

## Lab sheet 1 - Shell programming

1. Write a shell script to determine whether a given number is a prime number or not.
  - a. Interactively.
  - b. By command line arguments.
2. Write a shell script to print all the primes below a given number is a prime number.
  - a. Interactively.
  - b. By command line arguments.
3. Write a shell script to print the first n Fibonacci numbers.
  - a. Interactively.
  - b. Using Command line arguments
4. Write a shell script to find the gcd of two given numbers.
  - a. Interactively.
  - b. By command line arguments.
5. Write a shell script to find transpose of a matrix.
  - a. Interactively.
  - b. By command line arguments.
6. Write a shell script to find the scalar product of two vectors.
  - a. Interactively.
  - b. By command line arguments.
7. Write a shell script to generate a multiplication table.
  - a. Interactive version: The program should accept an integer n given by the user and should print the multiplication table of that n.
  - b. Command line arguments version: The program should take the value of n from the arguments followed by the command.
  - c. Redirection version: The value of n must be taken from a file using input redirection.
8. Write a shell script (small calculator) that adds, subtracts, multiplies and divides the two given numbers. There are two division options: one returns the quotient and the other remainder. The script requires three arguments: the operation to be used and the two integers. The operation are specified by options:  
Add -a Subtract-s Multiply -m Quotient -c Remainder -r Use the if and case structures.
  - a. Interactive version
  - b. Command Line arguments version
9. The length and breadth of a rectangle and radius of a circle are input through the keyboard. Write a shell script that will calculate the area and perimeter of the rectangle and the area and circumference of the circle.  
Hint:- Area of Rectangle =  $L*B$   
Perimeter of Rectangle =  $2(L+B)$   
Area of Circle =  $\pi.r^2$   
Circumference of circle =  $2. \pi.r$
10. Write a shell script that copies multiple files to directory.
  - a. Interactive version

- b. Command line arguments version
- 11. Write a shell script which counts the number of lines and number of words present in a given file.
  - a. Interactive version
  - b. Command Line arguments version
- 12. Write a shell script which displays the list of all files in a given directory.
  - a. Interactive version
  - b. Command Line arguments version
- 13. Find the lines containing a specific string in a file.
  - a. Interactively
  - b. Command line arguments
- 14. Write a shell program to concatenate the contents of 2 files.
- 15. Write a shell script to list the files in the descending order of their size.
- 16. Write shell script to show various system configuration like:
  - a. Currently logged user and his long name
  - b. Current shell
  - c. Home directory
  - d. Operating system type
  - e. Current path setting
  - f. Current working directory
  - g. All available shells
- 17. Write a shell script that would wait 5 seconds and then display the time.
- 18. Write a three shell scripts that will count the number of parameters on the command line
  - a. using while statement
  - b. using for statement
  - c. using until statement.
- 19. Write shell script to convert file names from UPPERCASE to lowercase file names or vice versa
- 20. Write shell script to count the number of blanks in a text file.
  - a. Interactively
  - b. Command line arguments
  - c. Using input redirections

\*\*\*\*\*