

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.

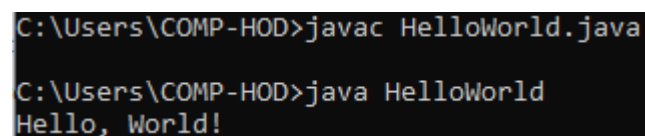
System.out.println() is used to display output on the console and move the cursor to the next line.

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

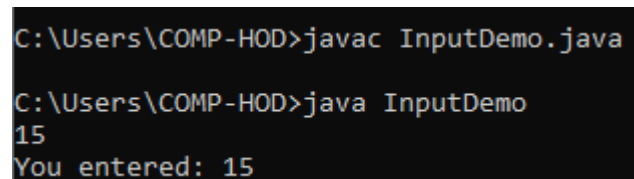
C:\Users\COMP-HOD>java EvenOdd
Even

```

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

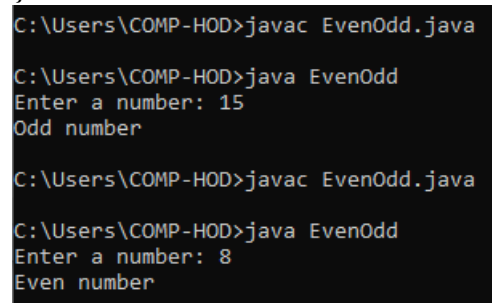
```
int x = sc.nextInt();
```

- 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
```