

Lab-1

Date : 12/12/2023

1) //Print hello world!

```
class Hello{  
    public static void main(String[] args){  
        System.out.println("Hello, World!");  
    }  
}
```

Output:

Hello, World!

2) //Calculate area of rectangle

```
class Area{  
    public static void main(String[] args){  
        int length = Integer.parseInt(args[0]);  
        int breadth = Integer.parseInt(args[1]);  
  
        System.out.println("Length: " + length);  
        System.out.println("Breadth: " + breadth);  
        System.out.println("Area is " + length * breadth);  
    }  
}
```

Output: java Area 10 8
Length = 10 | Breadth = 8 Area is 80

3) Scanner class methods

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

```
class input {
```

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

String a, int b;

```
        Scanner input = new Scanner(System.in);
```

```
        System.out.print("Enter String: ");
```

```
        a = input.nextLine();
```

```
        System.out.println("String is "+a);
```

```
        System.out.print("Enter Integer: ");
```

```
        b = input.nextInt();
```

```
        System.out.print("The Integer is "+b);
```

```
}
```

```
}
```

Output:

```
Enter string: Abhimanyu
```

```
String is Abhimanyu
```

```
Enter Integer: 20
```

```
Integer is 20
```

//Array

class array{

```
    public static void main(String[] args){  
        int a[] = {31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31};  
        System.out.println("July has " + a[6] + " days");  
    }  
}
```

Output:

July has 31 days.

//Factorial

import java.util.Scanner;

class factorial{

```
    public static void main(String[] args){  
        Scanner input = new Scanner(System.in);  
        System.out.print("Enter a number: ");  
        int num = input.nextInt();  
        int fact = 1;  
        for(int i = 1; i <= num; i++){  
            fact *= fact * i;  
        }  
        System.out.println(fact);  
    }  
}
```

6) // Palindrome

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

```
class palin {
```

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

```
        int num, copy, rev = 0;
```

```
        Scanner in = new Scanner(System.in);
```

```
        num = in.nextInt();
```

```
        copy = num; rev = 0;
```

```
        while (num != 0) {
```

```
            rev = (rev * 10) + (num % 10);
```

```
            num = num / 10;
```

```
}
```

```
System.out.println
```

```
if (copy == rev) {
```

```
    System.out.println("It is palindrome");
```

```
}
```

```
else {
```

```
    System.out.println("It is not a palindrome");
```

```
}
```

```
}
```

Output:

```
Enter number: 1234
```

```
It is not a palindrome.
```

```
//Quadratic equation roots
```

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

```
class quad{
```

```
    int a,b,c;
```

```
    double r1,r2,d;
```

```
    void coeff()
```

```
        Scanner s = new Scanner(System.in);
```

```
        a = s.nextInt();
```

```
        b = s.nextInt();
```

```
        c = s.nextInt();
```

```
    void compute(){
```

```
        while(a==0)
```

```
            if(a==0){
```

```
                System.out.println("Not a quadratic equation");
```

```
}
```

```
        d = b*b - (4*a*c);
```

```
        if(d==0){
```

```
            r1 = (-b)/(2*a);
```

```
            System.out.println("Roots are real and equal");
```

```
            System.out.println("Roots are "+r1);
```

```
}  
else if(d>0){
```

```

r1 = ((-b) + Math.sqrt(b*b - 4*a*c)) / (2*a);
r2 = ((-b) - Math.sqrt(b*b - 4*a*c)) / (2*a);
System.out.println("Root1 = " + r1 + " Root2 = " + r2);
}

else if (d < 0)
{
    System.out.println("Roots are imaginary");
    r1 = (-b) / (2*a);
    r2 = Math.sqrt(-d) / (2*a);
    System.out.println("Root1 = " + r1 + " + i" + r2);
    System.out.println("Root2 = " + r1 + " - i" + r2);
}

}

}

class QuadraticMain
{
    public static void main(String [] args)
    {
        Quadratic qv = new Quadratic();
        qv.gtd();
        qv.compute();
    }
}

```

Output:

Enter the coefficients of $a, b, c : 1 \ 0 \ 2 \ 1$

Roots are real and equal

$$\text{Root 1} = \text{Root 2} = -1.0$$

Enter the co-efficients of $a, b, c : 1 \ -5 \ 6$

Roots are real and distinct

$$\text{Root 1} = -2.0$$

$$\text{Root 2} = -3.0$$

Enter the co-efficient of $a, b, c : 1 \ 3 \ 4$

Roots are imaginary

$$\text{Root 1} = -1 + i\sqrt{3.3228}$$

$$\text{Root 2} = -1 \mp i\sqrt{3.3228}$$

Enter the co-efficient of $a, b, c : 0 \ 2 \ 3$

Not a quadratic equation

Enter a non zero value for $a : 1 \ -7 \ 10$

$$\text{Root 1} = -2.00$$

$$\text{Root 2} = -5.00$$