Core Java Assignments

Java Basics

Objective: At the end of the assignments, participants will be able to create classes and write programs using objects, arrays, command-line arguments, Strings.

Java - Class, Object and Methods using Conditional statements and Loops

1. Write a program to list all even numbers less than or equal to the number n. Take the value of n as input from user.

2. Define a class Rectangle with its length and breadth.

   Provide appropriate constructor(s), which gives facility of constructing rectangle object with default values of length pf breadth as O or passing value of length and breadth externally to constructor.

   Provide appropriate accessor & mutator methods to Rectangle class.

   Provide methods to calculate area & to display all information of Rectangle.

   Design different class TestRectangle class in separate source file, which will contain main function. From this main function, create 5 Rectangle objects by taking all necessary information from the user.

3. Create a class Book which describes its Book_title and Book_price. Use getter and setter methods to get & set the Books description.

   Implement createBooks and showBooks methods to create n objects of Book in an array. Display the books along with its description as follows:-

Book Title	Price
Java Programming	Rs.350.50
Let Us C	Rs.200.00

   Note: createBooks & showBooks should not be member functions of Book class.

4. Modify the program which is created in assignment 2 as follows

   The class has attributes **length** and **w idth** , each of which defaults to 1. It should have member functions that calculate the perimeter and area of the rectangle. It should have set and get functions for both length and width. The set functions

should verify that length and width are each floating-point numbers larger than 0.0 and less than 20.0

5. Create a class Date for manipulating dates. Provide a constructor that enables an object of this class to be initialized when it is declared (You can select any default values for the day, month & year, e.g. your birth date). Provide the necessary functionality to perform error checking on the initializer values for data members day, month, and year. Also, provide a member function to add an integer in a date to obtain a new date.

   Design separate class Employee which will have following information.

   Employee Number Number

   Employee Name Text

   Joining Date Date

   Provide appropriate constructor(s) & methods to this class. Provide main function which will create 5 objects of Employee class.

6. Write a program that takes a String through Command Line argument and display the length of the string. Also display the string into uppercase and check whether it is a palindrome or not. (Refer Java API Documentation)
7. Write a program that accepts two numbers from the Command Line and prints them out. Then use ***a/or loop*** to print the next 13 numbers in the sequence where each number is the sum of the previous two. For example:

```
input> java prob2 1 3
output> 1 3 4 7 11 18 29 47 76 123 322 521 843 1364
```

8. Write a program that accepts two numbers in the range from 1 to 40 from the Command Line. It then compares these numbers against a single dimension ***array*** of five integer elements ranging in value from 1 to 40. The program displays the message ***BINGO*** if the two inputted values are found in the array element. For example:

```
input>java prob3 3 29
output>Your first number was 3
Your second number was 29
Its Bingo! // this message if 3 and 29 is found in the array
Not Found! // this message if 3 and 29 is not found in the
//array
The array was 7 25 5 19 30
```

9. Write a program that allows you to create an integer ***array*** of 18 elements with the following values: ***int A[J={3,2,4,5,6,4,5,7,3,2,3,4,7,1,2,0,0,0}.*** The program computes the sum of element 0 to 14 and stores it at element 15, computes the average and stores it at element 16 and identifies the smallest value from the array and stores it at element 17.