

Week 5 Research

1. What are the four pillars of Object-Oriented Programming? Explain each pillar.**▪ The 4 pillars of Object-Oriented Programming are:**

- **Abstraction-** Refers to the ability of an object to hide its internal components to only reveal essential information, such as a method to perform an action, without knowing how it is being performed.
- **Inheritance-** Allows you to create a new class that is a modified version of an existing class. This new class would inherit all the properties and methods of the existing class. This allows for the creation of a subclass that would allow additional methods and properties. “Human.Class” as a game example, would allow for creation of “FriendlyHuman.Class” or “UnfriendlyHuman.Class”.
- **Encapsulation** – Encapsulation refers to the practice of keeping an object hidden, and only allow access through various methods and interfaces. You would then often use getters and setters to access it.
- **Polymorphism-** Polymorphism is the ability of an object to take on many forms. An example could be for a class called Area() and takes an argument of Shape. Polymorphism allows us to find the Area() of Shape with different methods within, depending on circle, square, etc.

2. What is the relationship between a class and an object? A class is often defined as “the blueprint”. A class can contain many properties and behaviors. For example “Enemy.Class” could create 1 singular enemy object, or many enemy type objects. A “Boss.Class” could be created to inherit Enemy.Class and provide an additional move set, to make it harder for players to take down, but still retain “Enemy” status.

“Top 30+ OOPS Interview Questions and Answers with Examples” SoftwareTestingHelp, 20 Jan, 2023 <https://www.softwaretestinghelp.com/oops-interview-questions-and-answers/> [verified 2 February 2023]