

OOPS

Lecture-37

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What is OOP?

Object Oriented Programming is a methodology or paradigm to design a program using classes and objects.

- 1. Data Abstraction
- 2. Data Encapsulation
- 3. Inheritance
- 4. Polymorphism



What are classes?

Class is a user-defined datatype.

```
class Player {
   int health;
   int score;
   String name;
}
```



What are Objects?

Object is an instance of the class.

```
class Player {
   int health;
   int score;
   String name;
}
Player harsh;
```



Why Classes?

Classes enables us to apply OOP concepts.

- 1. Data Abstraction
- 2. Data Encapsulation
- 3. Inheritance
- 4. Polymorphism



Array approach Vs Class





Class variables

Declaration, Initialization and Accessing





Access specifiers Private, Public and Protected





Getters and setters



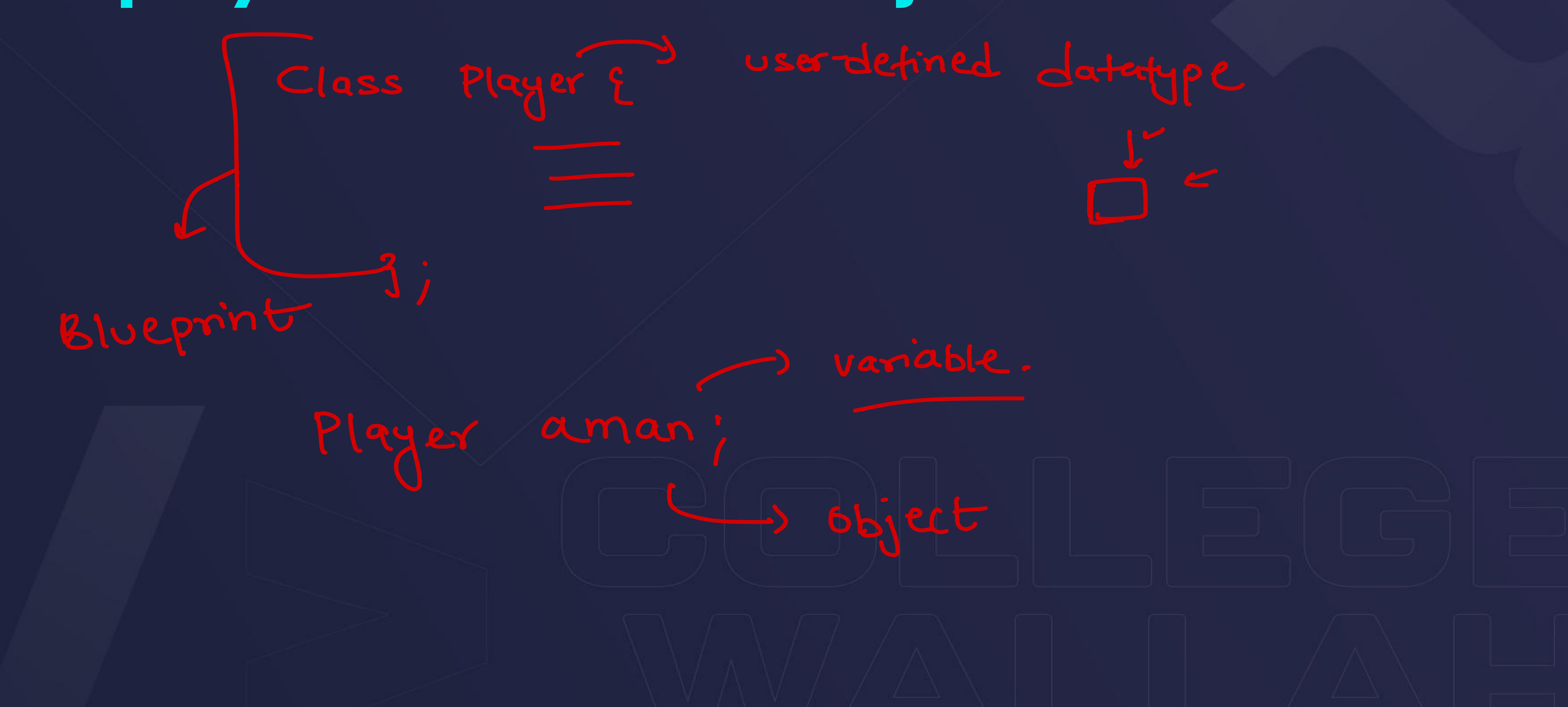


Ques: Create a class 'book' with name, price and number of pages as its attributes. The class should contain following member functions:

- countBooks(int price): This function will return count of all the books that have a price less than the given price.
- isBookPresent(string title): This will return a boolean value indicating whether any book with the given title exists or not.



