

# Swinburne University of Technology

*School of Science, Computing and Engineering Technologies*

## ASSIGNMENT AND PROJECT COVER SHEET

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Project Group: 8

Tutor: Ms Thakshila Dilrukshi

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We declare that this is a group assignment and that no part of this submission has been copied from any other student's work or from any other source except where due acknowledgment is made explicitly in the text, nor has any part been written for us by another person.

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Swinburne University of Technology

Restaurant Information System – Requirements  
Specifications

SWE30003

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## 1. Introduction

This paper presents the requirements specification for the development of a Restaurant Information System tailored to meet the needs of the Relaxing Koala, a medium-sized café/restaurant located on Glenferrie Road in Hawthorn. The Relaxing Koala recently expanded its premises to accommodate a larger customer base, necessitating the adoption of a computer-supported system to enhance operational efficiency and customer service.

## 2. Project Background

### 2.1. Overview

The Relaxing Koala, situated on Glenferrie Road, is a medium-sized café/restaurant that has recently expanded its premises to accommodate approximately 150 customers, up from its previous capacity of 50. With this expansion, the owners recognize the need to streamline and automate their daily operations to ensure efficient service delivery and customer satisfaction. To address these challenges, Swinsoft Consulting has been tasked with developing a computer-supported system, the Restaurant Information System, to enhance the management of reservations, order processing, invoicing, and other essential tasks.

### 2.2. Domain Vocabulary

- **Customer:** The patron dining at or ordering from the Relaxing Koala.
- **Order:** A collection of menu items requested by a customer.
- **Menu Item:** Individual food or drink options offered by the restaurant.
- **Reservation:** A customer's request to secure a table at a specific date and time.
- **Payment:** The financial transaction to settle a customer's bill.
- **Places:** A customer places an order.
- **Associated with:** Reservations are associated with customers (who made them); orders are associated with menu items (what was ordered).
- **Payment relationship:** Payments are linked to specific orders.
- **Reservation management:** Booking, confirming, and recording reservations.
- **Order taking:** Recording customer orders, both in-person and online.
- **Kitchen communication:** Transmitting orders efficiently to kitchen staff.
- **Invoicing:** Generating bills for customers.
- **Payment processing:** Securely handling customer payments.
- **Basic analytics:** Providing insights into menu performance and customer trends.
- **Online menu:** Making the menu accessible online for browsing, take-away, and delivery orders.

- **KDS:** Kitchen Display System – a system that shows orders to kitchen staff digitally.
- **QR code:** Scannable code used to access the online ordering system.
- **Payment gateway:** Secure online platform to process payments.

## 2.3. Goals

### Primary Goal:

- To implement an information system that streamlines and scales the daily operations of the expanded Relaxing Koala café/restaurant.

### Specific Objectives:

- **Reservations:** Enable customers to conveniently make reservations, ensuring efficient table management.
- **Order Management:** Provide an intuitive interface for taking customer orders and seamlessly transmitting them to the kitchen for accurate preparation.
- **Billing and Payments:** Facilitate the generation of accurate invoices and receipts, while supporting various payment methods.
- **Menu Analytics:** Track ordering trends to gain insights into popular menu items and inform decisions about menu offerings.
- **Online Ordering:** Establish an online presence with menu listings, allowing customers to place takeaway and potentially delivery orders.

### Additional Considerations:

- **User-friendliness:** The system must be intuitive and easy for staff to operate, minimizing training requirements.
- **Reliability:** The system must be robust and dependable to avoid disruptions in service.
- **Scalability:** The system should be able to handle future growth of the restaurant's operations.

## 2.4. Assumptions

- The Relaxing Koala restaurant has reliable internet connectivity to support online functionalities of the system.
- The restaurant staff are trained to use the new information system effectively.
- The Relaxing Koala's expansion project, including the acquisition of the adjacent property, will be completed within the project timeline.
- The Relaxing Koala management has budgetary allocation for hardware procurement and system implementation.

- The Relaxing Koala owners have the authority to make decisions regarding system features and implementation.
- The information system will comply with relevant data protection regulations and industry standards.
- The Relaxing Koala's customer base and demand patterns will remain relatively stable during the system development and implementation period.

