Day-2:-

Variables in Java:-

It is a container to store data in a memory.

Variable has :-

- Name
- Data type.
- Value.

Syntax:-

```
Datatype Name = Value;
```

sample:-

```
int a = 10;
```

Types of Variables in java:-

a) Local variable:-

- Declared inside method.
- Exists only while using method runs.

```
Public void main() {
        int i=10;
```

B) Instance variable :-

Declared inside a class, but outside methods

Each object gets its own copy.

obj1. name = "Ebi"
obj2. name = "Emi"

c) Static variable (class variable) :-

- Declared with the keyword static.
- Here only one copy stored by all objects.
- If any change happen affect all class.
- Memory allocated only once.

if we create two obj in a class
the last object what we give the value.
it will print for two obj

D) Final variable :-

It is constant, we cannot change its value.

Final int x = 10;

x = 11; // cannot change

Scope of variables :-

Local, Instance, Static

Variable Declaration :-

int a = 10;

int a; // declaration

a = 10; // Initialization.

Data types in Java:-

It is the type of data that variable can hold.

There are two types of datatypes :-

Primitive / Non-Primitive.

Primitive DT:-

bit

byte - 8
Sort - 16
Int - 32
long - 64

Float - 32
double - 64
char - 16
boolean - true / false.

[Byte.MIN_VALUE
Byte.MAX_VALUE]
For Printing values.

Non-primitive (Reference type)

Strings
arrays
class
Interfaces
enum
records.

Literals : are Fixed values written directly into the code.

Default values:-

int a; // 0
boolean b; // false.
String n; // null.

.Var (local type reference) :

Var - Can be String / Int etc : - -

Type Casting :-

we can assign Value From one datatype to another type.

There are two types of casting.

- widening casting (automatic) small → big
- Narrowing (manual) big → small.

Byte = 127
↳ if it is
256-13
126

Rounding :-

It cut ## decimals.

using. double d = 5.7;
int t = Mat. round (d)

Parsing String :-

we does not convert "123" to int.

sample :-

string s = "123"

~~double d = Double. parseDouble (s);~~

int n = Integer. parseInt (s);

Wrapper class :-

A wrapper class wraps Primitive datatype (int, string double) Into an object.

Because (Java collections like ArrayList, Hashmap. only work with objects and Primitives

Autoboxing / unboxing :

int → Integer

Integer → int.

Casting objects :-

upcasting → (child → Parent)

Downcasting (Parent → child)

Animal - Parent class
Dog - child class

```
Dog myDog = new Dog();
Animal myAnim = myDog;
```

→ upcasting.

```
Animal myAnim = new Dog();
Dog myDog = (Dog) myAnimal;
```

String, BigInteger, Bigdecimal

String - is immutable

BigInteger - used to store larger than long.

BigDecimal - to store Precise decimals.

Types of operators in Java:-

1. Arithmetic operators. [+, -, *, /, %]
2. Unary operators. [+, -, ++, --, !, ~]
3. Assignment operators. [=, +=, -=, *=, /=, %=]
4. Relational operators. [==, !=, >, <, >=, <=]
5. Logical operators. [&&, !]
6. Bitwise operators. [&, ^, ~]
7. shift operators. [<<, >>, >>>]
8. Ternary operators. [Variable = Condition ? True : Value false]
9. Type operators.

[a Instance of Dog

↙

object of a class.

>> ÷ by 2

<< × by 2