INFS2044 Workshop 1b – Design

In this workshop, you will refine use case narratives into detailed scenarios for implementation, identify potential variability that may affect the design, and assess the impact of potential changes on a given software design.

Preparation
- Bring a copy of the workshop instructions (this document) to the workshop

To Know
Upon completion of this session, you will be able to:
- Complement use case narratives with additional technical requirements
- Visualise the system environment using context diagrams
- Identify sources of complexity in a system design

Task 1. Complete Use Case (30 minutes)

Review the use case narrative for Make Booking given in Appendix A.

Identify any relevant alternate flows that need to be considered.

Identify any external systems that may be relevant for this use case.

Is there any other information that has been missed?

Task 2. Identify Variability (20 minutes)

Students identify what is common and where variations may occur

Task 3. Context Diagram (20 minutes)

Suppose payments are processed and verified using an external payment service such as Stripe or PayPal.

Draw a Context Diagram for the Room Booking System example.

Task 4. Identify Complexity of a Design (30 minutes)

Consider the system design shown in Appendix B.

Each box in the diagram shows a system component.

The responsibilities of the components are as follows:

Component	Responsibility
Guest Portal	Render User Interface for all Guest-accessible functions, Orchestrate Use Case logic, Validate Input, Invoke Payment Verification, Send notifications, Persist data in database
Hotel Portal	Render User Interface for all Hotel-accessible functions, Authenticate and authorize users, Orchestrate Use Case logic, Validate Input, Send notifications, Persist data in database
Admin Portal	Render User Interface for all Admin-accessible functions, Authenticate and authorize users, Orchestrate Use Case logic, Validate Input, Send notifications, Persist data in database
Database	Persist all data

Identify symptoms of complexity that may affect the ability to make changes to the system.

Appendix A – Use Case narrative "Make Booking"

Use Case UC01: Make Booking

1. *User enters date range, and System presents available rooms, their descriptions, and daily rates.*
2. *User selects room, and System presents total price.*
3. *User enters contact details and payment details, and System verifies payment, records payment confirmation, and issues booking confirmation.*

Assumptions:
- Bookings are made without registering a user account for the user.

Appendix B – System Architecture Component Diagram