## 2.5. Project Scope

This project aims to design, develop, and implement a restaurant information system to support the Relaxing Koala's expansion. The system will streamline core operations, including reservations, order taking, kitchen communication, billing, and payment processing. It will also provide basic sales analytics to aid in menu optimization. Additionally, the project will establish an online presence with publicly viewable menus and online takeaway ordering capabilities, potentially including delivery integration. The system should be intuitive for staff, cost-effective, and implemented within a timeline that aligns with the restaurant's expansion plans

# 3.Problem Domain

## 3.1. Pain Points:

- **Inefficient Reservations:** No central system leads to potential overbooking, walk-in confusion, and lost revenue.
- **Manual Order Errors:** Handwritten orders are prone to misinterpretation, impacting kitchen efficiency, order accuracy, and customer satisfaction.
- **Tedious Billing:** Manual calculations and payment processing are time-consuming and increase the potential for inaccuracies.
- **Missed Insights:** Lack of data on popular menu items hinders menu optimization, inventory decisions, and marketing strategies.
- **Limited Customer Reach:** No online presence means missing out on the takeaway market and potential new customers.

## 3.2. Domain Entities:

- **Customer:** The person dining in the restaurant or ordering takeaway.
- **Reservation:** A booking for a specific table at a designated time and date.
- **Order:** A customer's request for food and beverage items.
- **Menu Item:** Individual food or beverage offering with a description and price.
- **Invoice:** A bill presented to the customer for payment.
- **Payment:** The transaction to settle the bill (cash, card, etc.).

## 3.3. Actors:

- **Customer:** Places orders, makes reservations, provides payment.
- **Waiter/Waitress:** Takes orders, manages reservations, processes payments, communicates with kitchen.
- **Kitchen Staff:** Prepares orders based on received information.
- **Manager/Owner:** Oversees operations, analyses sales data, makes strategic decisions.

### 3.4. List of Tasks:

- **Reservation Management:**
  - Create new reservations
  - View and modify existing reservations
  - Manage table availability
- **Order Taking and Management:**
  - Enter orders into the system
  - Transmit orders to the kitchen
  - Modify or cancel orders
- **Billing and Payments:**
  - Generate accurate invoices
  - Process various payment types (cash, credit cards, etc.)
  - Issue receipts
- **Menu Analytics:**
  - Track sales of individual menu items
  - Identify popular and less popular dishes
- **Online Ordering:**
  - Display the menu online
  - Securely take takeaway orders
  - Process payments for online orders
  - Optionally, arrange delivery logistics

## 4. Context of the System

### Current Processes:

The day-to-day operations of the Relaxing Koala are steeped in tradition, relying on manual methods for managing reservations, taking orders, communicating with the kitchen, and processing payments. This approach, while personalized, has led to several inefficiencies that impact both the staff's ability to deliver timely service and the overall customer experience. Common issues include miscommunication between the front of house and kitchen, delays in order processing, and inaccuracies in billing. Moreover, the manual handling of reservations has occasionally resulted in double

bookings or missed opportunities to maximize seating capacity, directly affecting the restaurant's revenue and customer satisfaction.

With the Relaxing Koala's recent expansion to accommodate approximately 150 customers, up from its original capacity of 50, these inefficiencies are magnified. The increase in customer volume demands a more streamlined approach to manage the surge in orders, maintain service quality, and ensure a smooth operational flow from reservations through to payment processing.

### **Need for Automation:**

Recognizing that the existing manual processes will not suffice to meet the demands of their expanded operation, the owners of the Relaxing Koala are compelled to transition to an automated information system. This shift is not merely a response to the challenges posed by expansion but a strategic move to future-proof the restaurant. Automation promises to enhance efficiency across all aspects of the restaurant's operations, from simplifying the reservation process with real-time availability updates to ensuring accuracy in order-taking and speeding up the payment process. Furthermore, an automated system opens the door to new opportunities, such as offering online reservations and take-away orders, thereby expanding the restaurant's market reach and providing valuable data insights into customer preferences and operational metrics.

Implementing an information system will also alleviate the workload on staff, reducing the manual labor associated with record-keeping and administrative tasks. This allows the staff to focus more on providing exceptional customer service and less on the logistical aspects of restaurant management. In addition, the system will provide a foundation for scalability, enabling the Relaxing Koala to adapt to future growth or changes in the market with minimal disruption to its operations.

### **Broader Implications:**

Adopting an information system is not just about addressing current inefficiencies; it's about setting a new standard for the Relaxing Koala's operations. The move towards digitalization positions the restaurant to better respond to customer expectations for convenience and speed, which are increasingly becoming the norm in the hospitality industry. By embracing automation, the Relaxing Koala aims to enhance its competitive edge, improve customer satisfaction, and ensure sustainable growth in the bustling culinary landscape of Hawthorn.

This expanded context offers a comprehensive overview of the current state, the rationale for adopting new technology, and the envisioned impact on the restaurant's future, setting a clear stage for the detailed requirements that follow.



