**Inheritance**

The name itself says that “Inherit” which means getting all the properties from a parent to the child class. Inheritance is also known as “IS A RELATIONSHIP”. The keyword used for inheritance is “EXTENDS”. The main aim of inheritance is for code reusability. The rule of inheritance is that we can create a child class object using parent class but not vice versa.

Parent m = new Child();

Child s = new Parent();

**Runtime Polymorphism:**

Firstly, polymorphism is implementing the same thing in different forms. Now if a method in subclass has the same name and type as the method in the super class then the method in subclass is said to override the method in superclass. This is known as “Overriding” or “Runtime Polymorphism”

**Difference b/w protected and default:**

The subclass of different package cannot access default but, it can be accessed by other code in the same package. Whereas, protected can be accessed by different packages. Protected can only be accessed by different packages through inheritance.

**Difference b/w static and instance variables:**

Static variable is defined at class level whereas, instance variables are defined at object level.

Example:

Class Demo{

String hello;

}

In order to access the above string we have to instantiate the class

Demo d=new Demo();

d.hello=”hey”;

Demo q=new Demo();

q.hello=”Nice question paper”;

In the above example d & q have its own instance variables.

Class Demo{

String hello;

Int num;

}

In order to access num we no need to instantiate demo

We can access it using “Demo.num=100;” Static variables are defined within a class.

**Detailed comparison b/w Array, ArrayList, LinkedList:**

Array is a sequence of values that are all of the same data type. A value in an array can be accessed through its index. Array is ordered. Array is a fixed length structure. ArrayList stores the values in a continuous memory locations. Using the ArrayList the search is easy. The time complexity of ArrayList is O(1). LinkedList doesn’t store the values in a continuous memory but it is easy to insert or delete the values.