**FR. CONCEICAO RODRIGUES COLLEGE OF ENGINEERIG**

**Department of Computer Engineering**

**Experiment 1- Introduction to OOP concepts**

1. **Course Details:**

| **Academic Year** | **2023 - 24** | **Estimated Time** | **Experiment No. 1 – 02 Hours** |
| --- | --- | --- | --- |
| **Course & Semester** | **S.E. (COMP) – Sem. III** | **Subject Name** | **Skill based lab Course-OOP with Java** |
| **Module No.** | **01** | **Chapter Title** | **Introduction to object-oriented programming** |
| **Experiment Type** | **Software Performance** | **Subject Code** | **CSL304** |
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| **Date of Performance:** | 26/7/23 | **Date of Submission:** | 2/8/23 |
| **CO Mapping** | **CSL304.1: Demonstrate fundamental programming constructs** | | |

| **Timeline**  **(2)** | **Preparedness**  **(2)** | **Effort**  **(3)** | **Result**  **(3)** | **Total (10)** |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |

**Problem Statements:**

1. Write a Program to print the area of triangle. Save it with name Area.java in your folder.

**Code:**

import java.util.Scanner;

public class Area {

static double getArea(float *base*, float *height*) {

return 0.5 \* *base* \* *height*;

}

public static void main(String[] *args*) {

Scanner sc = new Scanner(System.in);

System.out.println("Enter the base of the triangle:\t");

float base = sc.nextFloat();

System.out.println("Enter the height of the triangle:\t");

float height = sc.nextFloat();

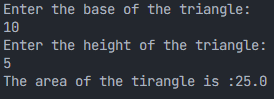
double triangleArea = getArea(base, height);

System.out.println("The area of the tirangle is :" + triangleArea);

}

}

**OUTPUT:**

****

1. Write a program to Display default value of all primitive data types.

**Code:**

class PrimitiveDataTypesDefaultValues {

*// Default values of primitive data types*

static byte defaultByte;

static short defaultShort;

static int defaultInt;

static long defaultLong;

static float defaultFloat;

static double defaultDouble;

static char defaultChar;

static boolean defaultBoolean;

public static void main(String[] *args*) {

System.out.println("Default value of byte: " + defaultByte);

System.out.println("Default value of short: " + defaultShort);

System.out.println("Default value of int: " + defaultInt);

System.out.println("Default value of long: " + defaultLong);

System.out.println("Default value of float: " + defaultFloat);

System.out.println("Default value of double: " + defaultDouble);

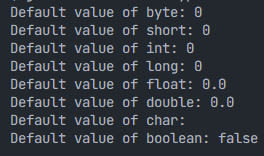
System.out.println("Default value of char: " + defaultChar);

System.out.println("Default value of boolean: " + defaultBoolean);

}

}

**OUTPUT:**

****

1. Five Bikers Compete in a race such that they drive at a constant speed which may or may not be the same as the other. To qualify the race, the speed of a racer must be more than the average speed of all 5 racers. Take as input the speed of each racer and print back the speed of qualifying racers.

**CODE:**

import java.util.Scanner;

class QualifyingRacers {

public static void main(String[] *args*) {

Scanner sc = new Scanner(System.in);

double sum = 0;

double[] speeds = new double[5];

System.out.print("Enter the speed of each racer:\t");

for (int i = 0; i < 5; i++) {

speeds[i] = sc.nextDouble();

sum += speeds[i];

}

double avg = sum / 5;

System.out.println("The average speed of all racers is: " + avg);

System.out.println("The speed of qualifying racers are:");

for (int i = 0; i < 5; i++) {

if (speeds[i] > avg) {

System.out.println("\t"+speeds[i]);

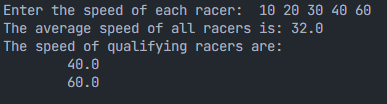
}

}

}

}

**OUTPUT:**

****

**Post Lab Assignment:**

1. Explain public static void main (String args[]) in Java.

⇒ public static void main (String args[]) is a static method in Java that is used to indicate the entry point or the starting point of the program execution.Here,

* **public** keyword indicates that this method can be accessed from anywhere irrespective of the class they are in.
* **static** keyword indicates that the state of the method won’t change even if it is accessed elsewhere. It indicates that this method belongs to the class itself rather than an instance of that class. Such methods can be accessed without creating an object of that class.
* **void** keyword indicates that the return type of this method is void i.e. this method won’t return anything when it is called.
* **main** is a predefined method name that indicates the entry point of the program.
* **(String args[])** is a parameter of the method that accepts the list of arguments passed when the program is executed.

1. Is JDK required on each machine to run a java program?

⇒No, to run a Java program we only require JRE(Java Runtime Environment).If if we want to compile the program then we require a JDK(Java Development kit).JRE includes JVM(Java Virtual Machine) that is used to run the compiled java programs.It has the ability to execute the compiled Java bytecode.

For most users JRE is enough to run Java code. However, it is necessary for developers to have JDK to develop and run the code.

1. Why is Java platform independent?

⇒ Java is often referred to as "platform-independent" or "write once, run anywhere" due to its design and the way it executes programs. There are a few key reasons why Java achieved platform independence.Some of them are:

* Java compiles a program into bytecode instead of machine code.This bytecode can then be executed by JVM that is available on different platforms. This JVM is then used to convert the bytecode into machine code that the underlying hardware or operating system can execute. As a result JVM creates an abstraction layer between the code and the platform.
* Java uses a garbage collector that can deal with the memory issues that might arise on different platforms.

As a result, a Java program can be written on one platform and the same code can

run on another platform irrespective of the platform it was written on.