

## INTRODUCTION TO LINUX

Linux is a unix operating system clone which runs on a variety of platforms, especially personal computers. It supports a wide range of software from Tex to X window system including the GNU C and C++ compiler. Its original creator was a student named Linus Torvalds.

Some basic commands are:

pwd : stands for present working directory or print working directory. Shows path upto the current working directory  
Eg: /home/cse/cse02.

mkdir : The command which is used to create a directory is called as the mkdir command.

The general form or syntax of mkdir command is :

mkdir <filename>

ls : ls command is used to list all the files and directories present.

Syntax: ls

vi : visual editor or vi command is used to create and enter the file. It is a default text editor. The general form or syntax

of vi command is

vi < file name >

some of the vi commands are:

:w = save the content of file.

:wq = save and quit the file

:q = quit the file without saving it.

cd: To change the directory which is created by the mkdir command, we use the cd command with the syntax.

cd < directory name >

rmdir: we can delete a directory using the rmdir command. The general form or syntax of this command

rmdir < directory name >

cat : creating a file is done by using cat command with syntax

cat < filename >

we cannot edit/modify / delete the contents of the file which are created by using cat command.

cp : The cp command is used to copy files and directories. The copies become independent of the originals i.e a subsequent change in one will not affect

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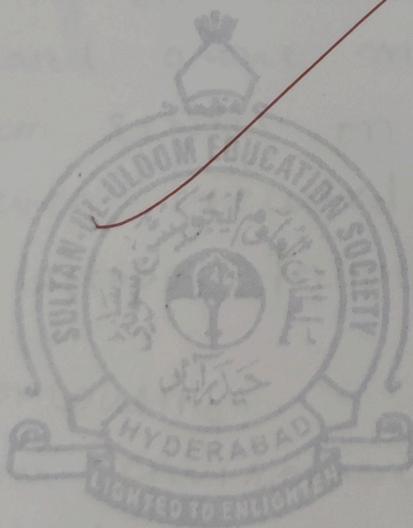
the other).

Syntax: cp <oldfilename> <newfilename>

mv : The mv command is used to move files and directories from one location to another. Apart from moving, it is also used to rename files.

Syntax of command:

mv <old filename> <new filename>



## COMPUTING ENVIRONMENT

computing environment is a collection of computers which are used to process and exchange the information to solve various types of computing problems.

The following are the various types of computing environments:

personal computing environment:

It is a standard alone machine where the complete program resides on the same machine and even executed from the same machine. Eg:- laptops, printers etc.

client server Computing:

The client server environment contains two machines a) client machine b) service machine where both the machines will exchange information through an application.

client is a normal computer like pc, mobile, laptop... server is powerful computer which stores and manages huge amounts of data.

For eg:- emails. The communication between client and server is performed using hypertext transfer protocol (http://)

Time sharing computing:

It is a stand alone computer in which a single user can perform multiple operations at a time by using multi-tasking operating system i.e. the processor time is divided among different tasks which is called as time sharing.

Distributed Computing:

Here the complete functionality is not on a single computer but is distributed among multiple computers which communicate with each other over a network to perform the task.

Grid computing environment:

It is a collection of computers from different locations

cluster Computing environment:

It is a collection of interconnected computers where a collection of systems work together as a single large system.

Grid and cluster belongs to distributed computing environment

## Software Development :

The process determines the overall quality and success of the program. It involves the following steps:

1. Specify the problem requirements.
2. Analyse the problem
3. Design an algorithm
4. Implement the algorithm.
5. Test and verify the program.
6. Maintain and update the program.

### → ALGORITHM

An algorithm is a finite set of instructions that represents the step by step logical procedure for solving a problem or task.

characteristics of an algorithm.

Input: zero or more

Output: at least one quantity if produced

Definiteness: Each instruction is clear without any ambiguity.

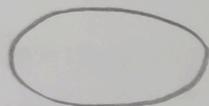
Finiteness: The algorithm should terminate after a finite number of steps.

Effectiveness : Each operation must be simple and so should be completed in finite time.

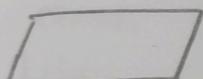
### FLOWCHARTS :

A flowchart is a pictorial representation of an algorithm which uses different shapes to denote different types of instructions:

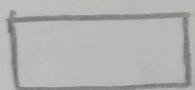
The following are symbols used in flowcharts:



oval shape: start/ stop are denoted by the oval shape or symbol which first and last symbol in program.



parallelogram: Input and output statements in the flowchart are illustrated with this shape.



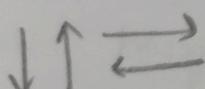
rectangle: This shape is used to denote the data processing instructions.



Rhombus: This shape is used to indicate a point at which decision has to be made.



circle: It is used as connecting symbol for a long flow chart.



flowlines: It is used to indicate the flow or direction of the operation in flow chart.

## Creating And Running of Programs

we have four steps in creating and running a programs in C as:

1. writing and editing the program: source code is entered through a text editor (vi) and after writing the program it should be translated into machine language with the help of translator [ compiler -in C ].
2. Compiling program: This is carried out by the compiler which translates the source code to the object code which is error free. The error free object code is stored in separate file with .obj extension.
3. linking the program with standard libraries: linking the program to link the object code with required library modules i.e it links all the built-in functions definitions with the object code which is required for execution.
4. Running or executing the program: The executable code is loaded into main memory with the help of a loader and the execution of the program begins.

All the above steps can be diagrammatically represented.

