# C/C++ Programming in Linux Terminal Environment

Semester 2 - 2013/14

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February 22, 2014

# Outline

- Requirements
- Log into the server
- Basic Linux shell commands
- Text editing in Linux Shell
- Creating *Calculating the mean value* Program.

# Requirements

- Client computer equipped with Putty (for Windows) or ssh-client (for linux). *For Windows users, download and install Putty in your machine.*
- Server computer equipped with ssh-server, GNU C/C++ compiler, text editor (emacs/vi/nano)
- Network connection between client and server computers.

# Log into the server

- server/hostname: hpc-cluster.fsksm.utm.my
- username: student[101-132]
- default password: tp2
- Login using Putty
  (hostname: hpc-cluster.fsksm.utm.my, connection type:ssh)
- Login using ssh-client, for linux user
  (*ssh student101@hpc-cluster.fsksm.utm.my*)
- Change your password

# Basic Linux Shell commands

- ls
- pwd
- cd
- mkdir
- rmdir
- rm
- cp
- mv

# Editing text in Linux shell

- Choose your preference text editor. Some of the choices are Emacs, Vi and Nano.
- Practice the commands to
  - Creating a new file
  - Adds words and lines into the text files.
  - Delete characters, words and lines.
  - Text Searching
  - Text Replace
  - Save the file
  - Exit the editor

# Develop a simple C/C++ program

- Create a file named *main.cpp*
- Write the Hello World source code.
- Compile the source code and develop the program
  *g++ -o main main.cpp*
- Execute the the program
  *./main*

# Create the input file

Create a file named *input.txt*.
Write several integer numbers in the file.
Save the file.

# Develop another simple C/C++ program

You have just created a text file named "input.txt". There are several integer numbers written in the file. You are required to write a C/C++ program that will read the "input.txt" as an input file. The program will load the integer values from the file into a 1D integer array. Later, the program will calculate the average value from the element of the array. Note that the program should implement looping while loading the array and calculating the average value. The program should produce the output on the screen and also in the output text file named "output.txt". An example of program output layout should as shown in the next slide.

# An example of output.txt

Input filename: input.txt
Output filename: output.txt
Number of integer values: 3
Array elements: 9 7 3.
Total of the array elements: 19
The average of array elements: 6.33