What is OOP? List OOP concepts

The acronym OOP stands for Object-Oriented Programming. It is a programming paradigm based on the concept of "objects," or class instances. OOP emphasizes the organization of software as a collection of objects that may communicate with each other and execute tasks.

**Classes and Objects**:

Classes are templates for creating objects and defining their properties and behaviors. Objects are instances of these classes.

**Encapsulation**:

Encapsulation is the process of combining data and methods into a single class, hiding internal implementation details, and exposing only the essential interfaces.

**Inheritance**:

The mechanism by which a class can inherit properties and behavior from another class. It promotes code reuse and allows for creation a hierarchy of classes.

**Polymorphism**:

The ability of objects to take on different forms or respond differently to the same message or method call. It allows methods to be written to operate on objects of any class implementing a particular interface.

**Abstraction**:

The process of simplifying complex reality by modeling classes appropriate to the problem, while ignoring irrelevant details. It involves defining a set of properties and behaviors that represent a concept, hiding the internal implementation details.

**Message Passing**:

Objects communicate with one another by sending and receiving messages. A message consists of a method name and arguments.

**Composition**:

The concept of building complex objects by combining simpler objects. It allows the creation objects that contain other objects as part of their attributes