LAB CYCLE - 0

I. Some important UNIX commands

Command	Meaning
ls	Lists the files
emacs <filename>	Opens an editor that creates and edits a file
mv <filename1> <filename2>	Moves a file from one location to another location
cp <filename1><filename2>	Copies a file
rm <filename>	Removes a file
diff <filename1><filename2>	Compares files and shows where they differ
wc <filename>	Tells you how many lines, words and characters are there in a file
mkdir <dirname>	Make a directory
cd <dirname>	Change directory
pwd	Tells you where you currently are(directory)
ff	Finds files anywhere in the system
grep <string> <filename(s))>	Looks for the string in the files
who	Tells who has logged in
date	Shows the current date and time
cal	Shows a calendar of the current month
man <commandname>	Shows you the manual page for the command
cat	Displays file contents
file	Determines file type
find	Finds files
vi	Opens vi text editor
vim	Opens vim text editor
cc	ANSI C compiler
passwd	Change user password
users	Print names of logged in users
wq	Saves the file and exits from editor

II. Steps for executing a C Program

1. Go to Terminal
2. Create directory with a name of your choice.
   Example:
   >mkdir cplab
   >cd cplab

3. Open the editor

   Example:

   >vi first.c

4. Write the program, save and exit from editor

To save: press Ctrl+s

To exit from the editor: Press ESC, Shift+ :, and at : give wq

5. Compile the program

> cc first.c

6. If there are no errors, execute the program. Otherwise, repeat through Step3 and edit the program.

To execute:

>./a.out

Note: By default, the object file gets stored in a.out; To change this, while compilation give

>cc first.c -o first.out

And

>./first.out

III. Some simple C Programs

1. A program to display Hello message

```
/* A program to display Hello
message*/
#include<stdio.h>
void main()
{
printf("\n Hello World!");
}
```

2. A program to convert given distance in miles into kilometers

```
/*Miles to Kilometers*/
#include<stdio.h>
#define kpm 1.609
void main()
{
double miles,kms;
printf("\nEnter the distance in miles:");
scanf("%lf",&miles);
kms= kpm*miles;
printf("\n That equals %f
Kilometers.",kms);
}
```

3. A program to add two numbers

```
/* Addition of two numbers*/
#include<stdio.h>
void main()
{
int a,b,c;
printf("\n Enter two numbers:");
scanf("%d%d",&a,&b);
c=a+b;
printf("\n Result=%d",c);
}
```

IV. Software Development Method

Programmers use Software Development Method for Problem Solving.

The steps in Software Development Method are:

1. Specify the problem requirements
2. Analyze the problem
3. Design the algorithm to solve the problem
4. Implement the algorithm
5. Test and verify the completed program
6. Maintain and update the program

Problem

Specifying the problem requirements, forces you to state the problem clearly and unambiguously.

Analysis

Analyzing the problem involves identifying the problem's (a)inputs, the data you have to work with;(b) outputs, the desired results, and (c) any additional requirements or constants on the solution.

Design

Designing the algorithm to solve the problem requires you to develop a list of steps called an algorithm. Major steps in an algorithm,

1. Get the data
2. Perform the computations
3. Display the results

Implementation

Implementing the algorithm involves writing it as a program. We must convert each algorithm step into one or more statements in a programming language.

Testing

Testing and verifying the program requires executing the program to verify that it works as required.

Maintenance

Maintaining and updating the program keeping it up-to-date according to the company's regulations.