

CAT B: OOPS

B1- Write an Arithmetic class that includes methods for operations such as addition, subtraction, multiplication, division, etc and test it.

Arithmetic.java-

Code:

```
class Arithmetic
{
    public String add(double i, double j)
    {
        return("Addition of "+i+" and "+j+" is "+(i+j));
    }
    public String sub(double i, double j)
    {
        return("Subtraction of "+i+" and "+j+" is "+(i-j));
    }
    public String multi(double i, double j)
    {
        return("Multiplication of "+i+" and "+j+" is "+(i*j));
    }
    public String div(double i, double j)
    {
        return("Division of "+i+" and "+j+" is "+(i/j));
    }
}
```

Test.java-

Code:

```
import java.util.Scanner;

class Test
{
    public static void main(String[] args)
    {
        Scanner sc=new Scanner(System.in);

        System.out.println("Enter the 1st number: ");
        double i = sc.nextDouble();

        System.out.println("Enter the 2nd number: ");
        double j = sc.nextDouble();

        sc.close();

        Arithmetic a=new Arithmetic();

        System.out.println(a.add(i,j));
        System.out.println(a.sub(i,j));
        System.out.println(a.multi(i,j));
        System.out.println(a.div(i,j));
    }
}
```

Output:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  JUPYTER

PS C:\Users\Atharva\Documents\Java Pracical\Cat B> javac Test.java
PS C:\Users\Atharva\Documents\Java Pracical\Cat B> java Test
Enter the 1st number:
2
Enter the 2nd number:
3
Addition of 2.0 and 3.0 is 5.0
Subtraction of 2.0 and 3.0 is -1.0
Multiplication of 2.0 and 3.0 is 6.0
Division of 2.0 and 3.0 is 0.6666666666666666
```

B2- Write a JAVA program to design a class Area for calculating area of rectangle. Use the concept of constructor. (default and parameterized constructor).

Code:

```
import java.util.Scanner;
```

```
class Area
```

```
{
```

```
    double l, b;
```

```
    Area()
```

```
    {
```

```
        l=25.3;
```

```
        b=67;
```

```
    }
```

```
    Area(double l, double b)
```

```
    {
```

```
        this.l=l;
```

```
        this.b=b;
```

```
    }
```

```
    public String calArea()
```

```
    {
```

```
        return("Area of rectangle with length= "+l+" and breadth= "+b+" is" +(l*b));
```

```
    }
```

```
}
```

```
class RectArea
```

```
{
```

```
    public static void main(String[] args)
```

```
    {
```

```

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter length: ");

        double i=sc.nextDouble();

        System.out.println("Enter breadth: ");

        double j=sc.nextDouble();

    sc.close();

    Area a=new Area();

    System.out.println("Default constructor: "+a.calArea());

    a=new Area(i,j);

    System.out.println("Parametrized constructor: "+a.calArea());

    }

}

```

Output:

```

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  JUPYTER

PS C:\Users\Atharva\Documents\Java Pracical\Cat B> javac RectArea.java
PS C:\Users\Atharva\Documents\Java Pracical\Cat B> java RectArea
Enter length:
10
Enter breadth:
5
Default constructor: Area of rectangle with length= 25.3 and breadth= 67.0 is1695.1000000000001
Parametrized constructor: Area of rectangle with length= 10.0 and breadth= 5.0 is50.0
PS C:\Users\Atharva\Documents\Java Pracical\Cat B> 

```