

Object Oriented Programming System (OOPS) -



Object oriented programming is a programming paradigm that revolves around the concept of objects, which can contain data and methods to manipulate the data.

* Features of OOPS -

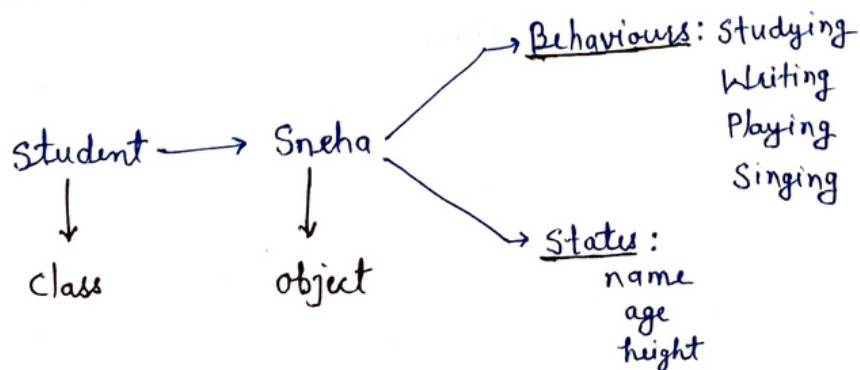
1. Inheritance
2. Abstraction
3. Encapsulation
4. Polymorphism

* Class -

A class is a blueprint or a template for creating objects that defines a set of variables, methods and properties that are common to all objects of that class.

* Object -

An object is an instance of a class or an entity which gets created using class and it represents the state and behaviour.



Being Pro

- * Important points to remember -
- * When class is created, memory will not be allocated.
- * When objects gets created, memory will be allocated in heap area.
- * In a program, we can have multiple classes. When we compile, that much class we would have those many '.class' files will be generated.

Eg:-

```
class A
{
}
class B
{
}
class C
{
    public static void main(String arg[])
    {
        S.o.p("Main class");
    }
}
```

After compilation -

- A.class
- B.class
- C.class

Being Pro

* When we have multiple class in single program, we can keep only one class as public and we should keep main method class as public and save filename with that particular name.

* Inheritance -

Inheritance means designing an object or a class by re-using the properties of the existing class and object.

- Example :

A old style television is transformed with extra features into slim and smart television where it re-used the properties of old television.

* Abstraction -

It means hiding internal details and showing the required things.

- Example :

Consider a man driving a car, while driving he focuses on using of steering, gear, and acceleration. He does not require to know the inner mechanism of the car.

Being Pro

* Encapsulation -

It is a process of wrapping the data and the function together. It can assume as a protective wrapper that stops random access of code defined outside the wrapper.

Example -

Complete television is single box, where all the mechanism are hidden inside the box, All are capsuled.

* Polymorphism -

Polymorphism is a concept in which we can execute a single operation in different ways.

* Data hiding -

Data hiding in java is an important concept for building robust, maintainable and secure software.

→ Usually data is hidden and operations are made visible and operations are performed over the data.

→ For hiding the data, the data members will have the 'private' success modifier.

→ So, when the data is made private, we can't access the data outside the class.

→ It is accessible only within the class.

Being Pro

Example -

Actual operation of the television is performed in the circuitry which is done by pressing a button. So, the circuitry is data and operations are methods where the data is hidden inside the box.

```
* Class Rectangle
{
    public int length;
    public int breadth;
} } Data members

public int area()
{
    return length * breadth;
}

public int perimeter()
{
    return 2 * (length + breadth);
}
}

} Methods/operations
of the class

Class test
{
    public static void main()
    {
        Rectangle r = new Rectangle();
    }
}
```