## INHERITANCE

1. **Inheritance** is a mechanism in which one object acquires all the properties and behaviors of a parent object.
   The idea behind inheritance in Java is that we can create new classes that are built upon existing classes. When we inherit from an existing class, we can reuse methods and fields of the parent class. Moreover, we can add new methods and fields in your current class also.
2. Method overriding and code reusability.
3. Reusability is a mechanism which facilitates us to reuse the fields and methods of the existing class when we create a new class. We can use the same fields and methods already defined in the previous class.
4. The **extends keyword** indicates that we are making a new class that derives from an existing class. The meaning of "extends" is to increase the functionality.
5. In the terminology of Java, a class which is inherited is called a parent or superclass, and the new class is called child or subclass.
6. On the basis of class, there can be three types of inheritance in java: single, multilevel and hierarchical.
7. When a class inherits another class, it is known as a ***single inheritance***.
8. When there is a chain of inheritance, it is known as ***multilevel inheritance.***
9. When two or more classes inherits a single class, it is known as ***hierarchical inheritance.***

## POLYMORPHISM

1. The word **polymorphism** means having many forms. In simple words, we can define polymorphism as the ability of a message to be displayed in more than one form.
2. Polymorphism allows you to define one interface and have multiple implementations.
3. In JAVA polymorphism is divided into

   Compile time polymorphism : It is also known as static polymorphism. This type of polymorphism is achieved by function overloading or operator overloading. But Java doesn't support the Operator Overloading.

   Method Overloading : When there are multiple functions with same name but different parameters then these functions are said to be overloaded. Functions can be overloaded by change in number of arguments or/and change in type of arguments.

   Run time polymorphism : It is also known as Dynamic Method Dispatch. It is a process in which a function call to the overridden method is resolved at Runtime. This type of polymorphism is achieved by Method Overriding.

   Method Overriding : occurs when a derived class has a definition for one of the member functions of the base class. That base function is said to be overridden.
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