Java Practical Sem-I

Write a Program to print all Prime numbers in an array of 'n' elements.
(use command line arguments)

Define an abstract class Staff with protected members id and name. Define a parameterized constructor. Define one subclass OfficeStaff with member department. Create n objects of OfficeStaff and display all details.

Write a program to read the First Name and Last Name of a person, his weight and height using command line arguments. Calculate the BMI Index which is defined as the individual's body mass divided by the square of their height.   (Hint : BMI = Wts. In kgs / (ht)^2)

Define a class CricketPlayer (name,no_of_innings,no_of_times_notout, totatruns, bat_avg).   Create an array of n player objects .Calculate the batting average for each player using static method avg(). Define a static sort method which sorts the array on the basis of average. Display the player details in sorted order.

Write a program to accept 'n' name of cities from the user and sort them in ascending   order.

Define a class patient (patient_name, patient_age, patient_oxy_level,patient_HRCT_report). Create an object of patient. Handle appropriate exception while patient oxygen level less than
95% and HRCT scan report greater than 10, then throw user defined Exception "Patient is Covid Positive(+) and Need to Hospitalized" otherwise display its information.

Write a program to print an array after changing the rows and columns of a given   two-dimensional array.

Write a program to design a screen using Awt that will take a user name and password. If the user name and password are not same, raise an Exception with appropriate message. User can have 3 login chances only. Use clear button to clear the TextFields.

Write a program for multilevel inheritance such that Country is inherited from Continent.   State is inherited from Country. Display the place, State, Country and Continent.

Write a menu driven program to perform the following operations on multidimensional array   ie matrices :

- Addition
- Multiplication
- Exit

Write a program to display the Employee(Empid, Empname, Empdesignation, Empsal) information using toString().

Create an abstract class "order" having members id, description. Create two subclasses
"Purchase Order" and "Sales Order" having members customer name and Vendor name respectively. Define methods accept and display in all cases. Create 3 objects each of Purchase   Order and Sales Order and accept and display details.

Design a class for Bank. Bank Class should support following operations;
 a. Deposit a certain amount into an account
b. Withdraw a certain amount from an account
c. Return a Balance value specifying the amount with details

Write a program to accept a text file from user and display the contents of a file in   reverse order and change its case.

Create a class Sphere, to calculate the volume and surface area of sphere.
    (Hint : Surface area=4*3.14(r*r), Volume=(4/3)3.14(r*r*r))

Design a screen to handle the Mouse Events such as MOUSE_MOVED   and MOUSE_CLICKED and display the position of the Mouse_Click in a TextField.

Define a "Clock" class that does the following ;   a. Accept Hours, Minutes and Seconds
b. Check the validity of numbers
c. Set the time to AM/PM mode
      Use the necessary constructors and methods to do the above task

Write a program to using marker interface create a class Product (product_id, product_name, product_cost, product_quantity) default and parameterized constructor. Create objects of class product and display the contents of each object and Also display the object count.

Write a program to find the cube of given number using functional interface.

Write a program to create a package name student. Define class StudentInfo with method to display information about student such as rollno, class, and percentage. Create another class StudentPer with method to find percentage of the student. Accept student details like rollno, name, class and marks of 6 subject from user.

Define an interface "Operation" which has method volume( ).Define a constant PI having a value 3.142 Create a class cylinder which implements this interface (members – radius, height). Create one object and calculate the volume.

Write a program to accept the username and password from user if username and password are not same then raise "Invalid Password" with appropriate msg.

Write a program to create parent class College(cno, cname, caddr) and derived class Department(dno, dname) from College. Write a necessary methods to display College details.

Write a java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the +, -, *, % operations. Add a text field to display the result.

```
Simple Calculator

  1   2   3   +

  4   5   6   -

  7   8   9   *

  0   .   =   /
```

Write a program to accept a file name from command prompt, if the file exits then display number of words and lines in that file.

