JAVA STRUCTURE

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

```java
public class HelloWorld {
```

- **public**
  - **It's an access modifier.**
  - **Means this class is accessible from anywhere (outside the file or package too).**
- **class**
  - **Keyword to declare a class in Java.**
  - **A class is a blueprint for objects.**
- **HelloWorld**
  - **This is the name of the class.**
  - **It must match the filename: HelloWorld.java.**

This line creates a class named HelloWorld

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

- **public**
  - **Access modifier.**
  - **The JVM (Java Virtual Machine) can call this method from outside the class.**
- **static**
  - **Means the method belongs to the class, not objects of the class.**
  - **You don’t need to create an object to run main.**
- **void**
  - **The method doesn't return any value.**
- **main**
  - **This is the name of the method.**
  - **It is the entry point of any Java program.**
- **String[] args**
  - **It means the method receives an array of Strings as input.**
  - **This is used to accept command-line arguments.**

So this line defines the main method that will run first when you execute the program.

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

- **System**
  - **A built-in Java class in the java.lang package.**
  - **It has useful utilities like System.out.**

- **out**
  - **A static output stream (like the console).**
  - **It is a public static member of the System class.**
- **println**
  - **A method that prints text and adds a new line.**
- **"Hello, World!"**
  - **A String literal (text).**
  - **This is what gets printed to the screen.**

🟩 What is a Variable?

A variable is a name that stores data (value) in your program.

🧠 Think of it like a box with a label. You can put something inside the box (like a number or text), and use the label to find it later.

- **Syntax:**

```
dataType variableName = value;
```

✅ Example:

```
int age = 20;
```

- **int → data type (type of value)**
- **age → variable name (box label)**
- **20 → value stored in the variable**

🟩 Types of Data in Java (Data Types)

Java has different types of data. Each type has a different **purpose**.

🔹 1. int – Whole numbers

```
int age = 25;
```

✅ **Example values: 0, -10, 100**

🔹 2. double – Decimal numbers (floating point)

```
double price = 19.99;
```

✅ **Example values: 5.5, 3.14, -2.0**

🔹 3. char – Single character (in single quotes)

```
char grade = 'A';
```

✅ **Example values: 'A', 'B', '1'**

🔹 4. boolean – True or False

```java
boolean isJavaFun = true;
```

✅ **Example values: true, false**

🔹 5. String – Text (not a primitive type)

```java
String name = "Arman";
```

✅ **Example values: "Hello", "Java"**

🟩 Example Using All:

```java
public class Example {
    public static void main(String[] args) {
        int age = 21;
        double height = 5.9;
        char gender = 'M';
        boolean isStudent = true;
        String name = "Rakib";

        System.out.println(name + " is " + age + " years old.");
    }
}
```

🟧 Summary Table

Data Type	Meaning	Example
int	Whole number	10, -5
double	Decimal number	3.14, 2.0
char	Single character	'A', '1'
boolean	True or False	true
String	Sequence of characters	"Hello"