபெயர்ப்பான்
294.	proprietary	தீக்கமி கால	தனியரிமை
295.	protocol	திரිමාවලිය	நடப்பொழுங்கு



296.	prototyping	இலாகாவிகர்ணய	முலவகை மாதிரி
297.	proxy server	தியேபன ஷேவிடாயகை	பதிலாள் சேவையகம்
298.	pseudo code	இதுச கேதக	போலிக்குறி
299.	public switch telephone network (PSTN)	பொடு சீரிவ பூர்க்கெட் ரூடை	பொது ஆளியிடப்பட்ட தொலைபேசி வலையமைப்பு
300.	public key	பொடு கடிர்	பொதுச் சாலி
301.	pulse code modulation	செபந்த் கேத இருப்பகை	துடிபுக்குறி பண்பேற்றம்
302.	pulse width modulation	செபந்த் ரீதர் இருப்பகை	துடிபு அகலப் பண்பேற்றம்
303.	radio button	ரீகல்டர் கேர்ம	ரேடியோ பொத்தான்
304.	random access memory (RAM)	கடமிகாவி பிரேக் மினகை	தற்போக்கு அணுகல் நினைவகம்
305.	range check	பருக பரிக்காவி	வீச்சு சர்பார்த்தல்
306.	rapid application development (RAD)	கீழு கேட்டுவிடி கங்கரிப்பகை	துரித பிரயோக விருத்தி
307.	read only memory (ROM)	பரிந மாறு மினகை	வாசிப்பு மட்டும் நினைவகம்
308.	real time	கர்ச காலிக	நிகழ்நேரம்
309.	record	லபலாக்கியான	பதிவு
310.	redo	காலித கீர்ம	மீஸ் செய்
311.	redundancy	குமிரிக்கத்தாவி	மிகைமை
312.	reference model	கோலு ஆகாவிய	வலையமைப்பின் கட்டமைப்பு
313.	refreshing	புகிட கீர்ம	புத்துயிர்ப்பித்தல்
314.	register memory	ரெகிஸ்டர் மினகை	பதிவகம்
315.	relational	குமின்திக	தொடர்பு, உறவுநிலை
316.	relational model	குமின்திக ஆகாவிய	உறவுநிலை மாதிரி
317.	relational database	குமின்திக ட்ரெட் குல்லாய	உறவுநிலை தரவுத்தளம்
318.	relational instance	குமின்திக கீட்டுக்கை	தொடர்பு முறை எடுத்துக்காட்டு



319.	relational schema	குமிக்கீடியா பரிபாரிக குறிகள்	தொடர்பு முறைக் கிட்டம்
320.	relationship	குமிக்கீடியாவிய	தொடர்புமுறை
321.	remote	நூல்கள்	தொலை, தூர்
322.	render	வீடியோ	வழங்கு
323.	repeater	பிரகாரகரிய	மீனி, மீட்டி
324.	repetition	பிரகாரகரிய	மீன் செயல்
325.	reset button	பிரகாரமிக வீர்க்கம்	மீனமைப்புப் பொத்தான்
326.	retrieve	குமிக்கீடிகள்	மீனப்பெறு
327.	return value	பிரகாரமிக அரை	திரும்பல் பெறுமானம்
328.	reverse auction	பிரிவீக்கீட்டீக	எதிர்மாற்று ஏலம்
329.	ring topology	இட்ட கீலுகய	வளைய இடத்தியல்
330.	router	மீன் கண்டிகள்	வழிப்படுத்தி, வழிச்செலுத்தி
331.	routing	மீன் கண்டிகள்	வழிச்செலுத்தல்
332.	scanner	குமிக்கீடுகள்	நூலுகு நோக்கி
333.	scheduler	கீலுகர்ண்டி	ஒழுங்குபடுத்தி
334.	scope of variable	கிருகு பருக்கய	மாறி செயற்பாடு
335.	query	கிருகும்	வினவல்
336.	selection	கீரிம்	தெரிவு
337.	selector	கிருக்கய	தேர்வி, தேர்ந்தெடுப்பி
338.	sensor	கங்கீடுகய	உ...னரி
339.	sequence	அனுமதிய	தொடர்
340.	sequential circuit	அனுமதிக பரிபரிய	தொடர்ச் சுற்று
341.	sequential search	அனுமதிக கெழிம்	வரிசைமுறைக் கேடல்
342.	server	கேவிள்லாக்கய / அனுமாக்கய	சேவைகம்
343.	session layer	கூகி கீர்க்கய	அமர்வு அடுக்கு
344.	sharable pool	நூல்மார் பூங்கய	பகிரதகு பொது இடம்
345.	sign-magnitude	ஒழுஞ்சில் புளிங்கய / கங்கீடுக்கய	குறியுடைய வீச்சளவு



