Lecture # 2

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Outline

- Ways to Initialize Object
- Constructor in Java
- Java static keyword
- Java this keyword

Ways to initialize object

There are 3 ways to initialize object in java.

1. By reference variable
2. By method
3. By constructor

Constructor in Java

- In Java, constructor is a block of codes similar to method. It is called when an instance of object is created and memory is allocated for the object.
- It is a special type of method which is used to initialize the object.

Rules for creating java constructor

- There are basically two rules defined for the constructor:
  - Constructor name must be same as its class name
  - Constructor must have no explicit return type

Types of java constructors

- Default constructor (no-arg constructor)
  - A constructor is called "Default Constructor" when it doesn't have any parameter.
  - Default constructor is used to provide the default values to the object like 0, null etc. depending on the type.
- Parameterized constructor
  - Parameterized constructor is used to provide different values to the distinct objects.

Java Default Constructor

Syntax of default constructor:

- <class_name>(){}

Example of default constructor

```
class Bike1
{
    Bike1(){System.out.println("Bike is created");}
    public static void main(String args[])
    {
        Bike1 b=new Bike1();
    }
}
```

Java parameterized constructor

- A constructor which has a specific number of parameters is called parameterized constructor.

Example of parameterized constructor

```
class Student
{
   int id;
   String name;
   Student(int i,String n)
   {
        id = i;
        name = n;
   }
   void display(){System.out.println(id+" "+name);}
   public static void main(String args[]){
   Student s1 = new Student(111,"Test");
   s1.display();
   }
}
```

Constructor vs Method

Constructor	Method
• Constructor is used to initialize the state of an object. • Constructor must not have return type. • Constructor is invoked implicitly. • The java compiler provides a default constructor if you don't have any constructor. • Constructor name must be same as the class name.	• Method is used to expose behavior of an object. • Method must have return type. • Method is invoked explicitly. • Method name may or may not be same as class name.

Java static keyword

The **static keyword** in java is used for memory management mainly. We can apply java static keyword with variables, methods, blocks and nested class. The static keyword belongs to the class than instance of the class.

The static can be:

- variable (also known as class variable)
- method (also known as class method)
- block
- nested class

Java static keyword

1) Java static variable

- If you declare any variable as static, it is known static variable.
- The static variable can be used to refer the common property of all objects e.g. company name of employees, university name of students etc.
- The static variable gets memory only once in class area at the time of class loading.
- Advantage of static variable
  - It makes your program **memory efficient** (i.e it saves memory).

Java static keyword

2) Java static method

If you apply static keyword with any method, it is known as static method:

- A static method belongs to the class rather than object of a class.
- A static method can be invoked without the need for creating an instance of a class.
- static method can access static data member and can change the value of it.

Java static keyword

Restrictions for static method

There are two main restrictions for the static method:

- The static method can not use non static data member or call non-static method directly.
- this and super cannot be used in static context.

Java static keyword

3) Java static block

- Is used to initialize the static data member.
- It is executed before main method at the time of class loading.

this keyword in java

-> reference variable that refers to the current object.

usage of java this keyword:

- this can be used to refer current class instance variable.
- this can be used to invoke current class method (implicitly)
- this() can be used to invoke current class constructor.

End.