Assignment 2
Design Patterns

In the realm of software development, the application of design patterns is crucial for creating robust, maintainable, and scalable codebases. This assignment aims to explore and identify various design patterns that can be applied to the given GitHub repository to enhance its functionality. Each design pattern will be meticulously examined, described, and justified for its application, providing insights into how it contributes to improved code structure and overall system performance.

Objective:

The primary objective of this assignment is to analyse the existing codebase in a GitHub repository and propose appropriate design patterns to optimise functionality. The assignment involves:

- Identifying relevant design patterns applicable to the given codebase.
- Describing each identified design pattern in detail.
- Providing reasoning for the application of each design pattern, including its benefits and impact on the codebase.

This submission would be a build up/continuation of the tasks you have done in in-class activities.

Problem Description:

Design Pattern Identification:

- Identify potential design patterns suitable for the codebase.
- Consider all the following patterns:
  - Observer Pattern
  - Factory Pattern
  - Adaptor Pattern
  - Builder Pattern
  - Strategy Pattern
  - Chain of Responsibilities/Command Pattern

Application and Reasoning:

- Describe how each design pattern can be applied to the codebase. Include reasoning for choosing a particular pattern, considering the specific challenges or requirements of the codebase.
- Discuss the potential benefits and drawbacks of applying each design pattern.

Code Changes:

- Provide code snippets or examples showcasing the implementation of each design pattern in the context of the given codebase.

Repository:

Link: https://github.com/Sidx-sys/Reservation-System-Starter

NOTE:

Consider the following links for reference:

- https://github.com/karthikv1392/DesignPatterns
- https://refactoring.guru/design-patterns

Make a single document/report **containing all the elements mentioned in the problem description**. List relevant assumptions.

No deadline extensions will be entertained for the assignment.

Submission Guidelines:

1. The deadline for the submission is **Wednesday, March 13th**
2. Make sure your team number and members are listed on top of the submitted sheet.
3. The submission format should be **Assignment2_<Team No>.pdf**.
4. Please follow the format strictly otherwise a penalty may be incurred.