		பரிமுகங்கள் / அங்கீகாரித்துக்கொள்ளப்படும் பரிமுகங்கள்	
346.	single user-multi task	ஒரு பரிசீலனை-இலு கார்யகாரித்துக்கொள்ளப்படும் பரிமுகங்கள்	தனிப்பயனர்-பற்பணி
347.	single user-single task	ஒரு பரிசீலனை-தீர்த்த கார்யகாரித்துக்கொள்ளப்படும் பரிமுகங்கள்	தனிப்பயனர்-தனிப்பணி
348.	smart card	சிறுநிலை காரிசிப்பு	குடிடிகை அட்டை
349.	smart phone	சிறுநிலை இணைப்பு	குடிடிகைத் தொலைபேசி
350.	smart system	சிறுநிலை பட்டினியல்	குடிடிகை முறையை
351.	social networking	குழுவுக்காரர்ணங்கள்	சமூக வலையமைப்பாக்கல்
352.	software	மின்காங்கள்	மென்போருள்
353.	software agent	மின்காங்கள் கார்கள்	மென்போருள் முகவர்
354.	sort	அமீர்த்தி	வரிசைப்படுத்து
355.	source	பூசுவி	மூலம்
356.	spiral model	கரிசில அகாஷிய	கருளி மாதிரி
357.	spooling	உதிதி	கற்றுதல்
358.	Star topology	கார்கா கீல்கை	வின்மீன் இடத்தியல்
359.	stepwise refinement	கீல்விக்கார கிரிப்பைலி	பாதுமுறை நீக்கல்
360.	storage	ஆவியகங்கள்	சேமிப்பு
361.	storage allocation	ஆவியக விழுதுகள்	சேமிப்பு ஒதுக்கல்
362.	stored program concept	ஆவியக ஒமுலேஷன் கங்கள்	சேமிக்கப்பட்ட செய்நிரல் எண்ணக்கரு
363.	structure	மிகுங்கள்	கட்டமைப்பு
364.	structure chart	மிகுங்கள் கார்கள்	கட்டமைப்பு வரைபு
365.	structured	மிகுங்கள்	கட்டமைப்புடைய
366.	structured query language(SQL)	மிகுங்கள் விளைவுகள் இலக்கணம்	கட்டமைப்பு விளைவு மொழி
367.	submit button	கோடி வோத்துமி	சமர்ப்பித்தல் போத்தான்
368.	subnet mask	ரீப் ரூல் ஆவிர்ணங்கள்	உபவலை மறைமுகம்
369.	sub-netting	ரீப்-ரூல்கள்	உபவலையமைப்பு



