JAVA DAY 1

What is java

java is a high-level, object-oriented, platform-independent programming language.

Key Features

* platform independent (Write Once, Run Anywhere)
* Object oriented
* Secure
* Robust
* Multithreaded

Java Architecture

.java
↓
compiler (javac)
↓
.class
↓
JVM
↓
output

Components:

* JDK - java development kit (for developers)
* JRE - java Runtime Environment.
* JVM - java virtual machine (runs bytecode)
* java code compiles into bytecode, not machine code

Structure of a java program

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

* class → Blueprint of program
* main() → Entry point of Execution
* System.out.println() → prints output.
* without main() → program won't run.

Tokens in java

smallest elements of a program.

Types:

* keywords → class, int, if, else
* identifiers → variable names
* Literals → values (10, 'A', true)
* operators → + - * /
* seperators → {} ();

Variables in java

used to store data;

```
int age = 21;
```

Syntax:

```
dataType variableName = value;
```

DataTypes

int
double
char
boolean

Input in java (Scanner class)

```
import java.util.Scanner;

Scanner sc = new Scanner(System.in);
int num = sc.nextInt();
```

Common methods:

- nextInt() → integer
- nextDouble() → decimal
- next() → Single word
- nextLine() → full line.

Operators in java

Types:

* Arithmetic → + - * / %
* Relational → >, <, >=, <=, ==, !=
* Logical → && || !
* Assignment → =, +=, -=

Conditional Statements

```
if (condition) {
        //
} else {
        //
}
```

Day 1: practice

1. program to check even or odd
2. find largest of 3 numbers
3. Simple calculator
4. Student result checker