Week 5: Research

1. What are the four pillars of Object-Oriented Programming? Explain each pillar.

The four main pillars of Object-Oriented Programming are Abstraction, Encapsulation, Inheritance, and Polymorphism. Abstraction allows you to arbitrate complex concepts into similar functions. For example, various cultures and groups of people speak a myriad of languages, whether it be English, Mandarin, Spanish, French, etc. But all people communicate through language. Encapsulation refers to how the code is hidden beyond the user's perspective, In the same way that when the average person uses a computer, they may not understand how the parts of the processor, memory, power supply, hard drives, and other parts work individually and together to power the user's experience with a computer browsing the internet, playing games, or watching movies. Inheritance is functionally the same as genetics, as humans inherit traits from their parents, objects will inherit traits and functionality from parent or base classes. Polymorphism is a distinction between specific objects or classes. You may have multiple people who can speak, but the language and dialect they speak will be specific to that person or group of people.[1]

2. What is the relationship between a Class and an Object?

While an Object can store information describing the object and even include functionality of that object, a Class does the same thing but provides a similar set of blueprints for an object to follow. Through inheritance, an object referenced within a Class can inherit any of the properties or methods of a class, and those same properties and functions can be made dynamic through the constructor method. Or in other words, The classes drive and organize the code while the objects then reference the classes and then create the actual functioning 'meat' of the code.[2]