Write a program to display the system date and time in various formats shown below:
Current date is : 31/08/2021
Current date is : 08-31-2021
Current date is : Tuesday August 31 2021
Current date and time is : Fri August 31 15:25:59 IST 2021
Current date and time is : 31/08/21 15:25:59 PM +0530

Write a program to accept a number from the user, if number is zero then throw user defined exception "Number is 0" otherwise check whether no is prime or not (Use static keyword).
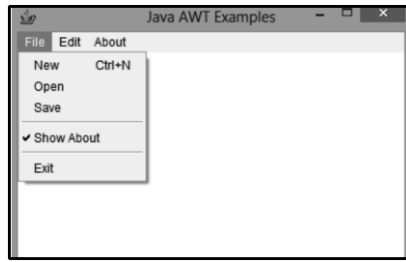
Write a Java program to create a Package "SY" which has a class SYMarks (members – ComputerTotal, MathsTotal, and ElectronicsTotal). Create another package TY which has a class TYMarks (members – Theory, Practicals). Create 'n' objects of Student class (having rollNumber, name, SYMarks and TYMarks). Add the marks of SY and TY computer subjects and calculate the Grade ('A' for >= 70, 'B' for >= 60 'C' for >= 50, Pass Class for > =40 else 'FAIL') and display the result of the student in proper format.

Accept the names of two files and copy the contents of the first to the second. First file having Book name and Author name in file.

Write a program to define a class Account having members custname, accno. Define default and parameterized constructor. Create a subclass called SavingAccount with member savingbal, minbal. Create a derived class AccountDetail that extends the class SavingAccount with members, depositamt and withdrawalamt. Write a appropriate method to display customer details.

Write a program to find the Square of given number using function interface.

Write a program to design a screen using Awt that,

Design a Super class Customer (name, phone-number). Derive a class Depositor(accno , balance) from Customer. Again, derive a class Borrower (loan-no, loan-amt) from Depositor. Write necessary member functions to read and display the details of 'n'customers.

Write Java program to design three text boxes and two buttons using swing. Enter different strings in first and second textbox. On clicking the First command button, concatenation of two strings should be displayed in third text box and on clicking second command button, reverse of string should display in third text box

Write a program to implement Border Layout Manager.

Define a class CricketPlayer (name,no_of_innings,no_of_times_notout, totatruns, bat_avg). Create an array of n player objects. Calculate the batting average for each player using static method avg(). Define a static sort method which sorts the array on the basis of average. Display the player details in sorted order.

Write a program to accept the two dimensional array from user and display sum of its diagonal elements.

Write a program which shows the combo box which includes list of T.Y.B.Sc.(Comp. Sci) subjects. Display the selected subject in a text field.

Write a Program to illustrate multilevel Inheritance such that country is inherited from continent. State is inherited from country. Display the place, state, country and continent.

Write a package for Operation, which has two classes, Addition and Maximum. Addition has two methods add () and subtract (), which are used to add two integers and subtract two, float values respectively. Maximum has a method max () to display the maximum of two integers

Define a class MyDate(Day, Month, year) with methods to accept and display a MyDateobject. Accept date as dd,mm,yyyy. Throw user defined exception "InvalidDateException" if the date is invalid.
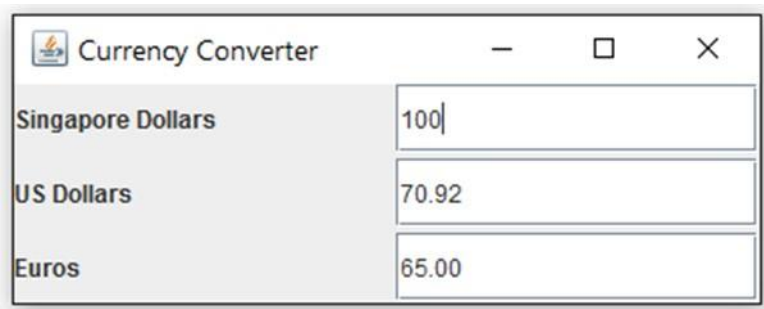
Create an employee class(id,name,deptname,salary). Define a default and parameterized constructor. Use 'this' keyword to initialize instance variables. Keep a count of objects created. Create objects using parameterized constructor and display the object count after each object is created. (Use static member and method). Also display the contents of each object.

Write a program to create an abstract class named Shape that contains two integers and an empty method named printArea(). Provide three classes named Rectangle, Triangle and Circle such that each one of the classes extends the class Shape. Each one of the classes contain only the method printArea() that prints the area of the given shape. (use method overriding).

Write a program that handles all mouse events and shows the event name at the center of the Window, red in color when a mouse event is fired. (Use adapter classes).
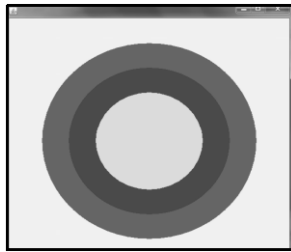
Define a class MyNumber having one private int data member. Write a default constructor to initialize it to 0 and another constructor to initialize it to a value (Use this). Write methods isNegative, isPositive, isZero, isOdd, isEven. Create an object in main.Use command line arguments to pass a value to the Object.

