Ahmedabad University
School of Engineering and Applied Science

BTech (ICT), Semester – V
Course: 'Operating Systems'

Assignment Set – 1, Shell Programming

Instructions

- **Write and test shell scripts/programs on unix/Linux platform**
- **Last date of submission: August 24, 2016**
- **Teaching Assistant associated with your group will inform you regarding which problems are to be attempted by a student and mode of submission**
- **This assignment should be submitted on individual basis and use submission page at course web site**

Section - I

1. Write a script to obtain the effect DELETE/CONFIRM command. Generalize it to be used for COPY/CONFIRM and RENAME/CONFIRM.
2. Write a script to obtain the effect of **DIR/SINCE/BEFORE** command.
3. Input a file name from a user and find out the complete path for a give file name.
4. Write a script to broadcast a message to a specified user or a group of users logged on any terminal.
5. Write a script to copy the files from two directories onto a new directory in such a way that only the latest file is copied, in case there are common files in both the directories
6. Write a script to display the files in the specified directory in the following format:
   `File Size in KB Date Protection Owner`
   At the end display total number of files occupying total space.
7. Write a script to compare identically named files in two directories and if they are same, copy one of them in a third directory.
8. Write a script to delete zero sized files from a given directory (and all its sub directories).
9. Write a script to display the name of those files (in the given directory), which are having multiple links.
10. Write a script to display the name of all executable files in the given directory.

11. Write a script to display the date, time and a welcome message (like Good Morning etc.) The time should be displayed with “a.m.” Or “p.m.” and not in terms of 24 hours notation.

12. Write a script to display the directory in the descending order of the size of each file.

13. Write a script to implement following commands
    a. Tree (of DOS/Windows) **b.** which (of Unix)

14. Write a script to make following file and directory management
    a. Display current directory
    b. List directory
    c. Make directory
    d. Change directory
    e. Copy file
    f. Rename file
    g. Delete file
    h. Edit file
    i. Exit

15. Write a script which reads a text file and output the following:
    a. Count of characters, words and lines
    b. File in a reversed order
    c. Frequency of particular word in the file
    d. Lower case letters in place of upper case alphabets

16. Write a shell script to ask for the name of a user, and check whether that user is currently online or not

Section - II

17. Create a file named **poem** as

    Great fleas have little fleas
    Upon their backs to bite ’em,
    And little fleas have lesser fleas,
    And so ad infinitum.
    And the great fleas them selves, in turn,
    Have greater fleas to go on;
    While these again have greater still
    And greater still, and so on.

    17.1 Count the lines, words, and characters in file poem

    172. Pick up the lines containing word ‘fleas’ from file poem

    17.3 Pick up the lines not containing word ‘fleas’ from file poem

17.4 Sort the file poem in line-by-line fashion in

a. Reverse normal

b. Numeric

c. Reverse numeric

d. Fold high and lower case together

e. Sort starting at (n+1) th field

17.5 Print last three lines of the file POEM

17.6 Print last lines starting from 3rd line one.

17.7 Create two files poem and poem_new with different contents and compare them

18 Explain output for the following

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$ls > temp
$wc temp > temp
```

Use of pipes

19. Print sorted list of users
20. Count the users
21. Count the total files
22. Look for a particular user
23. Count how many times you ve logged in
24. Explain difference between
25. $ who | sort and who > sort
26. List detailed attributes of all files that have names beginning with “po” followed by either 1,2,3,4, or 5

File System Permissions

27. How can you tell if a user has been active at the terminal recently?
28. Find difference between
    $date ; who | wc and $(date;who) | wc
29. Create a file named ‘nu’ that contains
    ‘who | wc –l’ and run it on shell.
30. Write a shell program that sends a note to several people on your system

31. Use a for loop to move a list of files in the current directory to another directory how can you move all your files to another directory

Filters

32. Locate variable in C source files(i.e. with .c or .h extensions)
33. List all subdirectory names
34. List files others can read and write
35. List users without passwords
36. Using filters (pipes etc.) print 10 most frequent words in its input
37. List all files in a directory that are
    a. Newer than a specified date/time one
    b. Older than a specified date/time one

awk command

a. Print name and time of login sorted by time

b. Add line numbers to an input stream

d. Collect each line of input in a separate array element then prints them out in reverse order.