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18MX36 - Java Programming Laboratory
Problem Sheet - 2
(Programs On Data Types)

Write Java Programs for the following:
1.To display your name, class, semester and overall CGPA in different lines.

Answer:
Java Code:

```
package ps2_1;
import java.util.*;
public class Ps2_1{
	public static void main(String[] args) {
		Scanner obj = new Scanner(System.in);
		System.out.print("Input The Name Of Student : ");
		String s_name = obj.nextLine();
		System.out.print("Input The Roll Number : ");
		String roll_no = obj.nextLine();
		System.out.print("Input The Class : ");
		String s_class = obj.nextLine();
		System.out.print("Input The Semester : ");
		int semester = obj.nextInt();
		System.out.print("Input The Overall CGPA : ");
		Float s_cgpa = obj.nextFloat();
		System.out.println("Student's Details");
		System.out.println("Student's Name : "+s_name);
		System.out.println("Student's Roll Number : "+roll_no);
		System.out.println("Student's Class : "+s_class);
		System.out.println("Student's Current  Semester : "+semester);
		System.out.println("Student's Overall CGPA : "+s_cgpa);
	}
}
```

Output:

```
Input The Name Of Student : Sivakumar S
Input The Roll Number : 19MX220
Input The Class : MCA 2nd Year
```

```
Input The Semester : 3
Input The Overall CGPA : 6.13

Student's Details
Student's Name : Sivakumar S
Student's Roll Number : 19MX220
Student's Class : MCA 2nd Year
Student's Current  Semester : 3
Student's Overall CGPA : 6.13
```

2.To find the area of a circle (using the formula)

Answer:

Java Code:

```
package ps2_2;
import java.util.*;
public class Ps2_2{
	public static void main(String[] args) {
		int radius_of_circle;
		double area_of_circle;
		Scanner in = new Scanner(System.in);
		System.out.print("Input The Radius Of Circle : ");
		radius_of_circle = in.nextInt();
		area_of_circle = ((radius_of_circle*radius_of_circle)*3.14159);
		System.out.println("Area Of Circle : "+area_of_circle);
	}
}
```

Output:

```
Input The Radius Of Circle : 4
Area Of Circle : 50.26544
```

3.To evaluate the expression, x=b2-4ac.

Answer:

Java Code:

```
package ps2_3;
import java.util.*;
public class Ps2_3 {
	public static void main(String[] args) {
		double a,b,c,x;
		Scanner ex = new Scanner(System.in);
		System.out.print("Input The Value Of A : ");
		a = ex.nextDouble();
		System.out.print("Input The Value Of B : ");
		b = ex.nextDouble();
		System.out.print("Input The Value Of C : ");
		c = ex.nextDouble();
		b=(b*b);
		x = ((b) - (4*a*c));
		System.out.println("The Expression x = "+x);

	}
}
```

Output:

```
Input The Value Of A : 2
Input The Value Of B : 3
Input The Value Of C : 4
The Expression x = -23.0
```

4.To display default values of all primitive data types.

Answer:

Java Code:

```
package ps2_4;
import java.util.*;
public class Ps2_4 {
	static boolean v1;
		static char v2;
		static double v3;
		static int v4;
		static long v5;
```

```
        static String v6;
        static float v7;
    public static void main(String[] args) {
        System.out.println("Default Values Of All Primitive Data Types");
    System.out.println("Default Value Of Boolean = " + v1);
    System.out.println("Default Value Of Character = " + v2);
    System.out.println("Default Value Of Double  = " + v3);
    System.out.println("Default Value Of Integer = " + v4);
    System.out.println("Default Value Of Long = " + v5);
    System.out.println("Default Value Of String = " + v6);
    System.out.println("Default Value Of Float = " + v7);
  }
}
```

Output:

```
Default Values Of All Primitive Data Types
Default Value Of Boolean = false
Default Value Of Character =
Default Value Of Double  = 0.0
Default Value Of Integer = 0
Default Value Of Long = 0
Default Value Of String = null
Default Value Of Float = 0.0
```

5.To check valid and invalid literals of all types.

