JA111

Day-10

interface

- An interface is used to define a generic template which can be implemented by various classes such that classes may be related or unrelated.
- All methods in an interface are abstract such that no need to use abstract keyword with methods of interfaces
- All variables in an interface are static and final so mandatory to provide the value i.e No instance variables and constructor in interface
- To define an interface

```
[access-modifier] interface interface-name{
    list of constants and abstract methods
}
```

- All the methods of interface are considered public by default (no matter it is specified or not) so while overriding methods of interface it is mandatory to use public keyword because in overridding weaker access cannot be used.
- To implement an interface 'implements' keyword is used. An interface can be implemented by any number of classes and one class can implement any number of interfaces.

```
[access-modifier] class class-name [extends super-class] implements interface-name-
1[,interface-name-2]{
    body of class
}
```

Interface (contd.)

It is okay to create reference variable of an interface but it is not possible to instantiate an interface. The reference variable of interface can point to the object of implementing class.

Using the reference variable of interface, when overridden method is called then calling decision took place on the behalf of the object being pointed by the reference variables which is Dynamic Method Dispatch.

interface also represents is-a relationship. It achieves total abstraction.

New Featured in interface in java

❑ An interface can have method with body such that for such methods default keyword has to be used with the method signature. The default method of the interface can be used by the implementing class directly or it can be overridden (if required)

❑ An interface can have private method with body such that they are accessible in the interface only so they are used to create some supporting small methods for default methods

❑ The interface can have static methods also such that the static methods are accessible using interface name only they are not accessible using reference of interface or in implementing class directly.

interface and inheritance

- interfaces can also inherited one another such that for inheritance same extends keyword is going to be used.

```
[access-modifier] class class-name [extends super-class] implements interface-name-1[,interface-name-2]{
    body of class
}
```

- when a class implements an interface then it must provide implementation of all abstract methods of implemented interface and its super interfaces.
- In classes multiple inheritance is not supported i.e. one class cannot have more than one parent but in interfaces multiple inheritance is supported i.e. one interface can inherit more than one interface.

Think: Difference between abstract class and interface

Marker/tagged interface

- An interface that has no member is known as a marker or tagged interface.
- They are used to provide some essential information to the JVM so that JVM may perform some useful operations.

e.g. Serializable, Cloneable