**The University of Alabama in Huntsville - Electrical and Computer Engineering**
**Project 2 (10 points)**
**This assignment is to be handed into your TA by the end of the lab period on:**
**Mon/Wed Labs: Wednesday January 23, 2013**
**Tue/Thur Labs: Tuesday January 22, 2013**

In this assignment, you will become more familiar with the UNIX operating system and how to perform several basic actions in the terminal windows.  Commands you will use in this project are: **rm, cp, ls, pwd, cd mkdir, rmdir, mv and gedit.**

## Part I – Working With Directories And Files

Open a terminal window and change directories into your **Project_02** directory.  Remember that this directory is a sub directory of your **CPE112_SPR13** directory.   Verify that you are in the correct directory before you proceed with the exercises below.

# Use File names exactly as shown – use the same capitalization
# Read the entire step before performing the actions in the step

1) **Step 1:** Use gedit to create a file named **Cpp_header.cpp** (i.e. **gedit Cpp_header.cpp &**). The content of this file is to be the following (type everything as shown)  :

```
// **************************************
// Program Title: Sample header file
// Project File: Cpp_header.cpp
// Name: Ron Bowman  ← replace with your name
// Course Section: CPE-112-01 ← Replace with your course section
// Lab Section: 4 ← replace with your lab section
// Due Date: 01/19/05
// program description: Description of
// What the program does.
// **************************************
#include <iostream>
using namespace std;

int main()
{
    return 0;
}
```

**Save the file and leave gedit open ←**
**Step2: Compile** your program **<g++ Cpp_header.cpp –o  Cpp_header>**.  If errors are reported, fix them, **save the file** and compile again.  Once the header file compiles, exit out of gedit and delete the executable file **Cpp_header** (not Cpp_header.cpp) using the command **<rm Cpp_header>**

2) Using UNIX commands, create a **copy** of **Cpp_header.cpp** and call the copy **Project2_part1.txt** You should now have two files in your **Project_02** directory.

3) Create another **copy** of the file **Cpp_header.cpp**, and call this new file **Project2_part1.txt.bk**

4) **Type in this command <mv Cpp_header.cpp  .. > to move** the file **Cpp_header.cpp** to the parent directory **CPE112_SPR13 (remember this technique for Part II step 6)**
    At the end of this project, this file will be copied and renamed to all of your project directories so that you will have a starting point for all of your programs.

5) Create two new sub-directories in your **Project_02** directory.  Name these directories **Part1a** and **Part1b**.  Make these directories one at a time. **Type these directory names exactly as shown.**

6) Move the file **Project2_part1.txt** to the **Part1a** sub-directory.

7) Move the backup file **Project2_part1.txt.bk** to the **Part1b** sub-directory

8) Verify that your **Project_02** directory contains the directories **Part1a** and **Part1b** only.

9) Change directories into the **Part1a** sub-directory and rename the file **Project2_part1.txt** to **Project2_part1a.txt**

10) Use **gedit** to edit the file **Project2_part1a.txt**   Modify the file so that the name on line three matches the current name of the file. Save the file and exit out of gedit.

11) Make a **copy** of **Project2_part1a.txt** and call it **Project2_part1a.txt.cp**

12) Use gedit to edit the file **Project2_part1a.txt.cp**   Modify the file so that the name on line three matches the current name of the file. Save the file and exit out of gedit.

13) Create a sub-directory named **Part1a_bk**   This directory should be created in the **Part1a** directory.

14) **Move** the file **Project2_part1a.txt.cp** file to the **Part1a_bk** sub-directory.


# Part II – More Working With Directories And Files

1) Change directories from your current directory (**Part1a**) to the **Part1b** directory that was created in Part I, step 5.  Verify (**using pwd**) that you are in the correct directory before continuing.

2) Create two new sub-directories called **Part1b_1** and **Part1b_2**  **Type these directory names exactly as shown(start with a capital P).**

3) **Rename** the file **Project2_part1.txt.bk** to **Project2_part1b.txt**

4) Use **gedit** to edit the file **Project2_part1b.txt**, and change the file name on line three to match the current name of the file.  Save the file and exit out of gedit.

5) **Copy Project2_part1b.txt** to the new sub-directory **Part1b_1**  Then  **copy Project2_part1b.txt** to the new sub-directory **Part1b_2**  A file with the name of **Project2_part1b.txt** should be present in the current directory and also in the two sub-directories.

6) **Reference the instructions in Part1 step 4 for help on this step.**  **Move** the file **Project2_part1b.txt** from the current directory to the parent directory.  You should currently be in directory **Part1b**, which is a sub-directory (or child directory) of **Project_02.**  Therefore, for this step, move the file up to the **Part1b** directory (note: Project_02 is the parent directory of Part1b).

7) Change directories into the **Part1b_1** sub-directory, and make sure you are in the correct directory (your path should end with Project_02/Part1b/Part1b_1).

8) Delete the file that is present in the directory

9) Change directories up to the parent directory (**Part1b**)

10) Delete the directory **Part1b_1**

11) Change directories up to the parent directory **(Project_02).  Before proceeding with part III, verify that you are in the directory CPE112_SPR13/Project_02 by using the pwd command**

## Part III: Output File Generation

**Before downloading the files below, change your preferences in Firefox to prompt for the directory to save a file.  To change your preferences, go to the firefox edit tab -> preferences (at the bottom of the list) ->Main and select "Always ask me where to save files"**

After you have completed all the steps in **Parts I and II,**  perform the following tasks:

1) Download the file **Project_02_output.bash** from the Project 02 page in ANGEL.  Save this file in your **Project_02** directory

2) Open a terminal window and change into the **Project_02** directory.

3) At the command prompt, type in the command:  **chmod  700  Project_02_output.bash**

4) Next, <u>maximize</u> the terminal window and type in the command:  **./Project_02_output.bash**

5) **Show the results to your TA before continuing with the project.**

This script creates a file called **username.txt** (where username is your username).

The script then shows a side-by-side comparison between a sample solution file and **username.txt**.  This comparison allows you to see what differences there are between the expected solution and what you have created.  Your TA can help with understanding what is being shown by the comparison.

If you want to see what is in the file you can type the command **more username.txt**

## Part IV: Project Submission

1) Print out a copy of your output file using the command  **lp username.txt**   (the command starts with a lower case L) and hand it in to your TA.  **Remember username is your username – i.e. aaa0001**  The TA will initial the line in your handout that you just gave the TA.

2) Next, <u>also submit</u> your **username.txt** file to the **program submission drop box for project 2**.

## Part V: Header File Duplication

By following the steps below and running the script shown, the file **Cpp_header.cpp** will be copied and renamed into each project directory created in Project_01.   This provides a starting C++ file of the form Project_##.cpp in the directory for each project.

1) Download the file **CreateHeaders.bash** from the Project 02 page in ANGEL.  Save this file in your **CPE112_SPR13** directory.

2) Open a terminal window and change directories **(cd CPE112_SPR13)** into your **CPE112_SPR13** directory.   Compile the **Cpp_header.cpp** file (**g++ Cpp_header.cpp –o Cpp_header**) to make sure there are no syntax errors in it.  Once the program compiles (command prompt comes back with no messages), delete the file Cpp_header (not Cpp_header.cpp) if it exists (rm Cpp_header).

3) At the command prompt, type in the command:  **chmod  700  CreateHeaders.bash**

4) Type in the command:  **./CreateHeaders.bash**

5) Type in the command **< ls * >.**   You should see the contents of all of your directories and each directory should have a file with the same name of the directory with an extension of .cpp