PRACTICAL:-1

Aim:- Write a program to display Hello World message in console window.

Algorithm:- 1]Start
2]Print Hello World
3]End

Code:-

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

Output:-

```
PS C:\Users\Dhruvin Malani> cd "d:\Java\" ; if ($?) { javac fifteenpro.java } ; if ($?) { java fifteenpro }
Hello World
PS D:\Java>
```

PRACTICAL:-2

Aim:- Write a program to perform arithmetic and bitwise operations in a single source program without object creation.

Algorithm:-1]Start
2]Assign Values to Variables
3]Perform Arithmetic Operations
4]Perform Bitwise Operations
5]End

Code:-

```
public class Operation
{
   public static void main(String[] args)
   {
      int x=29;
      int y=13;
      System.out.println("x+y :"+(x+y));
      System.out.println("x-y :"+(x-y));
      System.out.println("x*y :"+(x*y));
      System.out.println("x&y :"+(x&y));
      System.out.println("x|y :"+(x|y));
      System.out.println("x^y :"+(x^y));
   }
}
```

Output:-

```
PS D:\Java> cd "d:\Java\" ; if ($?) { javac fifteenpro.java } ; if ($?) { java fifteenpro }
x+y :42
x-y :16
x*y :377
x&y :13
x|y :29
x^y :16
```

PRACTICAL:-3

Aim:- Write a program to perform arithmetic and bitwise operations by creating individual methods and classes than create an object to execute the individual methods of each operation.

Algorithm:-1]Star
2]Create class Arithmetic
3]Define Method
4]Create class Bitwise
5]Define Method
6]Create Objects of Both Class
7]Take User Input
8]Call Methods
9]End

Code:-

```
import java.util.Scanner;
class Arithmetic
{
   public void Arithmetic(int a,int b)
   {
      System.out.println("a+b :"+(a+b));
      System.out.println("a-b :"+(a-b));
      System.out.println("a*b :"+(a*b));
   }
}
class Bitwise
{
   public void Bitwise(int a,int b)
   {
      System.out.println("a&b :"+(a&b));
      System.out.println("a|b :"+(a|b));
      System.out.println("a^b :"+(a^b));
   }
```

```
}
public class Operators
{
   public static void main(String[] args)
   {
      int a,b;
      Scanner sc = new Scanner(System.in);
      System.out.print("Enter 1st Value :");
      a = sc.nextInt();
      System.out.print("Enter 2nd Value :");
      b = sc.nextInt();
      Arithmetic obj = new Arithmetic();
      Bitwise obj1 = new Bitwise();
      obj.Arithmetic(a,b);
      obj1.Bitwise(a,b);
   }
}
```

Output:-

```
PS D:\Java> cd "d:\Java\" ; if ($?) { javac fifteenpro.java } ; if ($?) { java fifteenpro }
Enter 1st Value :12
Enter 2nd Value :45
a+b :57
a-b :-33
a*b :540
a&b :12
a|b :45
a^b :33
```

PRACTICAL:-4

Aim:- Write a java program to display the employee details using Scanner class.

Algorithm:-1]Start
2]Take User Input Details of Employee
3]Print all Details
4]End

Code:-

```
import java.util.Scanner;

public class Employee
{
   public static void main(String[] args)
   {
      int emp_id,sal;
      String name,city;
      Scanner sc = new Scanner(System.in);
      System.out.print("Enter Id :");
      emp_id = sc.nextInt();
      System.out.print("Enter Name :");
      name = sc.next();
      System.out.print("Enter Salary :");
      sal = sc.nextInt();
      System.out.print("Enter City :");
      city = sc.next();
      System.out.println("Emp_Id :"+emp_id);
      System.out.println("Name :"+name);
      System.out.println("Salary :"+sal);
      System.out.println("City :"+city);
   }
}
```

Output:-

```
PS D:\Java> cd "d:\Java\" ; if ($?) { javac fifteenpro.java } ; if ($?) { java fifteenpro }
Enter Id :131
Enter Name :DHRUVIN
Enter Salary :2000000
Enter City :SURAT
Emp_Id :131
Name :DHRUVIN
Salary :2000000
City :SURAT
```

PRACTICAL:-5

Aim:- Write a Java program that prints all real solutions to the quadratic equation ax2+bx+c = 0. Read in a, b, c and use the quadratic formula. If the discriminate b^2-4ac is negative, display a message stating that there are no real solutions?

Algorithm:-1]Start
2]Initialise Variables
3]Check Condition & write Formula
4]Print Answer
5]End

Code:-

```
import java.util.Scanner;
public class RootsCalc
{
   public static void main(String[] args)
   {
      float a, b, c, d;
      double r1, r2;
      Scanner sc = new Scanner(System.in);
      System.out.print("Enter x^2 Coefficient: ");
      a = sc.nextFloat();
      System.out.print("Enter x Coefficient: ");
      b = sc.nextFloat();
      System.out.print("Enter Constant: ");
      c = sc.nextFloat();
      d = (b * b) - (4 * a * c);
      if (d < 0)
      {
         System.out.println("No Roots");
      }
      else
      {
         r1 = (-b + Math.sqrt(d)) / (2 * a);
         r2 = (-b - Math.sqrt(d)) / (2 * a);
```

```
            System.out.println("Roots are " + r1 + " & " + r2);
        }
    }
}
```

Output:-

```
PS D:\Java> cd "d:\Java\" ; if ($?) { javac fifteenpro.java } ; if ($?) { java fifteenpro }
Enter x^2 Coefficient: 2
Enter x Coefficient: 2
Enter Constant: 2
No Roots
```

PRACTICAL:- 6

Aim : The Fibonacci sequence is defined by the following rule. The first 2 values in the sequence are 1, 1. Every subsequent value is the sum of the 2 values preceding it. Write a Java program that uses both recursive and nonrecursive functions to print the nth value of the Fibonacci sequence?

Code:

```
import java.util.Scanner;
class Fibonnaci_series
{
public static void main(String arg[])
{
int i,n,n1 = 0,n2 = 1,sum = 0;
Scanner sc = new Scanner(System.in);
n = sc.nextInt();
for(i = 0;i<n;i++)
{
System.out.println(n1);
sum = n1 + n2;
n1 = n2;
n2 = sum;
}
}
}
```

Output :

```
PS C:\Users\Dhruvin Malani> cd "d:\Java\" ; if ($?) { javac fifteenpro.java } ; if ($?) { java fifteenpro }
10
0
1
1
2
3
5
8
13
21
34
```