SNS College of Technology

(An Autonomous Institutions)

Department of Computer Science and Engineering

23CSB201-Object Oriented Programming

Topic: Inheritance

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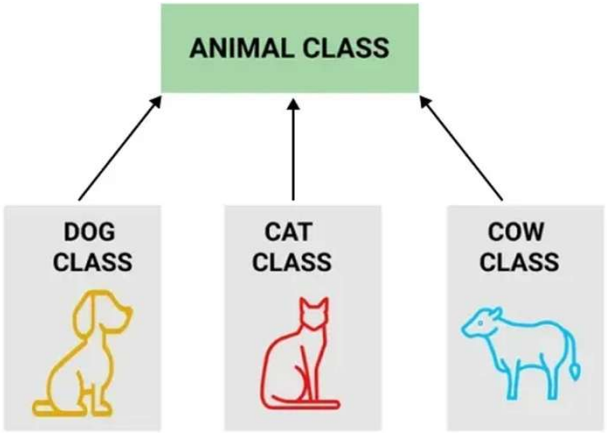
Inheritance

- Inheritance means creating new classes based on existing ones.
- A class that inherits from another class can reuse the methods and fields of that class.
- It is the mechanism in Java by which one class is allowed to inherit the features(fields and methods) of another class.



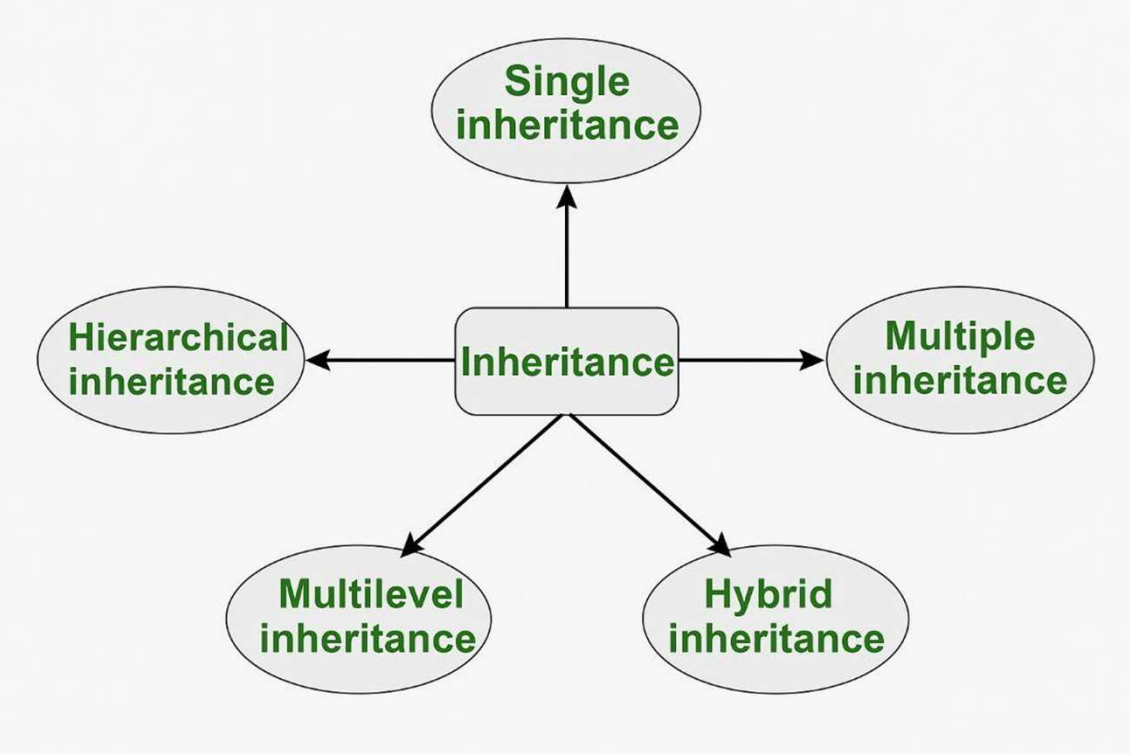
Usage of Inheritance

- **Code Reusability:** The code written in the Superclass is common to all subclasses. Child classes can directly use the parent class code.
- **Method Overriding:** Method Overriding is achievable only through Inheritance. It is one of the ways by which Java achieves Run Time Polymorphism.
- **Abstraction:** The concept of abstraction where we do not have to provide all details, is achieved through inheritance. Abstraction only shows the functionality to the user.

