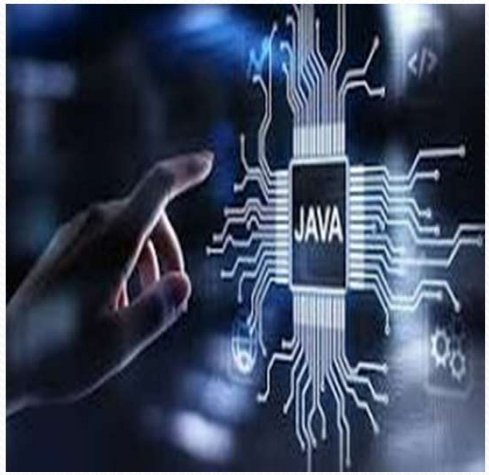
SNS COLLEGE OF TECHNOLOGY

An Autonomous Institution
Coimbatore-35

Department of Computer Science & Engineering



Object Oriented Programming

I B.E CSE/ II SEMESTER

UNIT I :Introduction To OOPS

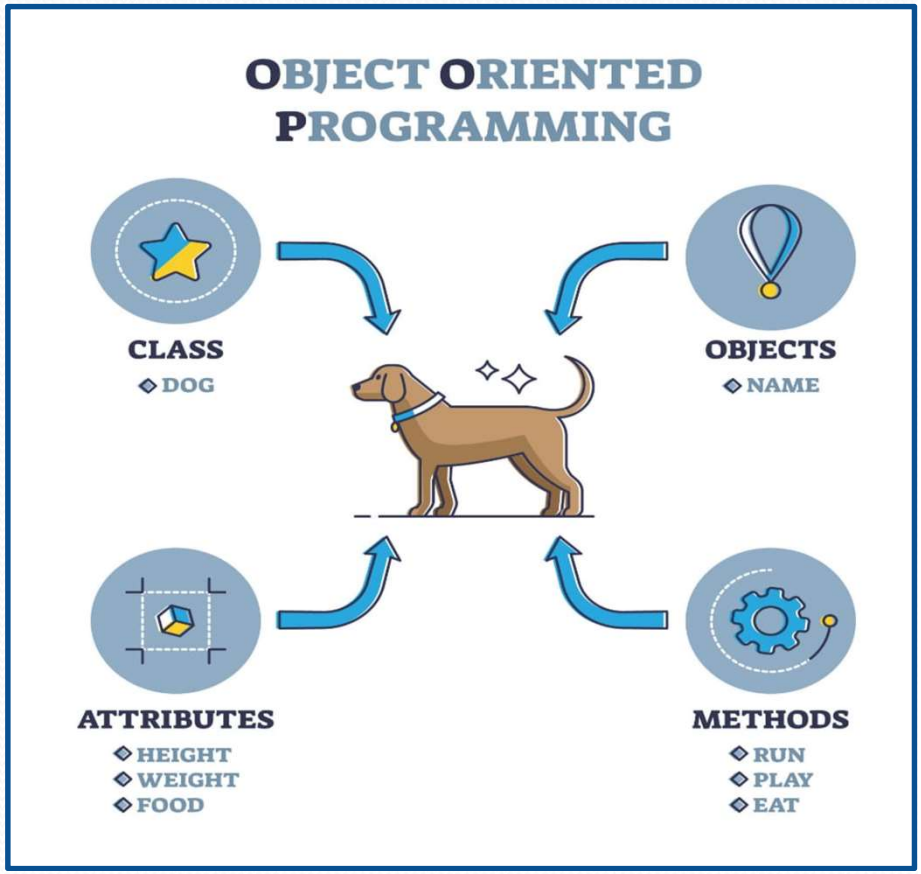
Topic : Object Oriented Programming Concepts

Object Oriented concepts

- ✓ Object.
- ✓ Class.
- ✓ Encapsulation.
- ✓ Inheritance.
- ✓ Polymorphism.
- ✓ Abstraction

