1.Basic Java program that prints a message on the screen

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

Explanation:

`class HelloWorld` → Defines a class (file name should be `HelloWorld.java`)

public static void main(String[] args)

`public`

- Makes the method **accessible from anywhere**
- JVM (Java Virtual Machine) must be able to call this method
- If not `public`, the program will not run

`static`

- Allows JVM to call `main()` **without creating an object** of the class
- Program starts execution directly from this method

`void`

- Means **no return value**
- The `main()` method does not return anything to JVM

`main`

- **Special method name**
- JVM looks for this method to **start program execution**

`String[] args`

- Used to accept **command-line arguments**
- `args` is an array of `String`

In Java, **main()** is defined inside a class because Java is a **class-based object-oriented language.** JVM executes programs by loading classes, and Java does not support methods outside a class.

JVM is a part of Java Runtime Environment (JRE) and is responsible for **executing Java programs**.

JVM is used to execute **Java bytecode**, provide **platform independence(**Same Java program can run on **Windows, Linux, Mac ,** Concept: **Write Once, Run Anywhere (WORA))**, manage memory, ensure security, and optimize performance of Java programs.

System.out.println() is used to display output on the console and move the cursor to the next line.

HelloWorld.java

```
class HelloWorld

{

   public static void main(String[] args)

 {

      System.out.println("Hello, World!");

   }

}
```

Output:

```
C:\Users\COMP-HOD>javac HelloWorld.java

C:\Users\COMP-HOD>java HelloWorld
Hello, World!
```

2.Addition.java

```
class Addition {

   public static void main(String[] args)

 {

      int a = 10;

      int b = 20;

      int sum = a + b;

      System.out.println("Sum = " + sum);

   }

}
```

Output:

```
C:\Users\COMP-HOD>javac Addition.java

C:\Users\COMP-HOD>java Addition
Sum = 30
```

3.Demo.java

```
class Demo
{
            public static void main(String[] args)
        {
              System.out.println("Hello Java");
              System.out.println(10 + 20);
 }
}
```

Output:

```
C:\Users\COMP-HOD>javac Demo.java

C:\Users\COMP-HOD>java Demo
Hello Java
30
```

```
class Demo
{
   public static void main(String[] args)
  {
      System.out.println("Hello Java");
      System.out.println("Sum = " + (10 + 20));  // + used as a (Concatenation Operator)
   }
}
```

```
C:\Users\COMP-HOD>javac Demo.java

C:\Users\COMP-HOD>java Demo
Hello Java
Sum = 30
```

Example: **+ used as a (Concatenation Operator)**

System.out.println("Sum = " + 10 + 20);

```
C:\Users\COMP-HOD>javac Demo.java

C:\Users\COMP-HOD>java Demo
Hello Java
Sum = 1020
```

4.EvenOdd.java

```
class EvenOdd {
            public static void main(String[] args)
        {
            int n = 6;
            if (n % 2 == 0)
                System.out.println("Even");
            else
                System.out.println("Odd");
          }
}
```

```
C:\Users\COMP-HOD>javac EvenOdd.java

C:\Users\COMP-HOD>java EvenOdd
Even
```

5.InputDemo.java

```
import java.util.Scanner;

class InputDemo
 {
   public static void main(String[] args)
  {
      Scanner sc = new Scanner(System.in);
      int x = sc.nextInt();
      System.out.println("You entered: " + x);
   }
}
```

```
C:\Users\COMP-HOD>javac InputDemo.java

C:\Users\COMP-HOD>java InputDemo
15
You entered: 15
```

`import java.util.Scanner;`

- Imports the **Scanner class**
- Scanner is used to **take input from the user**
- Located in the `java.util` package

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

- Creates a **Scanner object** named `sc`
- `System.in` means **keyboard input**
- Used to read data entered by the user

`int x = sc.nextInt();`

- Reads an **integer value** from the user
- Waits until the user types a number and presses **Enter**
- Stores the value in variable `x`

6.EvenOdd.java (take value from user with the help of scanner)

```
import java.util.Scanner;
class EvenOdd
{
   public static void main(String[] args)
  {
       Scanner sc = new Scanner(System.in);
       System.out.print("Enter a number: ");
       int num = sc.nextInt();

       if (num % 2 == 0)
          System.out.println("Even number");
       else
          System.out.println("Odd number");
   }
}
```

```
C:\Users\COMP-HOD>javac EvenOdd.java

C:\Users\COMP-HOD>java EvenOdd
Enter a number: 15
Odd number

C:\Users\COMP-HOD>javac EvenOdd.java

C:\Users\COMP-HOD>java EvenOdd
Enter a number: 8
Even number
```

7.Largest.java

```
class Largest {

   public static void main(String[] args) {

       int a = 10, b = 20;

       if (a > b)

          System.out.println("A is largest");

       else

          System.out.println("B is largest");

   }

}
```

8.Swap.java

```
class Swap {

    public static void main(String[] args) {

        int a = 5, b = 10, temp;

        temp = a;

        a = b;

        b = temp;

        System.out.println(a + " " + b);

    }

}
```

9. Check Positive, Negative or Zero CheckNumber.java

```
import java.util.Scanner;

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

        int n = sc.nextInt();

        if (n > 0)
            System.out.println("Positive");
        else if (n < 0)
            System.out.println("Negative");
        else
            System.out.println("Zero");
    }
}
```

10. Find Largest of Three Numbers

LargestOfThree.java

```
import java.util.Scanner;

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

      int a = sc.nextInt();
      int b = sc.nextInt();
      int c = sc.nextInt();

      if (a >= b && a >= c)
         System.out.println("A is largest");
      else if (b >= a && b >= c)
         System.out.println("B is largest");
      else
         System.out.println("C is largest");
   }
}
```

```
C:\Users\COMP-HOD>javac LargestOfThree.java

C:\Users\COMP-HOD>java LargestOfThree
15
26
53
C is largest
```