Week14 – Final Project Articulate

Abstraction

It is the process of turning complex ideas into simple ideas. Programming with classes is a way of creating abstractions in software. A Class is just a template of something, it only become useful when an instance or object is created and assigned to a variable in the program.

Some benefits of abstraction are, to hide unwanted data and show only data that is relevant, abstraction lets you focus on what the object does and not so much on how it does it, and it also helps reduce duplication of information on code.

Encapsulation

In Object-Oriented programming the principle of encapsulation refers to the act of enclosing code. When creating a program, it is important to decide which behavior a specific class needs to have and then encapsulate or hide the details of how they preform those tasks or behaviors. By encapsulating specific task within a class makes it so that other parts of the program don’t see it or is unable to access it and change it.

With encapsulation you are preventing other parts of the program from accessing that data or task, but if other parts of the program need the information, it can be accessed with methods that get and sets the value to be accessed within that class.

When encapsulation is used, the class stays in control, the data is hidden, and more secure. This is one of the biggest benefits of encapsulation. It protects programmers from having their programs break.

The bottom line is that encapsulation ensures that classes are well defined, with behaviors that do what they need to do within that class. This will make the classes more purposeful and understandable.

Inheritance

Inheritance allows for create a new class or classes based on an existing class. The exciting class is called a base or parent class, and the new classes are called derived or child class. The derived classes inherit the properties and behaviors of the base class. They can access one or more as it is needed.

The biggest benefit of this property is that it allows for code reusability and a structure of hierarchy organization in the program.

Another benefit is maintenance. Whatever changes you make to the base class are automatically inherited to the derived classes.

Polymorphism

Polymorphism in programming is a principle of object-oriented programming that allows for a line of code to be changed. The code can have different behaviors depending on context. This happens when a Method or behavior from a parent class is inherited to a child class or derived class and this child class overrides the behavior so that the behavior can run differently. Method stays the same, behavior changes.

This is a great benefit because it allows to personalize the behavior to that specific class. It allows to code reusability.

Inheritance and polymorphism work together to allow method overriding. This lets child classes implement the method in a different way that is defined in the base class.