Key Terminologies

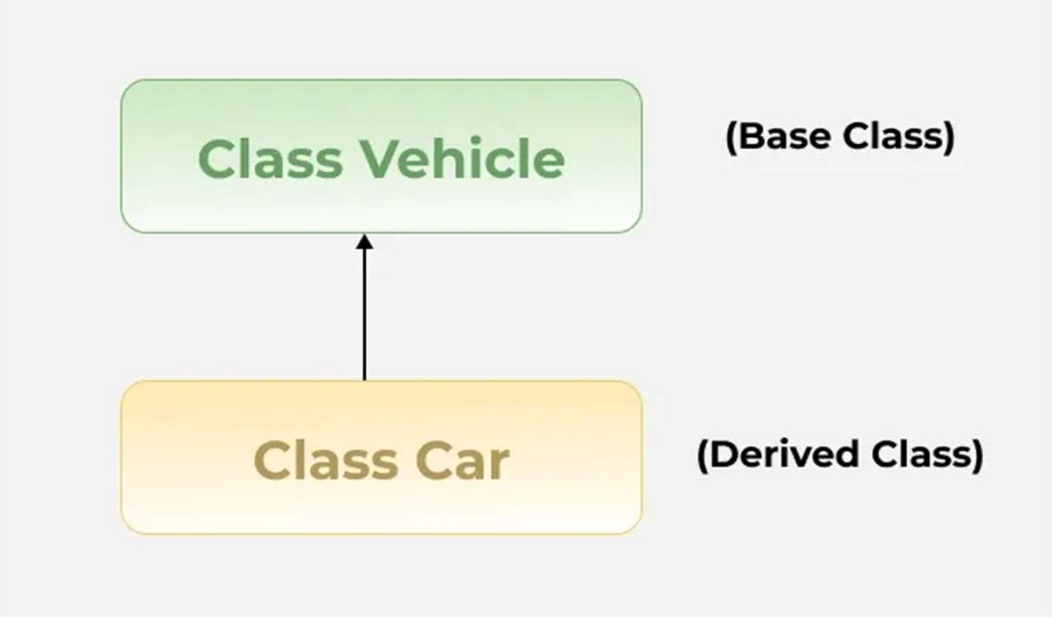
- **Class:** Class is a set of objects that share common characteristics/ behavior and common properties/ attributes. Class is not a real-world entity. It is just a template or blueprint or prototype from which objects are created.
- **Super Class/Parent Class:** The class whose features are inherited is known as a superclass(or a base class or a parent class).
- **Sub Class/Child Class:** The class that inherits the other class is known as a subclass(or a derived class, extended class or child class). The subclass can add its own fields and methods in addition to the superclass fields and methods.
- **Extends Keyword:** This keyword is used to inherit properties from a superclass.

