

LAB-3

Q.1

Write a Java program that prints the instance count value whenever the user creates a new instance of the class.

(If a user creates the first instance of the class, it should print the value 1. Suppose the second instance is created print the value 2. And so on.)

1. Take care of special case: When the count value is a prime number, print count value and a message: "It is a prime instance".

2. Run an infinite loop and create instances in each iteration of that loop. Observe the count value and report whether you get a memory error or not.

Q.2

A class **Question** calls the object of another class **Answer**. The class Answer contains one default constructor and a user-defined constructor. Default constructor prints the statement- "You got nothing!". User defined constructor takes marks as an integer parameter. It first calls the default constructor, and then prints the marks. Write a program defining all the required classes, methods and constructors. Call the Answer object from main() method of Question class.

Default constructors of Answer object as **Answer a = new Answer(10);** will print the following output:

You got nothing.
You got 10 for an MCQ

Q.3

Write a program which should contain a class **Shape**. Shape should contain methods with the name **perimeter()**. When called with a single integer parameter, the perimeter() should give the perimeter of a circle with radius equal to that parameter. When called with two integer parameters, it should give the perimeter of a rectangle with respective lengths and heights equal to the integer parameters passed. Print the perimeter of a rectangle of dimensions 10x15. Also print the perimeter of a circle of radius 14.

Q.4

Create class Number with only one private instance variable as a double primitive type. To include the following methods (include respective constructors) isZero(), isPositive(), isNegative(), isOdd(), isEven(), isPrime(), isAmstrong() the above methods return boolean primitive type. getFactorial(), getSqrt(), getSqr(), sumDigits(), getReverse() the above methods return double primitive type. void listFactor(), void dispBinary().