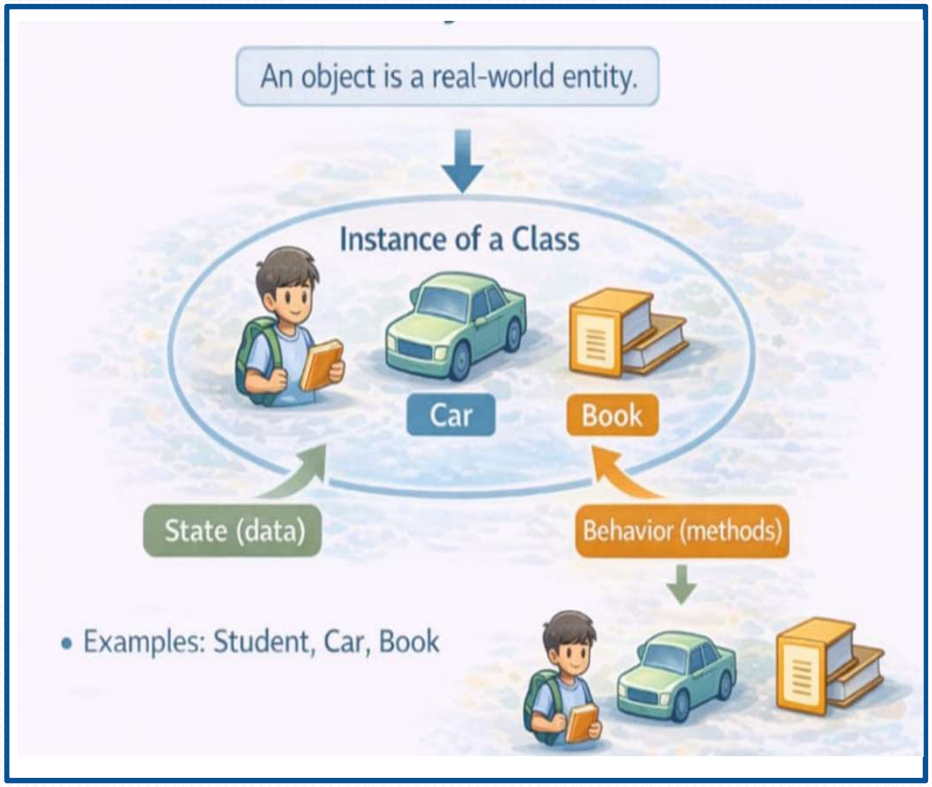
Introduction

- **Object Oriented Programming (OOP)** is a way of programming using **classes and objects**.
- It represents real-world things with **data and functions**.
- **Java** follows OOP concepts, which help make code **reusable, secure, and easy to maintain**.



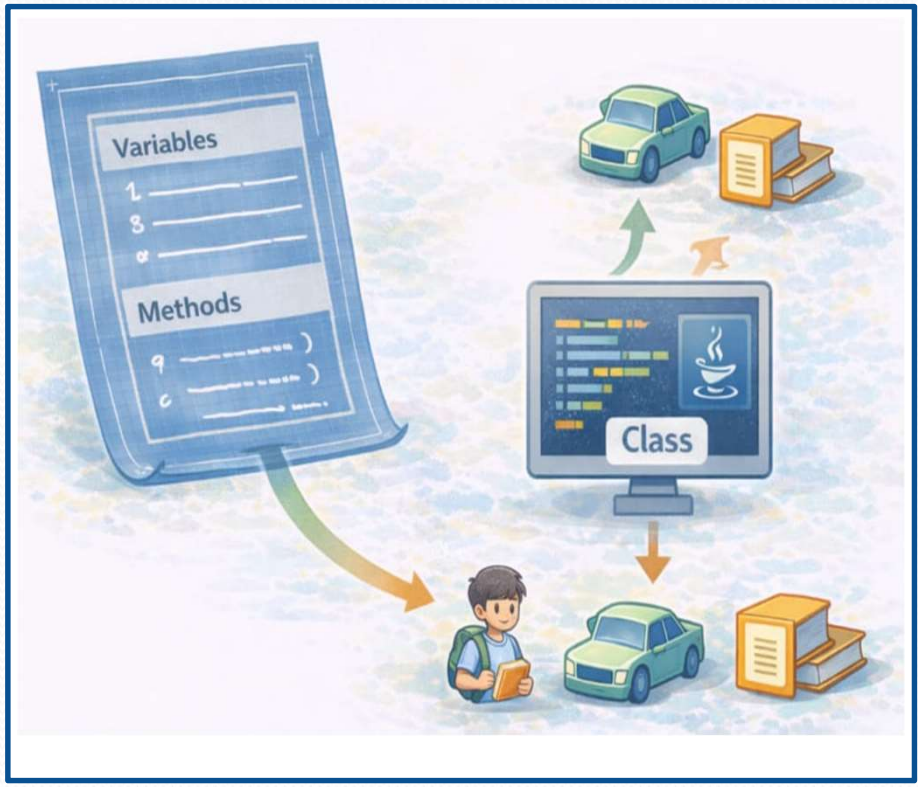
Object

- An object is a real-world entity.
- It is an instance of a class.
- Objects contain state (data) and behavior (methods).Examples: Student, Car, Book.



