EECE 315 – UBC

Assignment 1

Overview

The overall goal of this assignment is to familiarize the students with the Linux command line interface for editing, compiling, running and debugging C programs.

All subsequent assignments in this course will require you to modify the Nachos OS code and run it from the command line, therefore it is mandatory that you are familiar with command line. At the end of this assignment, you will have a running version of Nachos in your system.

NOTE: We strongly recommend that you use the Linux images provided inside Virtual Box for completing this assignment. If you decide to run Linux natively on your system, you are responsible for porting all the software to your platform.

Task 1: Nachos setup

Follow the instructions given in the class and have a compiled version of Nachos running in your system. You will run the test program "halt" under the "/code/test" with command **"<your nachos> -d ca –x <path/to/the/halt>"** to see if the Nachos setup is working fine.

Task 2: Argument handling

Write a C++ program that accepts any number of inputs through command line and returns the sum of all the inputs. If there is no input passed to the program the output should notify the user to pass at least one input. If there is at least one input given to the program, the output returned should be the sum of all the inputs.

PS: your program should be capable of handling **any** number of input parameters.

Task 3: Writing a makefile

Write a C++ program to print Fibonacci series for the input given in the command line. The function to print Fibonacci series should be in a separate C++ file. The function used in the main program should be declared in separate header file. The structure of your assignment should be as followed:

Write a makefile to run the above program. Your makefile should list all the files your output is dependent upon and should compile your above program.

Program.c – Should contain the main function and call to the "fibonacci" function.

Fibonacci.h – Should contain just declaration of "fibonacci" function.

Fibonacci.c – Should contain definition for "fibonacci" function.

Makefile – Should contain instruction to compile the above files.

When the TA comes you will have to compile the program using makefile and show the output. You need to submit the program as well as makefile.

Task 4: Debugging (Demo)

This task does not require any programming. Instead the students will have to show a demo when the TA is there. Students need to debug the above-created program (Task 3) and add a breakpoint before the "fibonacci" function. And when the program stops at the break point use GDB for the following tasks:

1. Print stack trace for the program.
2. Change the value of any variable using GDB.
3. Resume the program execution.

You will be assessed based on the above 3 points.

Evaluations

Complete Nachos setup   –   20 %
Correct output Task 2   –   20%
Correct output Task 3   –   30%
Correct output Task 4   –   30%

Submission Guidelines

You will submit the code for **Task 2 and Task 3** in a zip file. Submit the zip file as an attachment to the eece315term2@gmail.com with the subject as follows:
"Assignment 1: <Group No.>"

Once you submit the assignment, you will receive an automated reply from the system. You need to show that reply to the TA before they could assess your assignment in the lab, to make sure that you have submitted your assignment correctly.

PS: Your group numbers will be assigned to you in your next lab session.