## 5. User Tasks & Task Descriptions (Functional Requirements)

**Task 1 - Reservations Management:** Allow customers to book tables online or through the restaurant.

Task 1 - Reservations Management	
<b>Purpose:</b>	Enables customers to reserve tables either online or by interacting directly with the restaurant's staff.
<b>Trigger / Precondition:</b>	Customers decide they want to dine at Relaxing Koala.
<b>Frequency:</b>	Approx. 20 bookings per day. Increases over summer.
<b>Critical:</b>	High
<b>Work Area:</b>	<b>Front Desk:</b> For in-person and phone call requests. <b>Website:</b> For online booking requests.
<b>Subtasks:</b>	<b>Example Solution:</b>
1. Station employee at front desk in-case of phone / in-person booking requests.	Configure booking platform to be live 24/7 so customers can view availability and make bookings at all times in and out of workhours.
2. Request a time, date, amount of people and special considerations (wheelchair access required, highchair, etc).	The platform will request a date and time at the start of the booking process.
3. Identify potential availabilities, and review with customer. <b>Problem:</b> Desired date/time unavailable.	Process the inputted data and respond to the user with the available times that match their criteria. Users can input their email or phone number to be alerted if restaurant becomes available at requested time.
4. Write the booking details in calendar. <b>Problem:</b> Double booking due to human error.	If user accepts booking, auto-update the database and restaurant calendar with this booking and details. Automatically send confirmation to customer.  This checks timeslots and tables before entering, erasing double bookings.
<b>Variants:</b>	

**Task 2 - Order Taking and Kitchen Communication:** Facilitate the process of taking orders from customers and communicating them to the kitchen staff.

Task 2 - Order Taking and Kitchen Communication	
<b>Purpose:</b>	Facilitate the process of taking orders from customers and communicating them to the kitchen staff.
<b>Trigger / Precondition:</b>	Customers must be seated at a table in the restaurant.
<b>Frequency:</b>	Approx. 50x / day
<b>Critical:</b>	High
<b>Work Area:</b>	<ul style="list-style-type: none"> <li>- Dining area for taking orders.</li> <li>- Kitchen for receiving orders.</li> </ul>
<b>Subtasks:</b>	<b>Example Solution:</b>
1. Staff approach the table.	Deploy QR codes on each table, allowing every table to have equal access to ordering.

<p><b>Problem:</b> During busy periods, table service delays can be long. Additionally, staff can neglect a table due to human error.</p>	<p>By giving the customers access to the ordering platform, you remove the need to wait for staff to be free, take your order, and then submit it to the kitchen.</p>
<p>2. Wait staff take the order.</p> <p><b>Problem:</b> Customers might have special dietary requests and intolerances. Customers rely on staff memorising or writing down these requirements, which are often left neglected.</p>	<p>Customers can scan the QR code and order from the digital menu linked to the specific table using an automated table management system. Instead of the customer having to trust staff to report their dietary requirements (e.g. No cheese), users can directly unselect undesired ingredients during the order process.</p>
<p>3. Wait staff submit the order to the kitchen.</p> <p><b>Problem:</b> Due to the fast pace of hospitality, staff occasionally forget to submit orders to the kitchen staff, which causes both delayed and missed orders which may need to be communicated with waiting staff.</p>	<p>Once the user submits an order, the order is instantly sent to the Kitchen Display System (KDS). Customers are then sent a receipt of their order so that in the event of a missed order, the customer can easily communicate what was missed without having to remember or persuade the staff of their honesty. It creates a single source of truth.</p>
<b>Variants:</b>	

**Task 3 - Invoicing and Payment Processing:** Generate invoices and receipts for customers and handle payment transactions.

Task 3 - Invoicing and Payment Processing	
<b>Purpose:</b>	Generate invoices and receipts for customers and handle payment transactions.
<b>Trigger / Precondition:</b>	Triggered after service is complete.
<b>Frequency:</b>	Approx. 50x / day
<b>Critical:</b>	High
<b>Work Area:</b>	Front Desk
<b>Subtasks:</b>	<b>Example Solution:</b>
<p>1. Staff must identify the table the customers were served at.</p> <p><b>Problem:</b> In a venue filled with many people and many tables, it can be easy to bill customers for the wrong table.</p>	<p>Customers are assigned a table number through the order platform when they order. This allows for easy table confirmation when paying. To reduce the possibility of this error from occurring, both customers and staff should be able to see the order and the table served at in the receipt.</p>
<p>2. Staff must review the orders and calculate the total cost of service.</p> <p><b>Problem:</b> When orders are calculated manually, there is room for human error. This leads to customers being charged more or less than the true bill.</p>	<p>When the order was made, the items are automatically sent to the invoicing system.</p> <p>The invoicing system reviews all items and totals are calculated instantly, removing human error.</p>
<p>3. Staff enters the billing amount onto the card reader.</p>	<p>The card reader is connected to the invoicing system, so it is loaded with the payment amount without any manual entries required.</p>