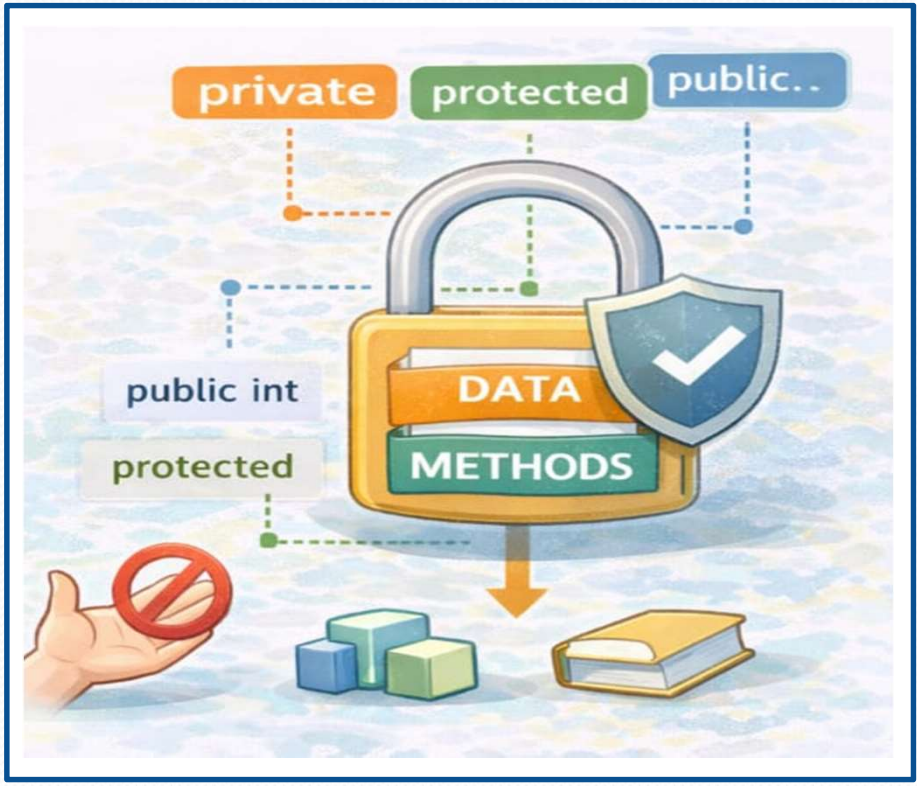
Class

- A class is a blueprint or template used to create objects.
- It defines variables and methods.
- A class does not occupy memory until an object is created.



