**Object-Oriented Programming**

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Object-oriented programming is a computer programming model used to organize software design around data or objects instead of functions and logic. This technique is best suited for large and complex software that require regular updates and maintenance.

The structure of object-oriented programming includes classes, which are data types that are defined by the user and is used as a blueprint for objects, attributes and methods. Next, we have objects which are a class’s instances made with defined data. Methods are actions that are performed by objects. Attributes is used to illustrate an object’s state to differentiate classes from each other. Attributes contain data that are stored by objects.

**Object-oriented programming is based on four main principles:**

1. **Data Abstraction:**

It is the process of revealing information that are important to the outside world while hiding details that are unnecessary. This allows users to interact with a simple interface instead of complex one.

1. **Encapsulation:**

It is the process of bundling data and methods that operate on it into a unit. It is used to protect data against unintentional modifications as well as simplifying communication between program components.

1. **Inheritance:**

It is a process of creating a class from another class in a hierarchy of classes that have similar methods and attributes. When write a class, we can inherit properties from another class instead of rewriting the properties and functions again. This concept reduces redundancy.

1. **Polymorphism:**

It is the ability of any data to be processed in multiple ways. When it comes to object-oriented programming, polymorphism is mostly used when a parent class reference is used to refer to a child class object.

**Advantages of Object-Oriented Programming:**

1. Ability to build programs from standard working modules that can communicates with each other instead writing each code from the beginning leading to a better productivity.
2. Ability to break programs bit by bit to solve problems easily.
3. Easier to divide work when it comes to project based on objects.\
4. Ability to eliminate redundant code and use existing classes though the utilization of inheritance.

**Disadvantages of Object-Oriented Programming:**

1. It is not a universal language
2. It is not suitable for all types of problems
3. Brilliant designing and programming skills is needed for programmers

**Systems that commonly use Object-Oriented Programming:**

1. Banking systems
2. Hospital management systems
3. Educational management systems

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