

ASSIGNMENT
COMPUTER NETWORK LAB (MCAP1212)
MCA 2nd Semester
HERITAGE INSTITUTE OF TECHNOLOGY
PART I: UNIX

Day 1

date, cal, man, ps, pwd, mkdir, rmdir, rm, cd, cat, gedit, touch, ls, cp, mv, bc, echo, facrdr, expr, uname, who, tty, script, clear and tput, chmod

Perform the following:

- a) List the names of the users logged in and their total count without displaying any further details.
- b) Find out your terminal's device name.
- c) Display current date in the form dd/mm/yyyy.
- d) Find out your machine's name and the version of the operating system.
- e) Clear the screen and place the cursor at row 12, column 25.
- f) Find the decimal equivalent of 1101001.
- g) Find out the users who are idling.
- h) Use man to get help
- i) Ensure that bc displays the results of all divisions using three decimal places.
- j) Create a directory structure in your home directory (*mca*, two subdirectories *cprogs* and *projects* under *mca*) while being in your home directory.
- k) Change to the directory *projects*.
- l) Create a file called *biodata* and store your name, age, gender, and address in it.
- m) Make a copy of the file *biodata* into another file *text* within the directory *cprogs*.
- n) Move the file *text* from *cprogs* to *projects*.
- o) Combine the contents of the file *biodata* and *text* into another file *datatext*.
- p) Rename the file *text* to *newtext*.
- q) List all filenames starting with 'a' or 'b' or 'm'.
- r) List all filenames that end with a digit.
- s) List all files in the current directory whose second character is a digit.
- t) Give all permissions of a file to everyone.

Day 2

wc, find, cmp, diff, comm., tee, head, tail, cut, paste, sort, tr, uniq, ps, kill, grep, egrep, fgrep, pr, ping, ifconfig, sed, awk

Perform the following:

- a) List all files beginning with character 'a' on the screen and also store them in a file called *file1*.
- b) Sort the output of *who* and display on screen along with total number of users. The same output except the number of users should be stored in a file *file1*.
- c) Change the permissions of the file *newtext* to rw-rw-rw-.
- d) Create a user defined file, withdraw execution permission from all.
- e) Double space a file
- f) Select lines 5 to 10 of a file
- g) Find the user name and group id from the file */etc/passwd* using the cut command.
- h) Extract the names of the users from */etc/passwd* after ignoring the first 10 entries.
- i) Sort the file */etc/passwd* on GUID (primary) and UID (secondary) so that the users with the same GUID are placed together. User with a lower UID should be placed higher in the list.
- j) List from */etc/passwd* the UID and the user having the highest UID.
- k) Device a sequence which lists the five largest files in the current directory.
- l) Remove duplicate lines from a file.
- m) Count the frequency of occurrences of words in a file.
- n) Find "long" listing of the smallest 5 files in the */etc* directory whose name contains the string ".conf", sorted by increasing file size.
- o) What would you type at the command line to get a sorted list, with no duplicates, of all the users logged into the local network?
- p) Display the files in the current directory that contain the string MCA HITK in either upper- or lowercase.
- q) Store in a variable the number of lines containing the word MCA in the files *mca1*, *mca2* and *mca3*.
- r) If you did not have the wc command, how would you use grep to count the number of users currently using the system?
- s) Remove blank lines from a file using grep.
- t) Create a file named *passwdinfo* that contains three fields of */etc/passwd* file.

Day 3

Lab Assignments:

1. Write a shell script to find out whether an integer input through the keyboard is an odd number or an even number.
2. Write a shell script to find out whether any year input through the keyboard is a leap year or not. If no argument is supplied the current year should be assumed.
3. Write a shell script to find the maximum of three numbers provided as command line arguments.
4. Write a shell script to check whether a given number is prime or not.
5. Write a shell script that displays a list of all files in the current directory to which you have read, write and execute permissions.

Day 4

1. Write a shell script to find the factorial value of any integer entered through the keyboard.
2. Write a shell script to generate all combinations of 1, 2 and 3.
3. Write a shell script to print all prime numbers in a given range.
4. Write a shell script to calculate the sum of digits of any number entered through keyboard.
5. Rajesh's basic salary (BASIC) is input through the keyboard. His dearness allowance (DA) is 52% of BASIC. House rent allowance (HRA) is 15% of BASIC. Contributory provident fund is 12% of (BASIC + DA). Write a shell script to calculate his gross salary and take home salary using the following formula:

Gross salary = BASIC + DA + HRA

Take home salary = Gross salary - (BASIC + DA) * 0.12

6. Develop a shell script which displays all files with all attributes those have been created or modified in the month of November.

Day 5

Lab Assignments:

1. Write a shell program that takes a number from user and prints the reverse of the number.
2. Write a shell script to determine whether two numbers input through keyboard are prime to each other.
3. Write a shell script to find whether a number is divisible by 11.
4. Write a shell script that produces a shell calculator to perform the following operations:
 1. Addition
 2. Subtraction
 3. Multiplication
 4. Division
5. Write a shell script that shows the names of all the non-directory files in the current directory and calculates the sum of the size of them.

DAY 6

1. Write a shell script to print the following pattern for any number of lines:

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      *
    * * *
  * * * * *
* * * * * *
* * * * * * *
```

2. Write a shell script to test whether a given string is palindrome or not.
3. Write a shell script which counts the number of consonants and vowels in a given sentence.
4. Write a shell script to display the list of users as well as the number of users connected to the system.
5. Write a shell script to list the name of files under the current directory that starts with a vowel.
6. Devise a menu-driven shell program that accepts values from 1 to 4 and performs action depending upon the number keyed in:
 - 1) List of users currently logged in
 - 2) Present date
 - 3) Present working directory
 - 4) Quit

Day 7

1. Write a shell script, which gets executed the moment a user logs in. It should display the message “GOOD MORNING” or “GOOD AFTERNOON” or “GOOD EVENING” depending upon the time at which the user logs in.
2. Write a shell script, which reports names and sizes of all files in a directory (directory should be supplied as an argument to the shell script) whose size exceeds 100 bytes. The filenames should be printed in decreasing order of their sizes. The total number of such files should also be reported.
3. Write a shell script to concatenate two files and count the number of characters, number of words and number of lines in the resultant file.
4. Write a shell script which deletes all lines containing the word *UNIX* in the files supplied as arguments to this shell script.
5. Write a shell script which would receive a log name during execution, obtain information about it from password file and display this information on the screen in easily understandable format