OOP's Concept's

What Is an Object ?

An object is a software bundle of related state and behavior. Software objects are often used to model the real-world objects that you find in everyday life. This lesson explains how state and behavior are represented within an object, introduces the concept of data encapsulation, and explains the benefits of designing your software in this manner.

What Is a Class ?

A class is a blueprint or prototype from which objects are created. This section defines a class that models the state and behavior of a real-world object. It intentionally focuses on the basics, showing how even a simple class can cleanly model state and behavior.

What Is Inheritance ?

Inheritance provides a powerful and natural mechanism for organizing and structuring your software. This section explains how classes inherit state and behavior from their superclasses, and explains how to derive one class from another using the simple syntax provided by the Java programming language.

What Is an Interface ?

An interface is a contract between a class and the outside world. When a class implements an interface, it promises to provide the behavior published by that interface. This section defines a simple interface and explains the necessary changes for any class that implements it.

What Is a Package ?

A package is a namespace for organizing classes and interfaces in a logical manner. Placing your code into packages makes large software projects easier to manage. This section explains why this is useful, and introduces you to the Application Programming Interface (API) provided by the Java platform.

What is Abstraction ?

Abstraction is an OOP concept in Java that hides the implementation details and shows only the essential features to the user. It focuses on what an object does rather than how it does it. Abstraction can be achieved using abstract classes (partial abstraction) and interfaces (full abstraction). It reduces complexity, increases security, and makes code more maintainable.

What Is Encapsulation ?

Encapsulation is an OOP concept in Java that combines data and the methods that operate on that data into a single unit (class) while restricting direct access to the internal data using access modifiers such as private. It ensures data hiding, protects data integrity, and allows controlled access to variables through public getter and setter methods.

What is Polymorphism ?

Polymorphism is an OOP concept in Java that allows objects to perform the same action in different ways. It is achieved through method overloading (compile-time) where methods have the same name but different parameters, and method overriding (runtime) where a child class provides a specific implementation of a method already defined in its parent class.