

Date: 10/9/2024

Assignment 1

Q1.

You are given an `AudioPlayer` class that only plays MP3 files. Extend its functionality to support playing both MP4 and VLC files by using the Adapter Pattern.

Q2.

Implement a simple system where you have `Employee` objects. An employee can either be an individual worker or a manager who supervises a team of employees. Use the Composite Pattern to treat both individual employees and managers uniformly in terms of their reporting structure.

Q3.

Develop a Java application where you have different types of shapes (e.g., `Circle`, `Rectangle`) and draw implementations (e.g., `DrawingAPI1`, `DrawingAPI2`). Use the Bridge pattern to separate shape logic from drawing logic.

Q4.

Create a basic `Pizza` class in Java and then implement decorators to add different toppings (like cheese, olives, and mushrooms) to the pizza. Each topping should be an additional class that extends a base decorator.