CSE 232

Systems Programming

2017 Spring

Assignment 6
Last Submission Time: 21.4.2017, 23:45

Purpose of This Assignment

The purpose of this Assignment is to have experience with **Linux commands** and **C preprocessor**.

Part 1: Shell script (100 pts)

Create several directories whose names are specified in a file. The name of this file and the number of lines in it will be specified as command line arguments. Each line of a file contains a directory name.

Example input:

Command line arguments: myFile.txt and 4

The lines of myFile.txt:

aaa

bbb

ccc

ddd

Output: 4 folders will be created in the current working directory, whose names are aaa, bbb, ccc and ddd.

In your shell script, you should implement the following steps to obtain each directory name:

1. In a loop, where the number of iterations will be determined by the number of lines in the file, use head and tail commands to obtain first and remaining lines of a file as well as redirection. For the above example, your shell script operate as given below:

Iteration 1: Get the 1st line of myFile.txt with head command. Create a directory with the name aaa. Get the remaining lines of myFile.txt and redirect to another file, 1.txt. Now the current contents of 1.txt become

bbb

ccc

ddd

2. Repeat step 1 with updated parameters for head and tail instructions, along with the filenames you process. (For example, in the next iteration, you will get the 1st line of 1.txt and redirect the remaining lines of it to a file called 2.txt.)

For this part, submit your shell script.

Part 2: C preprocessor (100 pts)

You should create the following files:

platforms.h

desktop.h

mobile.h

platformSelect.h

main.c

Expected contents of these files are specified below:

platforms.h: Define two macros named DESKTOP and MOBILE. Depending on whether values of these macros are one or zero, the output will change.

desktop.h: Define a macro called PLATFORM with the value of "Desktop".

mobile.h: Define a macro called PLATFORM with the value of "Mobile".

platformSelect.h: Implement a conditional macro structure. If DESKTOP is 1, desktop.h will be included. If MOBILE is one, mobile.h will be included. If both DESKTOP and MOBILE are zero, define the macro PLATFORM with the value of "platformUndefined".

main.c: Create a main function where the value of macro PLATFORM is displayed. Depending on the values of macros (Desktop and Mobile) you are expected to observe the output for three different cases as below:

Platform is Desktop (if DESKTOP is one and MOBILE is zero)

Platform is Mobile (if MOBILE is one and DESKTOP is zero)

Platform is platformUndefined (if both MOBILE and DESKTOP are zero)

Generate expanded version of your C code by using -E flag in gcc (**gcc -E main.c**). There should be three different versions of the expanded code depending on the values of the macros described above. What are the differences between original file and the expanded version and why are there any differences? You should include your answer in a file named report.txt. As well as the files you created as defined above, send the screenshot of the differences in the expanded version.

Also create a **makefile** so that you can execute your code typing only **make** in command line.

SUBMISSION

Create separate folders for both parts with names part1 and part2, then compress so that you can submit a single file. Save your work in a file named **nameLastNameID.zip** and submit it using COADSYS.