Local variable: declared within the method and can be accessed directly

Instance variable: declared inside a class and accessed by creating an object

Static variable: declared inside a class and accessed by calling calss name

what is inheritance - technique of creating a new class by extending a existing class(child class acquiring the properties of parent class).eg. class Dog extends animal.

Why do we need to use inheritance - it is one of the main principle in oops, class share the properties and behaviors to child class(inheritance), -->can reuse the code from the base class, -->can be used to use the existing feature of the class, -->to achieve runtime polymorphism(overriding).

IS-A relationship represents the inheritance, achieved using extends keyword.

A class which shares the properties to child class is superclass/base class/parent class and the class which acquires the properties from parent class is subclass/child class/extended class.

extends keyword is used for achieving the inheritance between 2 classes and interfaces.

```
class Animal{          class Dog extends Animal{
}                                              }
```

```
interface Animal{       interface Mammals extends Animal{
}                   }
```

implement keyword is used for achieving the inheritance between class and interface

class Cat implements Animal{

}

object is the superclass of every class

Can a class extend itself? - No, a class cannot extend itself.

Can we assign superclass to subclass? - No.

Can a class extend more than one class? - No, one class can extend only a single class.

Constructor is a special method

which as same name as class name

used to initialize an instance using new keyword

no return type

2 types of constructor:

default constructor- implicitly given by compiler

parameterized constructor- explicitly given by developer

this - keyword to refer current class instance variable

super - keyword refer to immediate parent class instance

super()-to invoke immediate parent class constructor

Interface:

->bridge between 2 classes

->does not have constructor

->supports multiple inheritance

->provides only implementation

->class can implement many number of interfaces but it extends only one class

Collection framework represents a unified architecture for sorting and manipulating a group of objects.

iterator()-is one of the java cursor,it is an interface that is used to iterate over a collection of Java object components entirety one by one.

advantages:

->can apply to any of the classes of collection

->can use both read and remove operations

Iterator has mainly 3 methods,

1. hasNext() - does not accept any parameter.
   It returns true if there are more elements left in the iteration.
   If there are no more elements left, then it will return false.
   If there are no more elements left in the iteration, then there is no need to call the next() method.
2. Next() – does not accept any parameter.
   Returns E→ next element in the traversal
   NoSuchElementException – if iteration of object as no more elements left to iterate then throws an exception.
3. Remove() – does not accept any parameter, no return type
   remove the last element returned by the iterator traversing through the underlying collection. If the iterator does not support the remove operation, then it throws the

UnSupportedOperationException. It also throws the IllegalStateException if the next method is not yet called.