Types of Inheritance



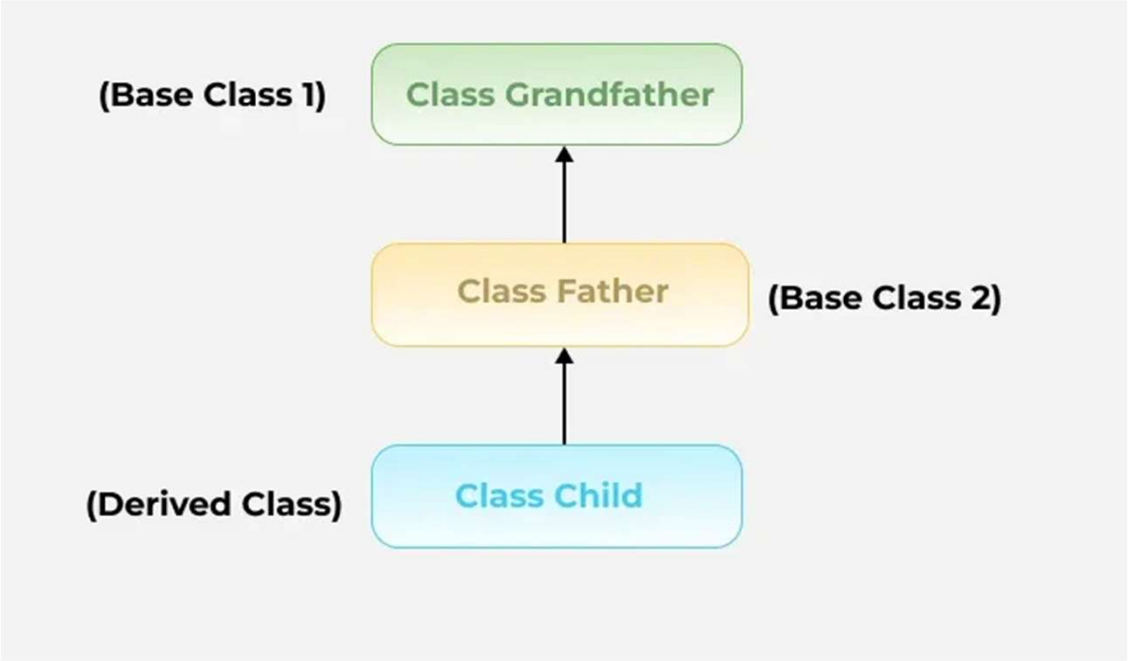
Single Inheritance

- In single inheritance, a sub-class is derived from only one super class.
- It inherits the properties and behavior of a single-parent class.



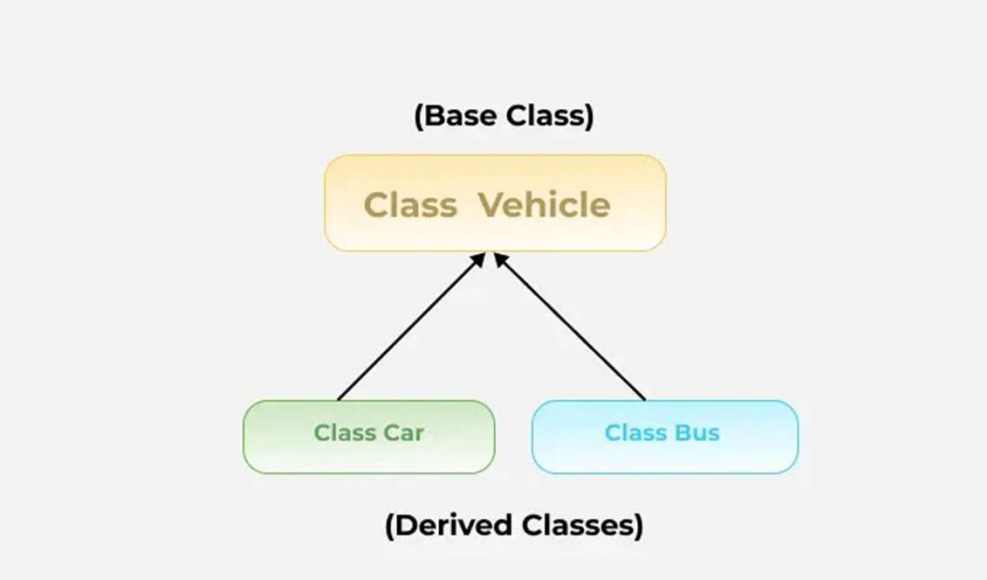
Multilevel Inheritance

- In Multilevel Inheritance, a derived class will be inheriting a base class and as well as the derived class also acts as the base class for other classes.



