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Week 5 Research - OOP

Prompts

1. What are the four pillars of Object-Oriented Programming? Explain each pillar.
   - Inheritance: Inheritance is reusing properties of a class in another class to reduce repeating code. The original class is commonly known as the Super Class and the derived class is known as Sub Class.
   - Encapsulation: It is a way of restricting users from directly modifying variables or data members in a class by switching access modifiers to private.
   - Polymorphism: It is a way of using a method in different ways. Each class that implements the method can implement it in their own way. The two types of polymorphism are:
     - Method Overloading (Static)
     - Method Overriding (Dynamic)
   - Abstraction: It is a way of hiding irrelevant information from the user so the code is more user friendly.
2. What is the relationship between a Class and an Object?

   An object is an instance of a class. The class is like a template for an object. It defines the properties, behavior, and values that the object will contain. One or more objects can then be created following the template defined in the class.

3. What are the differences between checked and unchecked exceptions?

   Checked exceptions are those exceptions that we check in our code. We can use a try catch block to handle a checked exception. Checked exceptions can occur even when the code is perfect, so any potential exceptions should be caught to avoid the program from crashing.

   Unchecked exceptions are those exceptions that occur when there are mistakes in code. These exceptions should be handled by writing better code. For example, out of bounds exceptions in arrays can be fixed by checking if the index is in bound before accessing the array.

References:

- Week 5 Video Lectures

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