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1-5 Assignment: UML Diagram

*UML Class Diagram and OOP Principles*

A screenshot of a computer

Description automatically generated

**The UML class diagram illustrates the following object-oriented programming principles:**

**1. Inheritance:**

The `Bicycle` class inherits from the `TwoWheeled` class, and the `TwoWheeled` class inherits from the `Vehicle` class. This hierarchical relationship allows the `Bicycle` class to reuse code from its parent classes.

**2. Encapsulation:**

The `Bicycle` class encapsulates its properties (`gears`, `cost`, `weight`, `color`) and provides public methods to access and modify these properties. This ensures data integrity and control.

**3. Polymorphism:**

Polymorphism is demonstrated in the `Bicycle` class through the overloaded `outputData` method. This method can be called with or without a string parameter, allowing for different behaviors.

**4. Abstraction:**

The `Vehicle` class provides a template for common vehicle attributes and methods, such as `startEngine()` and `stopEngine()`, which are then extended by more specific vehicle types like `TwoWheeled` and `Bicycle`.