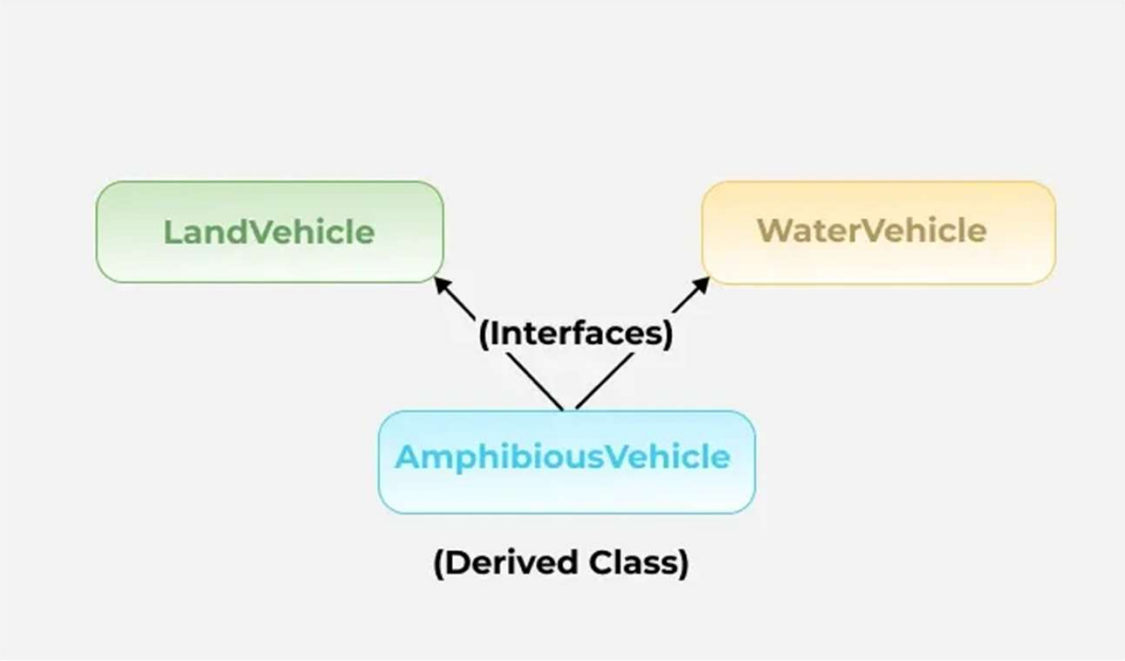
Hierarchical Inheritance

- In hierarchical inheritance, more than one subclass is inherited from a single base class. i.e. more than one derived class is created from a single base class. For example, cars and buses both are vehicle



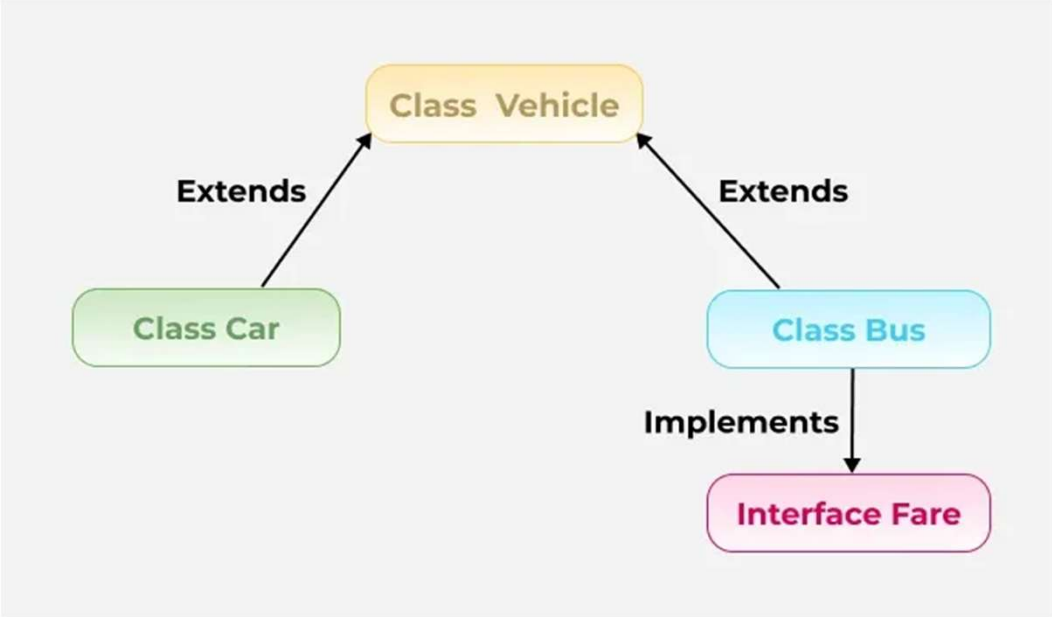
Multiple Inheritance

- In Multiple inheritances, one class can have more than one superclass and inherit features from all parent classes.

