Fall 2006: CS 333 – UNIX Operating Systems Fundamentals

Homework – 4

200 points. Individual work only. Due December 1, 2006.

1. Write a bash shell script that performs search and replace on specified patterns in multiple files. The script must take the first argument as the pattern to search, second argument as the string to replace, and the next arguments should be multiple files. **[25 points]**

   Example: To replace each occurrence of "C++" with "C Plus Plus" in all files that end with .cc and .cpp – ***./myreplace "C++" "C Plus Plus" *.cc *.cpp***

2. Write a bash shell script (myutil) that will perform the following operations based on the options provided: **[25 points]**

   a. ***myutil –c archivename.tar.gz filepattern***

      Create a compressed archive of all the files that contain "***filepattern***" as part of their filename (e.g., *.java, *.o). Display a message if there are no files that match the specified pattern.

   b. ***myutil –d directory filepattern***

      Delete all files that have "***filepattern***" as part of their filename. Starting from the directory specified by "***directory***" and continuing through the directory structure. Display a message if there are no files that match the specified pattern.

   c. ***myutil –l directory filepattern***

      List all files that have "***filepattern***" as part of their filename. Starting from the directory specified by "***directory***" and continuing through the directory structure. Display a message if there are no files that match the specified pattern.

3. Write a script for the bash shell that will perform the following operations: **[100 points]**

   a. Display a menu as shown below:

      Current directory is "/mz/hd/afgane/cs333"

      1. List Users
      2. Show Date
      3. Display file details
      4. Change directory
      5. Return original directory
      6. Quit

      Enter choice [1]:

      Note that the directory displayed should be the directory where the script is executed and next to choice the number displayed is incremented every time a menu option is chosen.

   b. If the user selects option 1, print the list of users currently logged on to the system along with the hostname as shown below:

      Users logged on to "vulcan2":
      abc
      afgane
      xyz

      Note that there should not be any duplicate entries and the display should be sorted based on ascending order of the user ids.

   c. If the user selects option 2, print "***Good Morning***" or "***Good Afternoon***" depending on the time of the day and print only the date, as shown below:

      Good Morning. Today's date is: Nov 17 2006

d. If the user selects option 3, prompt the user to enter a filename, determine if the file exists, has read and write permissions, and print a message as shown below:

   "myscript" exists and has read and write permissions

   If the file does not exist or does not have read or write permission, print one of the following messages:

   "myscript" exists and has read permission but no write permission
   "myscript" exists and has write permission but no read permission
   "myscript" exists and has no read and write permissions
   "myscript" does not exist

e. If the user selects option 4. prompt the user to enter the name of a directory to change to, determine if the directory exists, change to the directory, and print a message as shown below:

   "/tmp" exists, changing directory

   Check for the error code returned when the change directory command was used and print the error status code along with the following message when the error code is not zero:

   Change directory failed, error code returned 1

   You must also save the current directory before changing to the new directory.

f. If the user selects option 5, change directory to the previously saved directory and print:

   Changing to "/mz/hd/afgane/cs333"

   If there is any error changing to the previously directory print:

   Changing to "/mz/hd/afgane/cs333" failed

g. If the user selects option 6, exit the program.

4. Write a bash shell script that will compute the final class grade assuming that the quiz scores count towards ***40%*** of the final grade and homework scores count towards ***60%*** of the final grade. Use the following tab separated data (save this to a file called "***scoresheet***") and note that all scores are for a maximum of 100 points. Include additional columns for the ***total quiz score***, ***total homework score***, ***total score***, and the ***final grade*** and write the output to a file "***scoresheet.final***". To determine the final grade use the following conditions: **[50 points]**

   Final Score Grade

   >=80 A

   >=70 and < 80 B

   >=60 and < 70 C

   >=50 and < 60 D

   < 50 F

   Code Name Quiz1 HW1 Quiz2 HW2 Quiz3 HW3 Quiz4 HW4 Quiz5 HW5

   7874 David A. Boercker 11 60 11 100 0 56 10 78 96 78

   2134 Lyle C. Boercker 45 90 40 36 88 90 55 77 23 30

   6134 Orin C. Braucher 0 34 89 80 89 55 20 78 56 34

   4532 Marjorie M. Conrad 55 11 50 17 99 81 80 32 78 77

   1234 Dyllis B. Harvey 22 52 70 70 100 100 77 78 45 34

   9893 Peter M. Kinderfield 89 34 50 9 91 77 60 78 68 20

   Sample Output:

   Code Name Quiz1 HW1 Quiz2 HW2 Quiz3 HW3 Quiz4 HW4 Quiz5 HW5 QuizTotal HWTotal FinalScore Grade

   7874 David A. Boercker 11 60 11 100 0 56 10 78 96 78 372 128 45.12 F

Submission Guidelines:

Please email all the scripts developed to solve the above questions to afgane@uab.edu and also turn in a printed copy of the scripts along with the input used to test these scripts and the output obtained on the due day in class. [10 points penalty for each 24 hour period after due date (weekends count as 24 hours)].