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Intro to Computing I

Chapter 3 Review Questions

1. What is OOP? Give a few examples of languages which are built with the OOP paradigm.

OOP is Object Oriented Programming. This is a way of coding that utilizes methods/functions to create objects. These objects are based off creating a new instance of the method. Java, C#, Swift, Kotlin.

1. What are the foundational OOP principles?

The four pillars of object-oriented programming are:  Abstraction, encapsulation, inheritance, polymorphism.

1. How is OOP different from functional programming?

Functional programming is using procedure calls where the procedures are sets of computational steps that need to be followed. OOP is where the code describes how the program will achieve its purpose. OOP is shorter more succinct and uses this to be cleaner.

1. What is ADT?

ADT is abstract data types.

1. What are the main differences between abstract class and interface?

An abstract class is a class that cannot be instantiated and is meant to be subclassed. Used when creating a base class that provides common functionality to its subclasses. Cannot be instantiated directly. Only its subclasses can be instantiated. An abstract class can have multiple superclasses.

Inheritance is a mechanism that allows a class to inherit properties and methods from another class. Used when creating a new class that inherits properties and methods from an existing class. Can be instantiated directly to create objects of the class. A class can only inherit from a single superclass.

1. What is a static method? What is an instance method? Give an example of each.

A static method can be called directly, and an instance method needs to be instantiated. The main in java is a static method. Instantiation utilizes the new keyword.