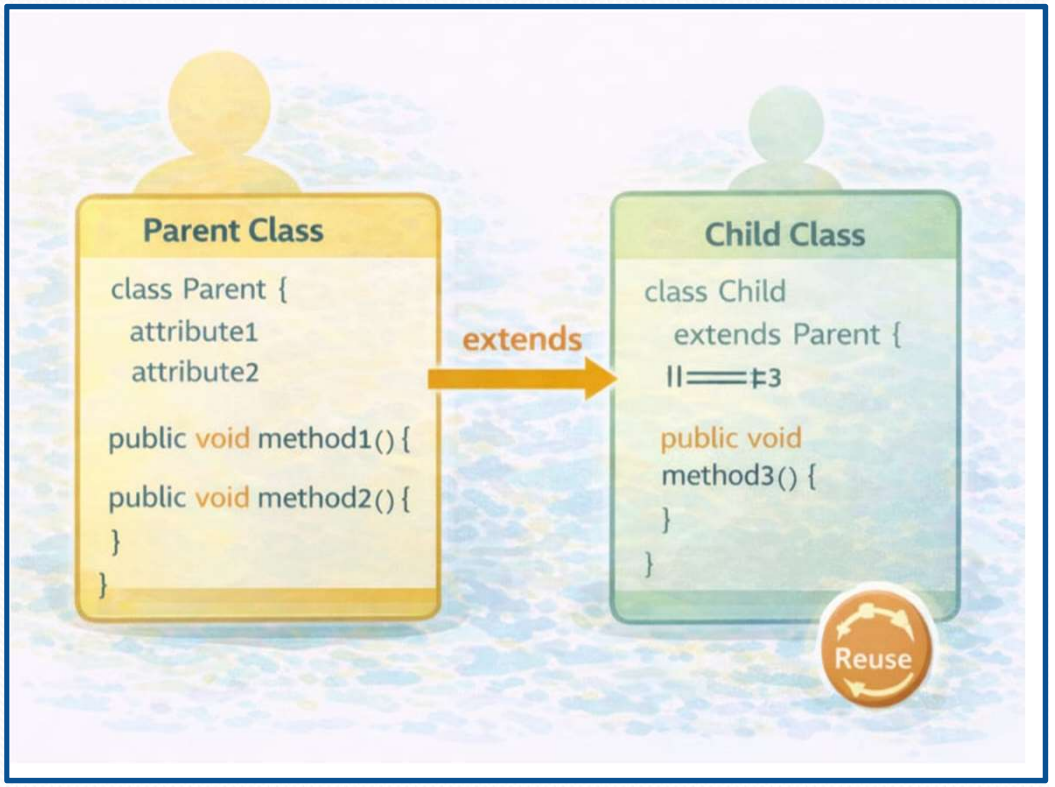
Encapsulation

- Encapsulation is the process of binding data and methods into a single unit.
- It protects data from outside access.
- Achieved using access specifiers like private, public, protected.



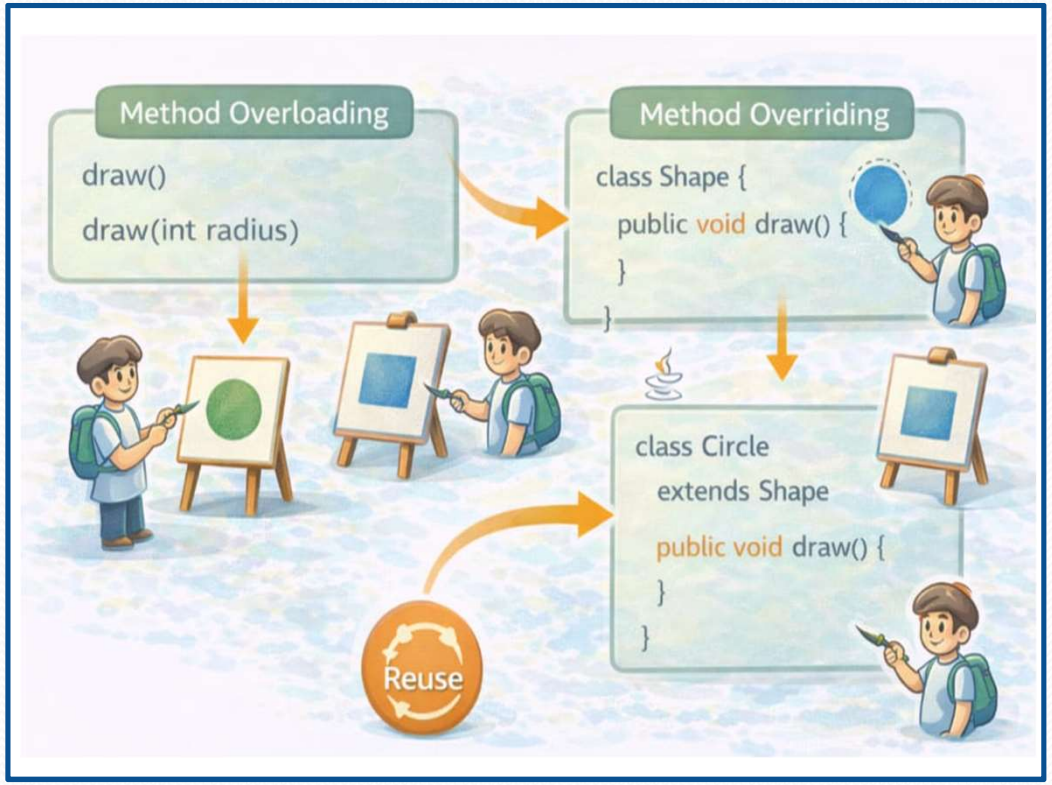
Inheritance

- Inheritance allows one class to acquire the properties of another class.
- It promotes code reusability.
- Uses the extends keyword in Java.



Polymorphism

- Polymorphism means many forms.
- The same method can perform different actions.
- Achieved using method overloading and method overriding.



Abstraction

- Abstraction hides implementation details and shows only essential features.
- Achieved using **abstract** classes and **interfaces**. Helps reduce complexity.

