

Java Lab**BS505****Practical**

2 Hours/Week

1 credit

Write java programs to find the following

- 1 a) largest of given three numbers b) reverses the digits of a number
c) given number is prime or not d) GCD of given two integers
- 2 Write java programs that implement the following
a) default constructor b) parameterized constructor c) constructor overloading
- 3 a) Write a java program to find the smallest of given list integers using array and scanner class.
b) Write a java program for multiplication of two matrices.
- 4 a) Write a java program for demonstrating an inner classes or nested classes.
b) Write a java program to implement method overloading, method overriding, dynamic method dispatch
- 5 Write a java program to implement single, multilevel, hierarchal, multiple, hybrid inheritances.
- 6 Write java programs that demonstrate the use of abstract, this, super, static, final keywords
- 7 a) Write a java program for creating a package and using a package.
b) Write a java program to demonstrate the use of wrapper classes.
- 8 a) Write a java program using all five keywords of exception handling mechanism.
b) Write a java program for creating customized (user) exception
- 9 a) Write a java program that checks whether a given string is a palindrome or not.
b) Write a java program for sorting a given list of names in ascending order.
- 10 a) Write a java program to create a file, write the data and display the data.
b) Write a java program that reads a file name from user and displays its information.
- 11 a) Write a java program for controlling main thread.
b) Write a java program for creating new thread by extending Thread class.
- 12 a) Write a java program for creating new thread by implementing Runnable interface.
b) Write a java program for thread synchronization.
- 13 a) Write a java program to create following AWT components: Button, Checkbox, Choice, and List.
b) Write java programs to create AWT application using containers and layouts.
- 14 a) Write java programs to create a simple Applet and create swing based Applet.
b) Write a java program to handle different types of events in a swing application.
- 15 Write java programs to create a swing application using swing components and layouts.
- 16 Write a java program to store and retrieve data from database using JDBC.

Note : Write the program using simple text editors (not IDE), compile and run from command prompt.

Encourage students to develop small java applications using IDE, like giving as assignment.

Write a small java application using some features of java.

Operating Systems Lab**BS506****Practical**

2 Hours/Week

1 credit

- 1 a) Use vi editor to create different files, writing data into files, modifying data in files.
b) Use different types of Unix commands on the files created in first program.
- 2 Write shell programs using 'case', 'then' and 'if' & 'else' statements.
- 3 Write shell programs using while, do-while and for loop statements.
 - a) Write a shell script that accepts two integers as its arguments and computes the value of first number raised to the power of the second number.
- 4 b) Write a shell script that takes a command -line argument and reports on whether it is directory, a file, or something else.
 - a) Write a shell script that accepts a file name, starting and ending line numbers as arguments and displays all the lines between the given line numbers..
- 5 b) Write a shell script that deletes all lines containing a specified word in one or more files supplied as arguments to it.
 - a) Write a shell script that displays a list of all the files in the current directory to which the user has read, write and execute permissions.
- 6 b) Develop an interactive script that ask for a word and a file name and then tells how many times that word occurred in the file.
- 7 Write a program that simulate the following Unix commands like ls, mv, cp.
- 8 Write a program to convert upper case to lower case letters of a given ASCII file.
- 9 Write a program to program to search the given pattern in a file.
- 10 Write a program to demonstrate FCFS process schedules on the given data.
- 11 Write a program to demonstrate SJF process schedules on the given data.
- 12 Write a program to demonstrate Priority Scheduling on the given burst time and arrival times.
- 13 Write a program to demonstrate Round Robin Scheduling on the given burst time and arrival times.
- 14 Write a program to implementing Producer and Consumer problem using Semaphores.
- 15 Write a program to simulate FIFO, LRU, LFU Page replacement algorithms.
- 16 Write a program to simulate Sequential, Indexed, and Linked file allocation strategies.

Note
: Recommended to use Open Source Software like Fedora, Ubuntu, CentOS, etc...

Software Engineering Lab**BS506****Practical**

2 Hours/Week

1 credit

Case Studies:

- 1 Banking System
- 2 Hotel management system
- 3 Inventory Control System
- 4 Library management system
- 5 Railway Reservation System

Choose any two of above case studies and do the following exercises for that case studies

- 1 Write the complete problem statement
- 2 Write the software requirements specification document
- 3 Draw the entity relationship diagram
- 4 Draw the data flow diagrams
- 5 Draw use case diagrams
- 6 Draw activity diagrams for all use cases
- 7 Draw sequence diagrams for all use cases
- 8 Draw collaboration diagram
- 9 Assign objects in sequence diagrams to classes and make class diagram.

Note :

To draw dataflow diagrams using Microsoft Visio Software, SmartDraw, etc...

To draw UML diagrams using Rational Rose Software, StarUML, etc...

The teacher should define the boundaries for the above case study problems and make the practice of problems mentioned.