Agenda

- Revision
- Package
- AccessModifiers
- this reference
- types of methods
- Initializers
- ctor chaining
- final
- ~~Array~~

Package (cmd_line -> Demo01 and Demo02) (STS-> Demo01 & Demo02)

- It is a container that is used to store related types together
- It is also used to avoid name ambugity
- Java recommends to use the package.
- The types defined inside the package are called as packaged types
- the types that are not defined inside the package are called as unpackaged types
- For every package that we are going to mention for the types a physical directory will be created for it
- package names are based on company name,module name or the domain of the company
- the domain of the comapany is mostly used for package names in reverse order.
- eg -> sunbeaminfo.com
  - package name -> com.sunbeaminfo.module
- eg-> java packages
  - java.lang
  - java.util
  - java.io
  - java.sql
- The type that you want to keep inside a package can be specified by writing the package declaration inside the .java file.
- the package declaration should be the first statement inside the .java file
- packages are used to oraganise the code
- package names should be kept in smallcase
- To access the types from differnt packages we have to import those types from that package.
- to import them add the import statement with Fully Qualified classname of the type that you want to import.

AccessModifiers

- 1. private
  - The members of the class will be accessiable within the class only.
  - They are not accessiable outside the class.
- 2. defualt (package level private)
  - They are accessiable within the class directly
  - They are accessiable within the package in other class on its class object.

    - They are not accessiable in other packages
- 3. protected
    - They are accessiable within the class directly.
    - They are accessiable within the package in other class on its class object.
    - They are accessiable in other packages only in their subclasses directly.
    - They are accessiable inside any of their subclasses directly.
- 4. public
    - They are accessiable everywhere in all packages and class on its class object.
    - They are directly accesssiable inside the subclasses
- We can also make classes as public or default
- default classes are accessiable only within the same package.
- these classes are not accessiable outside the package.
- If classes are made as public they are accessiable within the package and also outside the package

this reference (Demo03)

- It is a reference that is interanlly passed to all the non static methods of the class.
- this reference is constant reference i.e once it is initialized by an object you cannot change it to point at other object inside the methods.
- using this reference is optional
- it can be used to identity the difference between the local variables and the class fields
- This is also used to point at the respective methods of the same class.

Types of methods (Demo06)

- Their are 4 types of methods
    - 1. Constructor
        - It is used to initialize the state of an object
    - 2. Setters
        - To set/change value of individual field of the class
    - 3. Getters
        - to get/read value of individual field of the class
    - 4. Facilitators
        - to provide business logic / operations.

Object Initializer (Demo05)

- In java, we can initialize the objects in 3 ways.
    - 1. Field Initializers
    - 2. Object Initializers
    - 3. Constructor

```
class Date{
int day = 1; // Field Initializer
int month;
int year;

// Object initializers
```

```
{
   this.month = 2;
}

// Constructor
Date(){
    this.year = 2001;
}

}
```

Constructor (Demo04)

- It is a special method of the class
- Why is special
    - 1. Its name is same as that of class name
    - 2. It does not have a return type
    - 3. It gets automatically called for every object that is created.
- Their are 2 types of constructor
    - 1. parameterless ctor
    - 2. parameterized ctor

Constructor Chaning (Demo04)

- If we want to call one contructor from another constructor of the same class then we can perform construtor chaning.
- to perform ctor chaning we have to use this statement.
- this statement must be the first statement inside the constructor.
- we can use it to call parameterized ctor from our parameterless ctor.

Object Initializers

- It is a block that we can write inside a class where we can initialize the fields of the class.
- this block/object initializers gets called for every object that we create
- if multiple object initializers are defined then they called in the same way as they are defined.

final (Demo07)

- In java we can make
    - 1. variable
    - 2. field
    - 3. method (We will learn it after inheritance)
    - 4. class (We will learn it after inheritance)
- as final

1. final variable

- We can declare all the local variables as final
- final local varibales can be initializer or it can be assigned with the value later.

- once initialized or assigned we cannot change the value inside it.

2. final field

- We can make the fields as final
- Final fields can be initailized inside
    - 1. field initializer
    - 2. object initializer
    - 3. constructor
- once they are initialized we cannot change the value inside it.

Lab Work

- Read the slides max 20 min
- Array paractice from cpp