Write a simple currency converter, as shown in the figure. User can enter the amount of "Singapore Dollars", "US Dollars", or "Euros", in floating-point number. The converted values shall be displayed to 2 decimal places. Assume that 1 USD = 1.41 SGD, 1 USD = 0.92 Euro, 1 SGD = 0.65 Euro.

Create an abstract class 'Bank' with an abstract method 'getBalance'. Rs.100, Rs.150 and Rs.200 are deposited in banks A, B and C respectively. 'BankA', 'BankB' and 'BankC' are subclasses of class 'Bank', each having a method named 'getBalance'. Call this method by creating an object of each of the three classes.

Program that displays three concentric circles where ever the user clicks the mouse on a frame. The program must exit when user clicks 'X' on the frame.

Create a class Student(rollno, name ,class, per), to read student information from the console and display them (Using BufferedReader class)

Create the following GUI screen using appropriate layout manager. Accept the name, class, hobbies from the user and display the selected options in a textbox.

Your Name	j TextField

Your Class   Your Hobbies

0   FY   ☐   Music
0   SY   ☐   Dance
0   TY   ☐   Sports

| Name----, Class----, Hobbies------ |

Define a Item class (item_number, item_name, item_price). Define a default and parameterized constructor. Keep a count of objects created. Create objects using parameterized constructor   and display the object count after each object is created.(Use static member and method). Also display the contents of each object.

Define a class 'Donor' to store the below mentioned details of a blood donor. name, age, address, contactnumber, bloodgroup, date of last donation. Create 'n' objects of this class for   all the regular donors at Pune. Write these objects to a file. Read these objects from the file and

display only those donors' details whose blood group is 'A+ve' and had not donated for the recent six months.
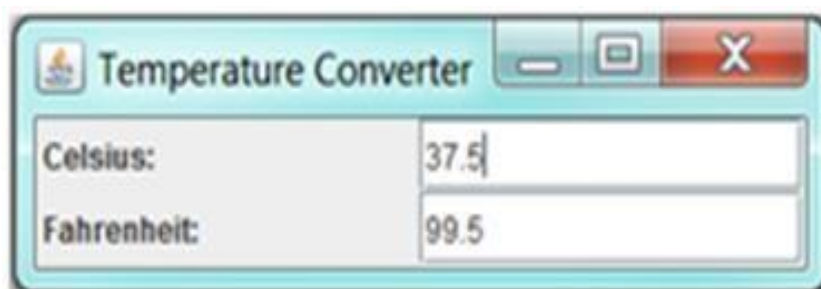
Define an Employee class with suitable attributes having getSalary() method, which returns salary withdrawn by a particular employee. Write a class Manager which extends a class Employee, override the getSalary() method, which will return salary of manager by adding traveling allowance, house rent allowance etc.

Write a program to accept a string as command line argument and check whether it is a file or directory. Also perform operations as follows:
i)If it is a directory,delete all text files in that directory. Confirm delete operation from user before deleting text files. Also, display a count showing the number of files deleted, if any, from the directory. ii)If it is a file display various details of that file.

Write a program that reads on file name from the user, then displays information about whether the file exists, whether the file is readable, whether the file is writable, the type of file and the length of the file in bytes.

Write a program called SwingTemperatureConverter to convert temperature values between Celsius and Fahrenheit. User can enter either the Celsius or the Fahrenheit value, in floating-point number. Hints: To display a floating-point number in a specific format (e.g., 1 decimal place), use the static method String.format(), which has the same form as printf(). For example, String.format("%.1f", 1.234) returns String "1.2".

Write a program to create a class Customer(custno,custname,contactnumber,custaddr). Write a method to search the customer name with given contact number and display the details.

Write a program to create a super class Vehicle having members Company and price. Derive two different classes LightMotorVehicle(mileage) and HeavyMotorVehicle (capacity_in_tons). Accept the information for "n" vehicles and display the information in appropriate form. While taking data, ask user about the type of vehicle first.

Write program to define class Person with data member as Personname,Aadharno, Panno. Accept information for 5 objects and display appropriate information (use this keyword).

Write a program that creates a user interface to perform integer divisions. The user enters two numbers in the text fields, Number1 and Number2. The division of Number1 and Number2 is displayed in the Result field when the Divide button is clicked. If Number1 or Number2 were   not an integer, the program would throw a NumberFormatException. If Number2 were Zero,

the program would throw an Arithmetic Exception Display the exception in a message dialog box.