Let's play with Classes & Objects



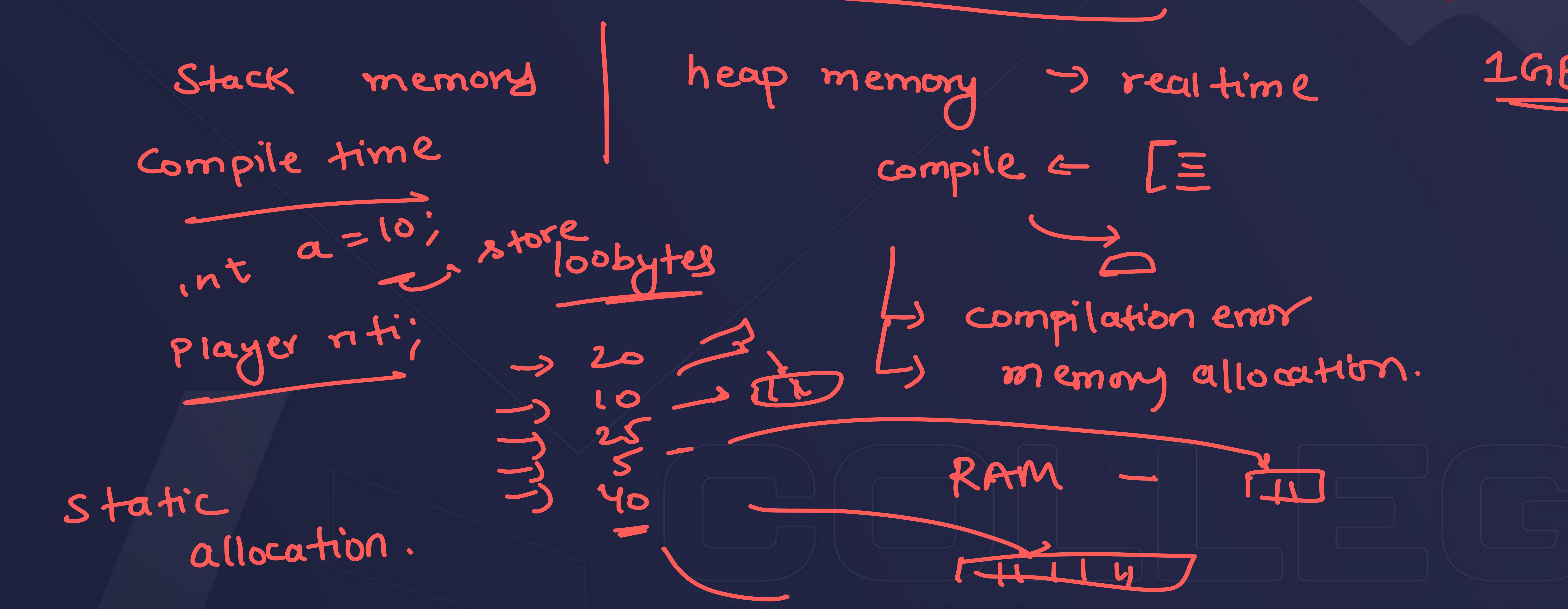


Passing class objects to functions





Static Allocation vs Dynamic Allocation





Class in Class - Nested Class

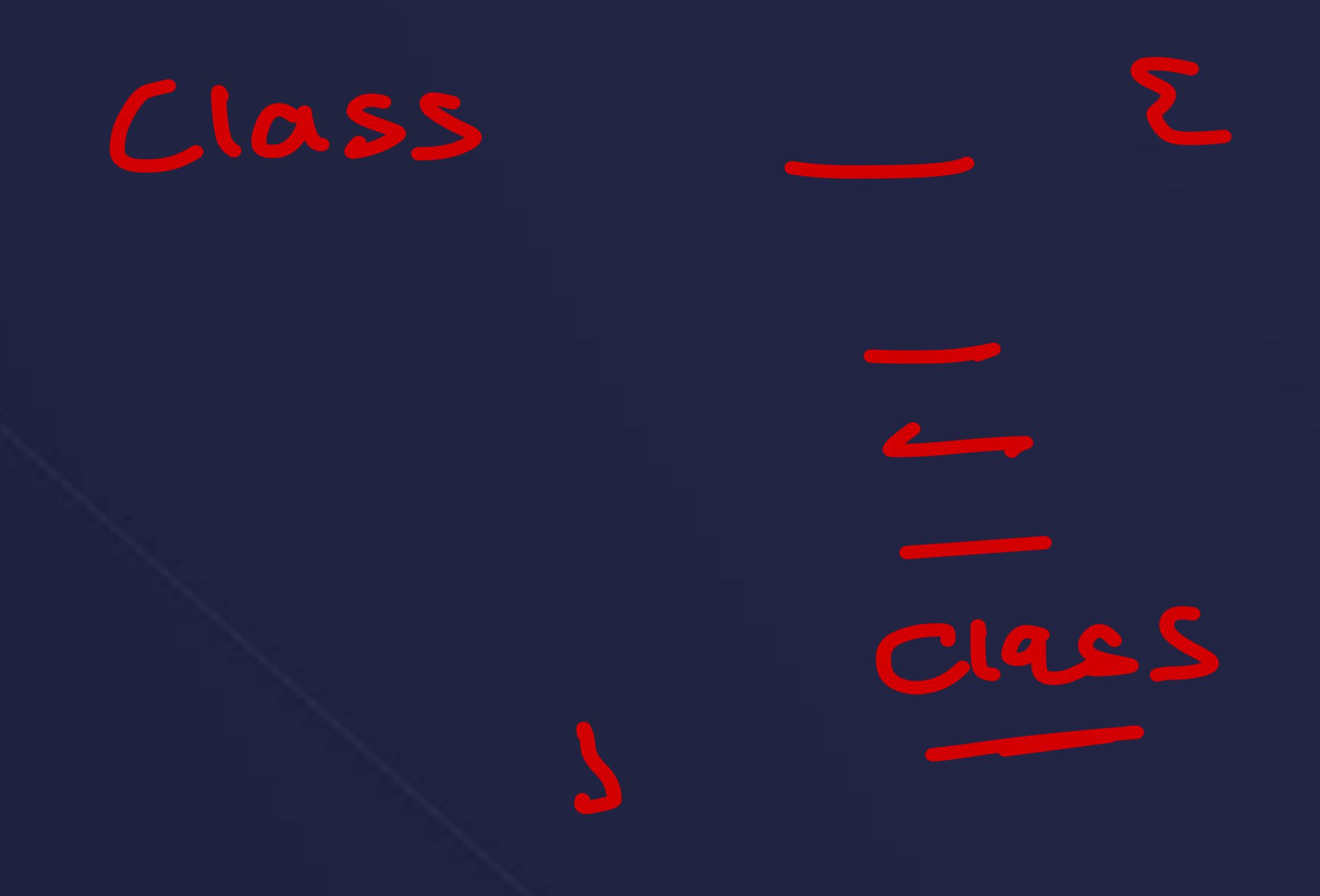
Compile time int a=lo Player harsh; Run Lime Pointers

head 2 Run-time Ron-time memory allocation 7 Dynamic allocation a= new int (5);

newin new char new Lany dateitype?



Class in Class - Nested Class





Array of Classes



Ques: Create a class "cricketer" that contains name of cricketer, his age, number of test matches that he has played and the average runs that he has scored in each test match. Create an array of data type "cricketer" to hold records of 20 such cricketers and then write a program to read these records



Constructors

GOLLEGE WAALLAH



Types of Constructors

- Default constructor
- Parameterized constructor
- Copy constructor



Default constructor



Parameterized constructor





Destructor



Thank you!!