# SUMMER INTERNSHIP PROGRAM  WEEK -1

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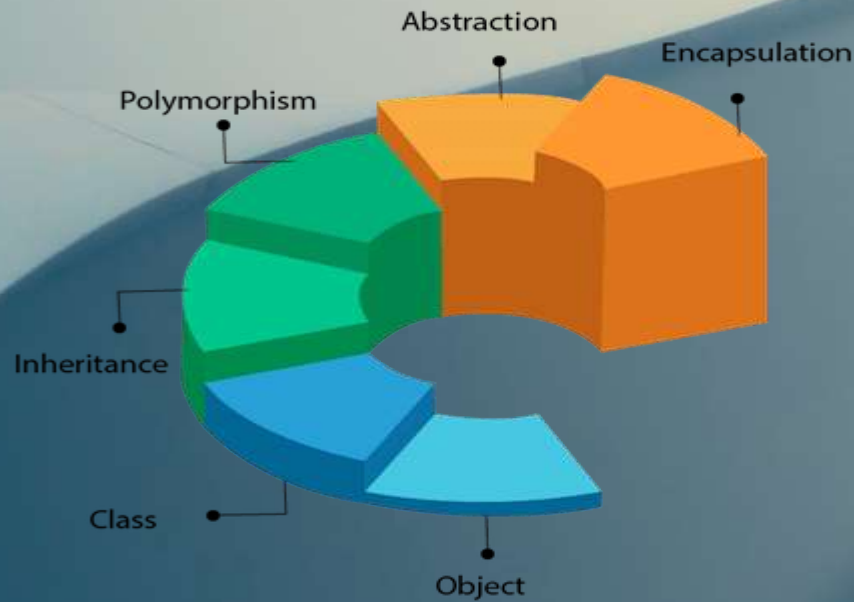
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# FIRST WEEK LEARINING OF JAVA

**Java OOPs Concepts:-**
In this page, we will learn about the basics of OOPs. Object-Oriented Programming is a paradigm that provides many concepts, such as **inheritance**, **Encapsulation,Abstraction**, **polymorphism** etc.

OOPs (Object-Oriented Programming System)

# Object

Any entity that has state and behavior is known as an object. For example, a chair, pen, table, keyboard, bike, etc. It can be physical or logical.

An Object can be defined as an instance of a class. An object contains an address and takes up some space in memory.

**Example:** A dog is an object because it has states like color, name, breed, etc. as well as behaviors like wagging the tail, barking, eating, etc.


Objects

## Class:-

*Collection of objects* is called class. It is a logical entity.
A class can also be defined as a blueprint from which you can create an individual object. Class doesn't consume any space.

## Inheritance

*When one object acquires all the properties and behaviors of a parent object*, it is known as inheritance. It provides code reusability. It is used to achieve runtime polymorphism.

## Polymorphism

If *one task is performed in different ways*, it is known as polymorphism. For example: to convince the customer differently, to draw something, for example, shape, triangle, rectangle, etc.
In Java, we use method overloading and method overriding to achieve polymorphism.

# Abstraction

*Hiding internal details and showing functionality* is known as abstraction. For example phone call, we don't know the internal processing.
In Java, we use abstract class and interface to achieve abstraction.

# Encapsulation

*Binding (or wrapping) code and data together into a single unit are known as encapsulation.* For example, a capsule, it is wrapped with different medicines.
A java class is the example of encapsulation. Java bean is the fully encapsulated class because all the data members are private here.



Capsule

## USED OF JAVA:-

Java is a popular programming language, created in 1995.
It is owned by Oracle, and more than **3 billion** devices run Java.
It is used for:
(1)-Mobile applications (specially Android apps)
(2)Desktop applications
(3)-Web applications
(4)-Web servers and application servers
(5)-Games
(6)-Database connection
And much, much more!

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