Answer:

Java Code:

```
package ps25;
import java.util.*;
public class Ps25{
    public static void main(String[] args) {
        Scanner lit = new Scanner(System.in);
        int c;
        System.out.println("Pick One Option");
          System.out.println("\n1.Integer Literals");
          System.out.println("\n2.Floating Point Literals");
        System.out.println("\n3.Boolean Literals");
        System.out.println("\n4.Double Type Literals");
```

```
System.out.println("\n5.String Literals");
System.out.println("\n6.Character Literals");
c= lit.nextInt();
switch(c){
        case 1:
        System.out.println("Enter Number");
        if(lit.hasNextInt())
        System.out.println("Valid Integer Literal");
        else
        System.out.println("Not Valid Integer Literal ");
        break;
        case 2:
        System.out.println("Enter Float Point Number");
        if(lit.hasNextFloat())
        System.out.println("Valid Float Point Literal");
        else
        System.out.println("Not Valid Float Point Literal");
        break;
        case 3:
        System.out.println("Enter Boolean");
        if(lit.hasNextBoolean())
        System.out.println("Valid Boolean ");
        else
        System.out.println("Not Valid Boolean ");
        break;
        case 4:
        System.out.println("Enter Double");
        if(lit.hasNextDouble())
        System.out.println("Valid Double Literal");
        else
        System.out.println("Not Valid Double Literal");
        break;
        case 6:
        System.out.println("Enter String");
        if(lit.hasNextLine())
        System.out.println("Valid String Literal");
        else
        System.out.println("Not Valid String Literal");
        break;
        case 7:
```

```
                    System.out.println("Enter Character Literal");
                    if(lit.hasNextLine())
                    System.out.println("Valid Character Literal");
                    else
                    System.out.println("Not Valid Character Literal");
                    break;
                }
        }
}
```

Output:

```
Pick One Option
1.Integer Literals
2.Floating Point Literals
3.Boolean Literals
4.Double Type Literals
5.String Literals
6.Character Literals
2
Enter Float Point Number
4.5
Valid Float Point Literal
```

6.Trace the output of the following code and identify the reasons behind it:

```
class FirstProgram
{
public static void main(String[] args){
int a,b,c;
System.out.println("Hello reader.");
System.out.println("Welcome to Java");
System.out.println("Demonstration of simple calculations");
a =2+2;
System.out.println("2 plus2 is"+a);
System.out.println(2+"bc");
System.out.println(2+3+"bc");
System.out.println((2+3)+"bc");
System.out.println("bc"+(2+3));
System.out.println("bc"+(2+3));
System.out.println("bc"+2+3);
}
```

}

Answer:

Java Code:

```
class FirstProgram
{
public static void main(String[] args){
int a,b,c;
System.out.println("Hello reader.");
System.out.println("Welcome to Java");
System.out.println("Demonstration of simple calculations");
a =2+2;
System.out.println("2 plus2 is"+a);
System.out.println(2+"bc");
System.out.println(2+3+"bc");
System.out.println((2+3)+"bc");
System.out.println("bc"+(2+3));
System.out.println("bc"+(2+3));
System.out.println("bc"+2+3);
}
}
```

Output:

```
Hello reader.
Welcome to Java
Demonstration of simple calculations
2 plus2 is4
2bc
5bc
5bc
bc5
bc5
bc23
```

7.Your friend wants you to write a program that will calculate his six week's average in one of his classes. The teacher's grading policy and your friend's grades are shown in the table below.

Answer:

Java Code:

```
package ps2_7;
public class Ps2_7{
   public static void main(String[] args){
      double daily_Avg;
      double quiz_Avg;
      double test_Avg;
```

```
        double six_weeks_Avg;
        daily_Avg = 88;
        quiz_Avg = 74;
        test_Avg = 95;
        six_weeks_Avg =0;
        double roundedAng;
        six_weeks_Avg =((daily_Avg*.3) + (quiz_Avg*.2) + (test_Avg*.5));
        six_weeks_Avg+=.5;
        System.out.println("Daily Average = "+daily_Avg);
        System.out.println("Quiz Average = "+quiz_Avg);
        System.out.println("Test Average = "+test_Avg);
        System.out.println("Six Week Average = "+(int)six_weeks_Avg);
    }
}
```

Output:

```
Daily Average = 88.0
Quiz Average = 74.0
Test Average = 95.0
Six Week Average = 89
```