Classes & Objects

Can You Name Your Favorite Cricketer Player?

Describe Your Favorite Cricket Player

NOUN

VERB

- Mahendra Singh Dhoni
- 39 Years
- Brown
- Wicket-keeper, batsman
- Indian

Batting
Wicket Keeping
Fielding
Bowling

Class diagram

Three compartments

Class Name

Class Variables

Class Methods

class Cricketer

name
age
color
role
country

bat()
wicket_keeping()
captaincy()
field()

class Cricketer {

name
age
color
role
country

bat()
wicket_keeping()
captaincy()
field()

}

Class & Object

What is Object?
- In real-world an entity that has state and its behavior is known as an object

For Example:
- A Car is an object. It has states (name, color, model) and its behavior (changing gear, applying brakes)

What is Class?

- A class is a template or blueprint that is used to create objects.

- A class consists of data members and methods.

Defining class in Java

Syntax

```
class ClassName {

   Data Members;
   Methods;
}
```

Example

```
class Car {
    String color;
    double model;
}
```

Class members

- A member cannot be redeclared within a class

- No member can be added elsewhere other than in the class definition

- Data and functions are members

Example

```
public class Cube {
    int length;
    int breadth;
}
```

Cricketer

```
class Cricketer{
//Instance variables
    String name = "Dhoni";
    int age = 39;
    String color = "Brown";
    String role = "Batsman";
    String nationality = "Indian";

void cricketerDetails(){
    System.out.println(name);
    System.out.println(age);
    System.out.println(color);
    System.out.println(role);
    System.out.println(nationality);
    }//end of method
}//end of class
```

Class Instantiation

Object is an instance of a **class**

Process of creating an object from a **class** is called **instantiation**.

Now that you have defined a new **class** type --> Cricketer, it is time to **instantiate** an object of that type.

new keyword is used to initialize/create an object.

new operator is followed by a call to a constructor, which initializes the **new** object.

Example:
   Cricketer c = new Cricketer();

c ➡️

name = Dhoni
age = 39
color = Brown
role = Batsman
nationality = Indian

Example 01

```
public class Myclass {
    int x;
}
class Main {
    public static void main(String[] args) {
        Myclass myObj = new Myclass();
        myobj.x = 40;
        System.out.println(myObj.x);
    }
}
```

Example 02

```
public class Main {
    int x;
    public static void main(String[] args) {
        Main myObj1 = new Main();
        Main myObj2 = new Main();
        myobj1.x = 24;
        myobj2.x = 55;
        System.out.println(myObj1.x);
        System.out.println(myObj2.x);
    }
}
```