Abstract Class

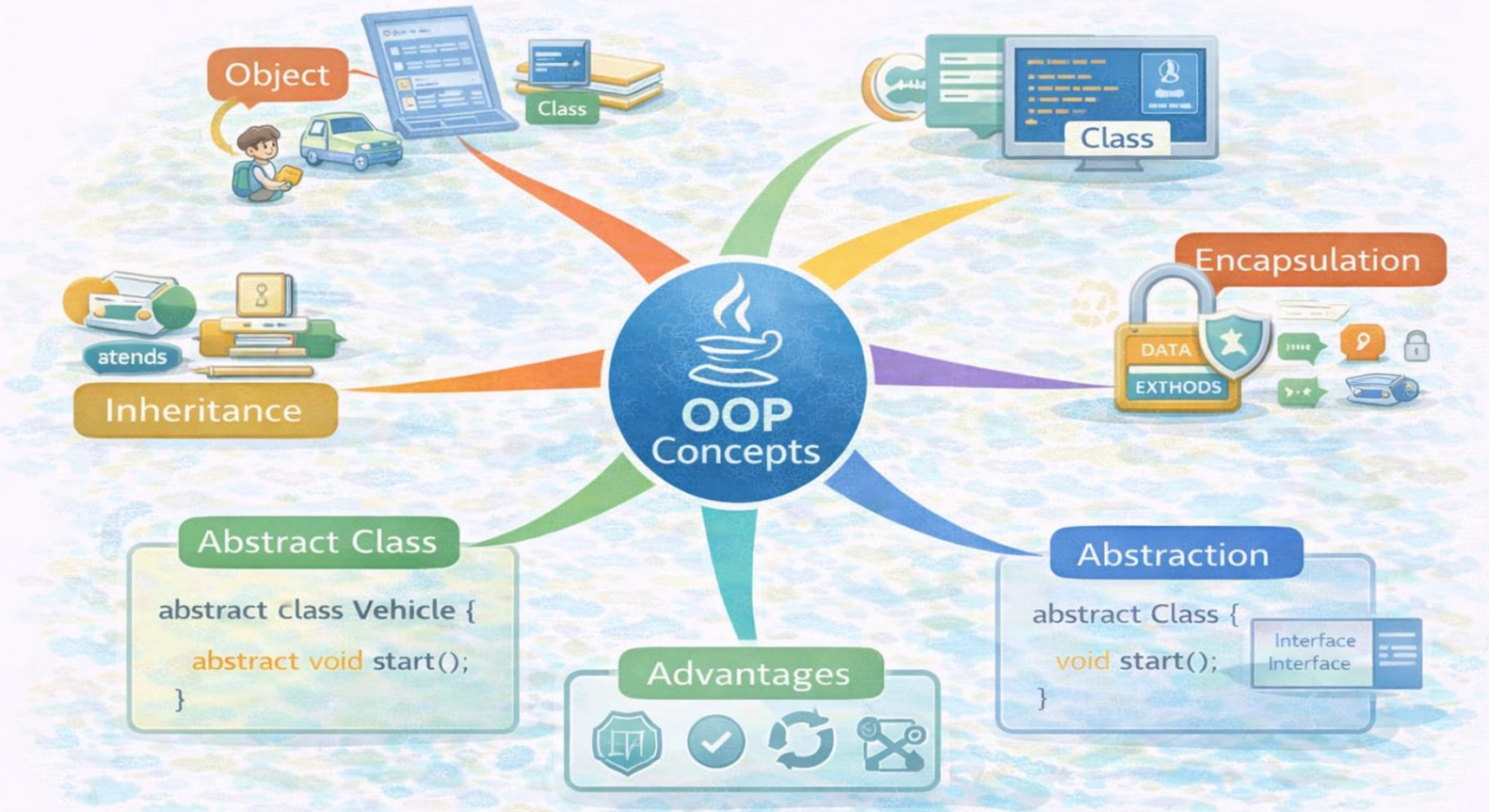
```
abstract class Vehicle {
   abstract void start();
}
```

extends

Interface

```
interface Vehicle {
  void start(),
}
```

Mind Map: OOP Concepts



Assessment

1. OOP stands for _____ Programming.

Answer: Object Oriented

2. Choose the correct answer.

Which concept supports code reusability?

a) Abstraction.

b) Inheritance.

c) Encapsulation.

d) Polymorphism.

3. Define OOP.

Answer : OOP is a programming paradigm based on objects and classes.

References

- https://docs.oracle.com/javase/
- https://www.geeksforgeeks.org/object-oriented-programming-oops-concept-in-java/
- https://www.w3schools.com/java/java_oop.asp


Thank You 😊