



SNS COLLEGE OF TECHNOLOGY



Coimbatore-35.

An Autonomous Institution

**Accredited by NBA – AICTE and Accredited by NAAC – UGC with ‘A++’ Grade (Cycle III)
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai**

**DEPARTMENT OF COMPUTER SCIENCE ENGINEERING
COURSE CODE & NAME : 23CST205 - Object Oriented Programming Using Java**

II YEAR/ III SEMESTER

UNIT – I INTRODUCTION TO OOP

Topic: Inheritance



Inheritance

1. Inheritance is an important pillar of OOP (Object Oriented Programming).
2. It is the mechanism in Java by which one class is allowed to inherit the features (fields and methods) of another class.
3. We are achieving inheritance by using **extends** keyword.
4. Inheritance is also known as “**is-a**” relationship.

- **Important terminologies:**

- **Superclass:**
 - The class whose features are inherited is known as superclass (also known as base or parent class).
- **Subclass:**
 - The class that inherits the other class is known as subclass (also known as derived or extended or child class).
 - The subclass can add its own fields and methods in addition to the superclass fields and methods.



Inheritance

- **Reusability:**

Inheritance supports the concept of “reusability”.

when we want to create a new class and there is already a class that includes some of the code that we want, we can derive our new class from the existing class.

By doing this, we are reusing the fields and methods of the existing class.



Inheritance

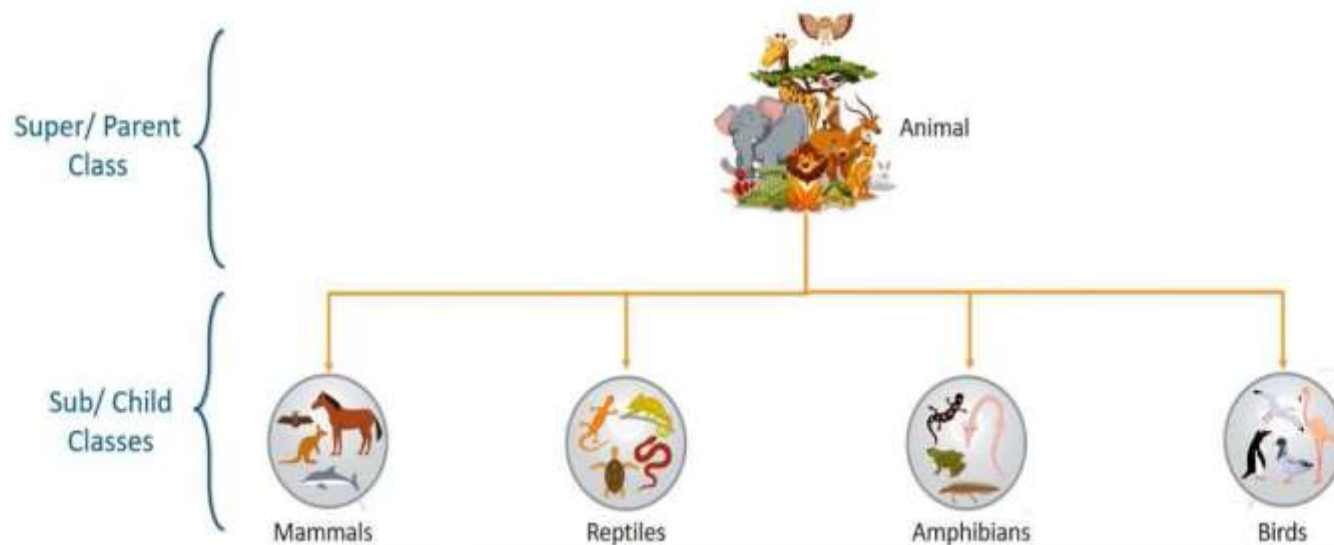
Polymorphism

Abstraction

Encapsulation

Inheritance is the property of an object to acquire all the properties and behavior of its parent object

Inheritance represents the **IS-A** relationship which is also known as a parent-child relationship





Inheritance

Polymorphism

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Syntax

```
class Subclass extends Superclass
{
    //methods and fields
}
```

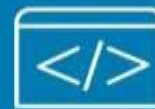
Advantages



Code Reusability



Extensibility



Overriding



Data Hiding



Inheritance

Polymorphism

Abstraction

Encapsulation

Types Of Inheritance in Java

SINGLE

HIERARCHICAL

MULTILEVEL



Inheritance

Polymorphism

Abstraction

Encapsulation

Single level inheritance enables a derived class to **inherit** properties and behaviour from a **single** parent class

SINGLE

Class A

Class B



Inheritance

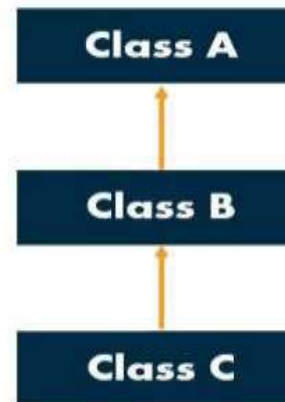
Polymorphism

Abstraction

Encapsulation

Multi level inheritance enables a derived class to **inherit** properties and behaviour from a parent class which is also derived from another class

MULTILEVEL





Inheritance

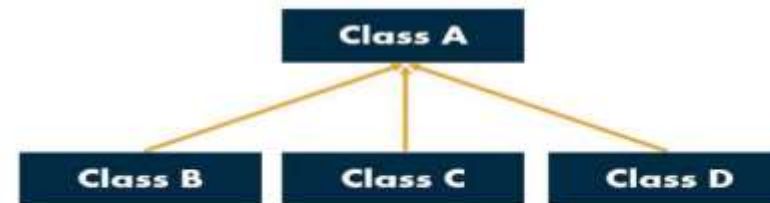
Polymorphism

Abstraction

Encapsulation

Hierarchical level inheritance enables more than one derived class to **inherit** properties and behaviour from a parent class

HIERARCHICAL





Inheritance

Polymorphism

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Multi level inheritance enables a derived class to **inherit** properties and behaviour from a parent class which is also derived from another class

MULTILEVEL

