

***Design Patterns and Software Engineering***

***PUSL3106***

**Coursework**

**2021 – 2022**

Term: Term 2

Submission Deadline: 13 May 2022

Coursework Type: Group Assignment (Max 6)

Element of Assessment: C1

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**Coursework**

Student’s evaluation of the Module PUSL3106, “Design Patterns and Software Engineering” is based mainly on the submitted report of the competed project and in-class room examination. In this coursework manual you will be finding details instruction for complete the project successfully.

**Coursework Description**

In this coursework, you are expected to complete Software Solution development exercise by adopting professional software engineering practices for the specification given below from typical real-world application in catering sector. However, you are free to take any assumption for incomplete requirements when completing the assigned tasks as per instructions given below. All such assumption are also to be documented in the same report under relevant sections.

The e-catering system is designed for an Internet meal catering enterprise. In the system a customer can search the menus for food and beverage from electronically published e-Catalogs. Then she can compose a meal as a package from different possible alternatives listed in those e-Catalogs and place an order on-line from the e-Caterer directly. The customer must make a down payment together with the order placement to ensure meal delivery. Finally, she must settle the final payment upon successful delivery of the ordered meal.

When e-Caterer receives a customer order for a meal package he first reserves and purchase beverage from beverage supplier and food from a food supplier. Then the beverage and food will be delivered to the customer in a single package.

The system for receiving customer orders has been integrated with the beverage and food purchasing systems so that those systems can place purchase orders immediately at the beverage supplier’s and food supplier’s systems.

The beverage supplier requests a down payment before attending to a specific beverage order. However, for the food supplier, the entire payment can be made after the e-caterer’s customer paid for meal delivery.

**Work-Tasks and Work-Products**

For the specification given above, you are required to complete following major tasks.

1. System Requirement Development

As per the recommendation of de facto process standard, Unified Process, Use-case drive development is recommended. Both Use-case Diagram and Use-case Descriptions capturing both functional as well as non-functional requirements are required to complete in this phase. Expectation is minimum of five major use-cases to be documented. Use-case descriptions are to be completed in Fully-Dressed format. Relevant templates for this purpose shared in the classroom can be used.

1. System Analysis and Domain Modeling

The diagrams available in the standard, Unified Modeling Language could be utilized in this phase to capture Static, Dynamic as well as Functional Views of systems (for Domain Modeling as well for Systems Modeling). **Important**: You are strongly advised to use well known Analysis and Design Patterns in Software System Development processes with the CASE Tool support.

1. System Design (with Component Reuse)

It is expected to complete the design such that component reuse is favoured and to support agile development meeting time constraints of this course work. Final and realised system architecture also to be detailed out making references to reusable components.

**Detailed Assessment Criteria**

You are asked to address the following areas in the dissertation to be completed, based on the acquired discipline knowledge in the class-room and by researching relevant standards, recent literature, which covers:

1. Introduction and Specification (10%)

This is an extension of proposal document that has been submitted as per above instruction. It is recommended to adhere to standard style for formulation of Introduction Chapter of a Project Report. Sub-topics that could be addressed in this section includes introductions to Problem, Objectives, Solution, and Potential Benefits with references to limitations of the proposal.

1. System Requirements (40%)

This section should include complete UML Use-case Diagram with Fully-dressed Formal description. Please note that all UML diagrams are to be developed on a CASE Tool and make a reference to used tool.

1. System Design Models (50%)

This should include details to UML models developed by applying Analysis and Design Patterns. You have been asked to complete careful analysis to get explored all potential types of patterns that you have learnt in the classroom and apply as much as possible diverse and distinct patterns in your solution develop process. It is recommended to elaborating also application patterns in this section.

User = employee.

Customer = gives the order.

Manager = handles supplier and customer details.

Beverage Supplier = supplies beverages.

Food Supplier = supplies food.

Delivery = delivers food and handles rest of the money.

* Class diagram.
* Package diagram.
* Object diagram.
* Component diagram.
* Composite structure diagram.
* Deployment diagram.