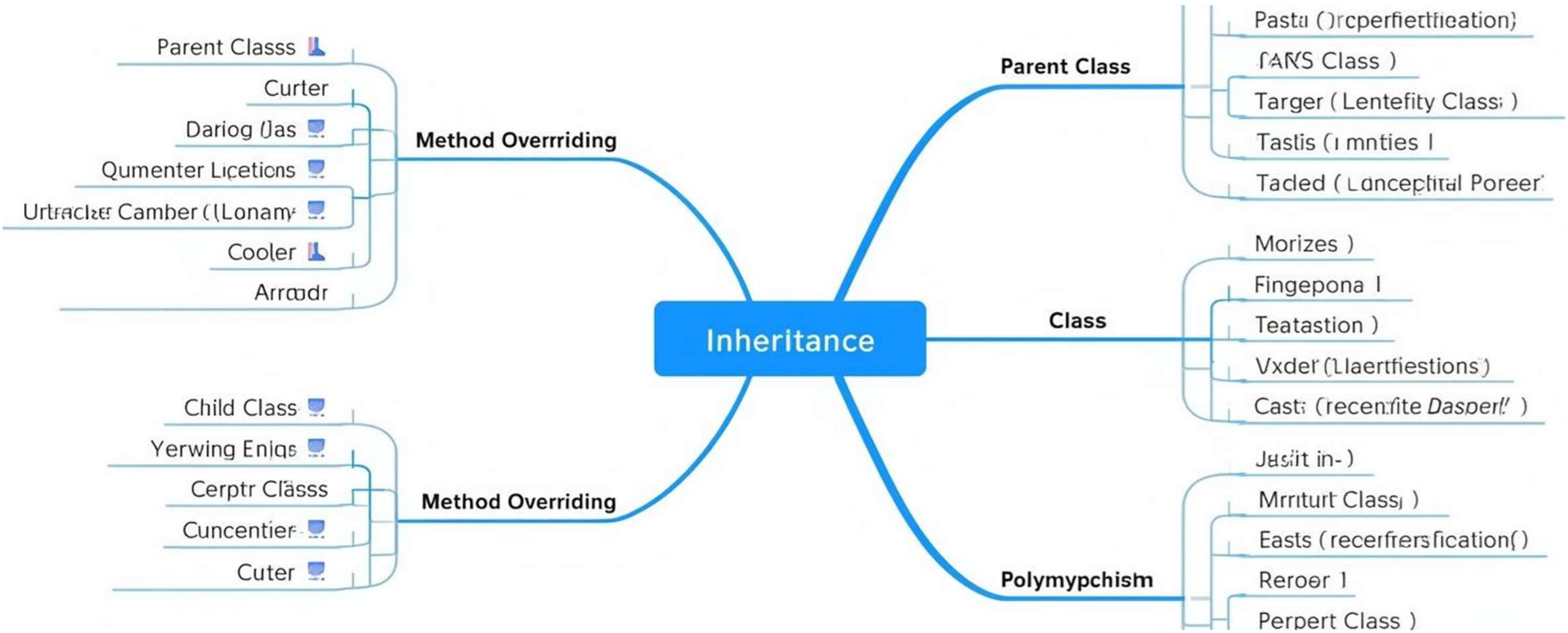


Hybrid Inheritance

- It is a mix of two or more of the above types of inheritance.
- In Java, we can achieve hybrid inheritance only through Interfaces if we want to involve multiple inheritance to implement Hybrid inheritance.



Mind Map



Inheritance
Method Overrriding
Parent Classs
Curter
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Arroodr
Method Overriding
Child Class
Yerwing Enlqs
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Parent Class
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