2.12 - OOPS - 3

Sunday, November 2, 2025 3:08 PM

Q) Complex Number class.

$x + iy$

$i \to \sqrt{-1}$

$$(x+iy) \pm (a+ib)$$
$$= (x+a) \pm i(y+b)$$

$\Rightarrow 3+5i$
$2+4i$ $\Rightarrow (5+9i)$

→ Create a complex no class which has two attributes real, img.

2) Constructor to initialize a complex no.

3) method to add two complex nos.

4) ______ Substract ______

5) Make a function to print the complex no.

#

OOPS

[Integer a = new Integer(10);]

[int a = 10;] [primitive]

int → Integer } wrappers classes → byte → Byte

→ double → Short

int → Integer
double → Double
char → Character
boolean → Boolean
} Wrapper classes

→ byte → Byte
→ short → Short
→ float → Float
→ long → Long.

Integer a = new Integer(10);] → auto boxing
10 ↓ int
⇓
converting primitive to object

int x = a;] Auto unboxing
int x: pri; a: object
⇓
converting object into primitive

Q) Elephant e = new Elephant();] → constructor

⇒ [How to restrict the object creation of a class.]

Ans Make constructor as private

Use cases: Used in singleton and Factory Design pattern.

final keyword

final keyword

→ variables
→ methods
→ class

=> variable
↳ final makes the variable immutable

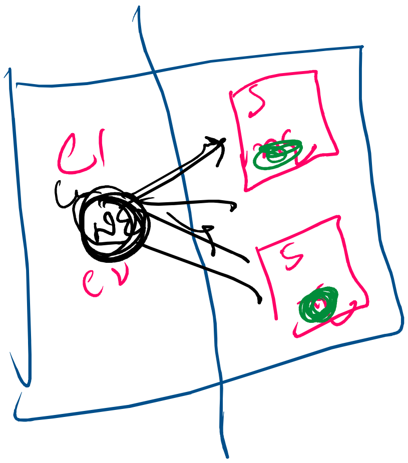
=> A final variable has to be initialized at the time of object creation.

=> method : a final method cannot be overriden in the child class.

=> class : a final class cannot be inherited.

static}
↳ share the variable across the objects

=> static members belong to class and not objects



{ Emp {
int salary; }
Static int noofE;

}

e1
e2

⊛ final variables get memory with every object

static variables only get memory once.

⊛ static are mutable, final are immutable

⊛ Static members are belong to class while

final belong to objects

o) public static void main () {

}

⊛ a Static func^n can only call static members