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Week 5 Research

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Four Pillars of Object Oriented Programming

Object oriented programming (OOP) is a set of rules that are fundamental in being able to write clean code in an organized fashion. An object can be considered “as a data field that has unique attributes and behavior” (Gillis and Lewis). OOP has four pillars, which consist of: abstraction, encapsulation, inheritance, polymorphism. Abstraction takes something that is complex and provides the direct; simple, concept for exactly what it is. An example of this would be having an object that makes coffee. You could explain step by step on how to make coffee or by simplifying it, an abstraction would allow you to have a “button with the title of Make Coffee” (Parr) that allows the user to click that button and not have to worry about what goes into making it. Encapsulation is when “access is removed to the parts of your code and making that information private” (Parr). By encapsulating some of the parts of making coffee we would hide all the information of what triggers the make coffee button to work, but the button itself is revealed so that the user can click it and have their coffee made. The Inheritance pillar is very considerable to the way in which our genes are passed along to our offspring. Inheritance allows “one object to acquire the properties and methods of another object” (Parr). This allows code to be reusable without having to retype it in order to use it again. An example of this would be our coffee maker button that brews hot water not only for our coffee pod, but for our hot chocolate pod. We are using the parent class of the “Make Coffee” button in order to brew it for other hot drink pods we put in our coffee maker. Lastly, Polymorphism is when different “types in the same inheritance chain being able to do different things” (Parr). Polymorphism allows us to use inherited traits from both the parent and child class interchangeably. An example of this would be us using the coffee maker as a way to make other hot beverages like tea and hot chocolate. The coffee maker is able to morph and provide different forms of similar outcomes we are trying to produce.

My favorite thing I learned this week was learning how to create cleaner lines of code via the use of classes and objects. I cannot say that I can code a project to its entirety, but I am starting to understand how to create better lines of code. I really have come to enjoy breaking down my code and understanding what parts I need in order to accomplish my goal. I have been able to simplify what is being asked and write my code as needed and adjust along the way. I am excited to understand how to create a class and object and make them work together to build out easily, readable code.

Works Cited

Gillis, Alexander, and Sarah Lewis. “Object-Oriented Programming (OOP).” *SearchAppArchitecture*, 13 July 2021, [www.techtarget.com/searchapparchitecture/definition/object-oriented-programming-OOP](http://www.techtarget.com/searchapparchitecture/definition/object-oriented-programming-OOP).

Parr, Kealan. “The Four Pillars of Object-Oriented Programming.” *freeCodeCamp.Org*, 18 Dec. 2020, www.freecodecamp.org/news/four-pillars-of-object-oriented-programming.