CS 112 Section H-Assignment-4

Due Date: 10 March 2024
Group Size Maximum 1 student

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In this assignment, you will explore the concept of composition in C++. Composition is a fundamental principle of object-oriented programming (OOP) that allows you to create complex objects by combining simpler ones. You will create a program that demonstrates the use of composition to model real-world relationships between classes.

Requirements:

- Create two classes: Engine and Car.
- The Engine class should have the following private member variables:
- int cylinders: the number of cylinders in the engine.
- int horsepower: the horsepower of the engine.
- The Engine class should have a constructor that initializes the cylinders and horsepower variables.
- The Car class should have the following private member variables:
- string make: the make of the car (e.g., Ford, Toyota).
- string model: the model of the car (e.g., Mustang, Camry).
- Engine engine: an instance of the Engine class.
- The Car class should have a constructor that initializes the make, model, and engine variables.
- Implement getter and setter functions for the make, model, cylinders, and horsepower variables.
- Create a function in the Car class called printInfo that prints out the make, model, cylinders, and horsepower of the car.

Instructions:

- Implement the Engine and Car classes according to the requirements.
- Create an instance of the Car class in the main function and initialize it with appropriate values.
- Use the getter and setter functions to modify the make, model, cylinders, and horsepower of the car.
- Call the printInfo function to display the information about the car.