

Agenda

- Class,Reference and Object
- this reference
- types of methods
- Ctor changing
- Initializers
- Array

class

- Logical entity
- blueprint of an object
- consists of fields and methods
- it is a reference type in java

Object

- physical entity
- instance of the class
- It defines three things
 - 1. state
 - 2. Behaviour
 - 3. identity
- the objects are created using new operator
- objects of the class are always created on heap.
- process of creating object of the class is also called as instantiation

Reference

- class is a reference type in java.
- variable created of a class is called as reference.
- reference variables get space on the stack.
- reference variables stores the address

Points to remember

- in java all local variables need to be initialized before using
- class fields are assigned with the default values
- primitive types are assigned 0 while references are assigned null

this Reference

- "this" is implicit reference variable that is available in every non-static method of class which is used to store reference of current/calling instance
- Whenever any non-static method is called on any object, that object is internally passed to the method and internally collected in implicit "this"
- "this" is constant within method i.e. it cannot be assigned to another object or null within the method.
- Using "this" inside method (to access members) is optional.
- However, it is good practice for readability.
- In a few cases using "this" is necessary.

Types of Methods

1. constructor

2. setters

- Used to set value of the field from outside the class.
- It modifies state of the object.

3. getters

- Used to get value of the field outside the class.

4. facilitators

- Provides additional functionalities
- Business logic methods

Constructor

- It is a special method of the class
- In Java fields have default values if uninitialized
- Primitive types default value is usually zero
- Reference type default value is null
- Constructor should initialize fields to the desired values.
- Types of Constructor
 - 1. Default/Parameterless Ctor
 - 2. Parameterized Ctor

Constructor Chaining

- Constructor chaining is executing a constructor of the class from another constructor (of the same class).
- Constructor chaining (if done) must be on the very first line of the constructor.

Object/Field Initializer

- In C++/Java Fields of the class are initialized using constructor
- In java, field can also be initialized using
 - 1. field initializer
 - 2. object initializer

- 3. Constructor

Array

- Array is collection of similar data elements. Each element is accessible using indexes
- It is a reference type in java
- its object is created using new operator (on heap).
- The array of primitive type holds values (0 if uninitialized) and array of non-primitive type holds references (null if uninitialized).
- In Java, checking array bounds is responsibility of JVM. When invalid index is accessed, `ArrayIndexOutOfBoundsException` is thrown.
- Array types are
 - 1. 1-D array
 - 2. 2-D/Multi-dimensional array
 - 3. Ragged array
 - In 2D array if the second dimension of array is having different length then such array is called as Ragged Array