370.	sub-program	ஸு-நிலேஷன்	துணைச் செய்நிரல்
371.	sum of products (SOP)	ஒளித்தன்மை வீகநய	பெருக்கங்களின் கூட்டுத்தொகை
372.	supply chain management	உற்பத்தி லாம் கலுமினாகர்ணய	விநியோக சங்கிலித்தொடர் முகாமைத்துவம்
373.	swapping	ஒத்திருப்பு	இடமாற்றல்
374.	switch	சீரிடிய	ஆஸி
375.	syntax	கார்க் ரிடி	தொடரியல்
376.	system development life cycle(SDLC)	பட்டினி கங்கிரெடிக் பிரிக் விழுக	முறைமை விருத்தி வாழ்க்கை வட்டம்
377.	table	விடுவு	அட்டவணை
378.	table check constraint	விடு பரிசீலனை கண்ணிடுகிய	அட்டவணை சரிபார்த்தல் கட்டுப்பாடு
379.	tag	கெட்டுக்கொண்டு	ஒட்டு
380.	Technical feasibility	தொகைத் தொகைத்துவம்	தொழிலுடைச் சாத்தியக் கற்கை
381.	telecommuting	டைக்ஸ் கங்கிரெடிக் / டைக்ஸ் கண்ணிடுகிய	தொலைசெயல்
382.	testing strategy	பரிசீலனை முறை	பரிசீலித்தல் உபாயம்
383.	text and font	பார் கூற அங்கீர	வாசகமும் எழுத்துநிறுவும்
384.	text formatting	பார் கூறுவதற்கு கைப்பிடிக்கும்	வாசக வடிவமைப்பு
385.	text input	பார் கூடுதல்	வாசக உள்ளிடு
386.	normal form	பிரிக்கான அமைப்பு	இயல்பாக்கல் வடிவம்
387.	thumbnail	ஈடுகளை ஒரு கீழை	குறும்படம்
388.	time division modulation (TDM)	கால வெட்டு இருப்புக்கை	நேரப் பிரிவுப் பண்பாக்கம்
389.	time sharing	கால வீகநய	நேரப்பகிர்வு
390.	timing	கால கண்கை	நேரக்கணிப்பு
391.	top down design	மூடிந் திடி கூலைக்கு	மேலிருந்து கீழான வடிவமைப்பு



392.	touch pad	தீப்புக்கை உபயோகம் / பாடகம்	தொடு அட்டை
393.	touch screen	தீப்புக்கை தீர்க்க	தொடுதிரை
394.	transaction processing system(TPS)	கணுக்கூறு கூக்குளி பட்டினிய	பரிமாற்றச் செயலாக்க முறைமை
395.	transitive dependency	கங்காங்கி எருத்தொலி	மாறும் சார்பு நிலை
396.	transport layer	பிரிவாகன தீர்க்க	போக்குவரத்து அடுக்கு
397.	transport protocol	பிரிவாகன தீயமாவலீய	போக்குவரத்து நடப்பொழுங்கு
398.	tuple	ரூபாக்கியாக/தேவீக	பதிவு/நிரை
399.	twisted pair	ஒத்திரி இடம்	முறுக்கிய சோடி
400.	two's compliment	ஒட்டைகி அனுப்புக்க	இரண்டின் நிரப்பி
401.	type check	பிரிப் பரிக்கூலி	வகை சரிபார்த்தல்
402.	constraint	கங்கீர்விக	கட்டுப்பாடு வகை
403.	ubiquitous computing	கரிவிவரத் துறைகளை	எங்கும் வியாபித்த கணிமை
404.	undo	அனார்ஜி கிரிம்	செயல்தவிர்
405.	unguided media	தீயமு கொலிந மாவின	வழிபடுத்தப்படாத ஊடகம்
406.	uni-casting	கூட்டு கலீப்புக்க	தனிப்பரப்பல்
407.	unicode	மூனிகேஷன்/ ரீகங்கை	ஒழிறைக்குறி முறை
408.	unique constraint	அனநந கங்கீர்விக	தனித்துவக் கட்டுப்பாடு
409.	unit testing	கீக்க பரிக்கூலை	அலகுச் சோதனை
410.	universal	கூர்விடு	பொது
411.	updating	கூவிக்காலீக கிரிம்	தற்காலப்படுத்தல்
412.	user	பரிசீலக	பயனர்
413.	user defined	பரிசீலக திருவாசை	பயனர் வரையறை
414.	validation	விளங்க கிரிம்	செல்லுபடியாக்கல்
415.	variable	விவரங்க	மாறி
416.	very large scale integration (VLSI)	ஒது விகால பரிமாளங்கே அனுகளிக	மிகப் பெரியளவிலான ஒருங்கிணைப்பு



මෙම පාරිභාෂික ගබඳ මාලාව තවදුරටත් ගොඩනැගෙමින් පවතී.

