

# Task 2: UML Designs and OOP Considerations

## Justification

Passive-view MVP was chosen as a presentation layer design pattern which introduces a separation of concerns between the user interface and business logic, and provides a clear separation of the application layers. This has benefits such as easier automated tests, as views are able to easily be mocked or stubbed in tests. Business logic also gains higher reusability with MVP, as it can be reused independently of any view code. This will add extra complexity to the project, and due to the increased number of components will increase the development time, but would be a valuable approach to take within the system provided the scope is managed well.

A singleton is a creational design pattern would be used for the invoice generation on successful booking of an event, so that rather than multiple invoice instances being created, if an instance is already available, that instance is returned. This design pattern ensures that only one instance of the invoice would be available at any one time.

A repository design pattern will be used to provide a separation of concerns between the data retrieval logic and the business logic of the application. This provides testing benefits, making it easier to write automated tests for data access, due to the ability for it to easily be mocked or stubbed, and allows for flexibility in changing the data access logic without it affecting the other components of the application.

A façade design pattern is an architectural pattern to be used for the hashing class, so that the more advanced functionality surrounding the cryptography of data using libraries is encapsulated within the hashing class. By abstracting the complexity of cryptography to a hashing class, it makes it easier to work with hashing data, and therefore would increase simplicity within the system.

Chain-of-responsibility would be implemented to handle event states, such as preliminary, booked or cancelled events, provided we have time to increase the scope of the project to include a cancellation system.