4. The staff prints a receipt for the customer and a receipt for the restaurant to later review.	The invoice is then emailed to the customer and logged in the restaurants management system for future audits and statistic generation.
<b>Variants:</b>	
3a. The customer wishes to pay with cash.	Using the same information provided in step 2, complete the transaction using physical money.

**Task 4 - Basic Statistics Generation / Data Analytics:** Provide insights into menu items ordered and customer preferences for future planning.

Task 4 – Basic Statistics Generation	
<b>Purpose:</b>	Provide insights into menu items ordered and customer preferences for future planning.
<b>Trigger / Precondition:</b>	<ul style="list-style-type: none"> <li>- Triggered weekly.</li> <li>- Orders for the week must have been recorded.</li> </ul>
<b>Frequency:</b>	Weekly
<b>Critical:</b>	Medium
<b>Work Area:</b>	Office
<b>Subtasks:</b>	<b>Example Solution:</b>
1. Time must be allocated to review menu performance.  <b>Problem:</b> This is time consuming and can often be done outside of working hours, as working hours must be reserved for service, preparation, and cleaning.	The data analytics system will run in the background, real-time, 24/7. This means that menu reviews will now take minutes, not hours.  Due to the speed of this new system, reviews can be done in work hours.
2. Staff must review receipts, noting which items were ordered regularly and which items were unpopular.  <b>Problem:</b> Receipts can be lost or damaged, so the data source is not immutable. Also, human error can intervene with this analysis.	Invoices are automatically logged to the analytics dashboard, removing the need to manually source, count, and read receipts.  Due to the nature of online invoices, hard copies do not need to be kept. This creates a greater immutability and trust in the data source.
3. Staff must determine which of the menu items should be modified or removed based off the data.	The data from the receipts is visualised and displayed showing insightful information immediately. This streamlines the decision-making process as you can see which items are popular, which items are often ordered together, the most popular vegan items, etc. Similarly, you can view the items that are not performing.
<b>Variants:</b>	

**Task 5 - Online Menu Availability:** Make menus available online for customers to view, order take-away, and arrange delivery.

Task 5 – Online Menu Availability
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<b>Purpose:</b>	Make menus available online for customers to view, order take-away, and arrange delivery.
<b>Trigger / Precondition:</b>	<ul style="list-style-type: none"> <li>- Website is live.</li> <li>- Menu is up to date.</li> <li>- Site is user-friendly.</li> </ul>
<b>Frequency:</b>	Approx. 20x / day.
<b>Critical:</b>	High
<b>Work Area:</b>	<ul style="list-style-type: none"> <li>- Front Desk</li> <li>- Kitchen</li> </ul>
<b>Subtasks:</b>	<b>Example Solution:</b>
<p>1. Customer orders take-away food via a phone call or in-person ordering. Staff provide estimation of order duration.</p> <p><b>Problem:</b> Staff may not be available to take order immediately if restaurant is busy. Additionally, if the restaurant is busy, order times may vary significantly.</p>	<p>Customer accesses website and selects desired items for online order. The customer can also receive updates as to when the order has been processed, accepted by chefs, completed by chefs, and awaiting pickup.</p>
<p>2. Customer reads banking card details over the phone to a staff member who executes the transaction.</p> <p><b>Problem:</b> The customer has to trust that the staff will not misuse the card details. Secondly, misinterpreting, and miscommunicating details is a common frustration for both customers and staff.</p>	<p>Once customer submits order, they will be prompted to pay online using a secure payment gateway.</p> <p>The customer is able to enter details themselves or use payment providers such as Apple Pay to pay for the order, removing the need to disclose sensitive information to the staff.</p>
3. Staff prints receipt and delivers the order to the kitchen.	Once payment is received, the order is instantly sent to the Kitchen Display System (KDS).
4. Customer arrives and receives order, with a copy of the receipt attached.	The customer will arrive, show the staff the order ID and receive the order. The invoice will already be sent to the customer via email.
<b>Variants:</b>	
4a. The customer wishes to have the order delivered. The staff must delegate someone to make the delivery.	During the online ordering process, the customer can select the delivery option. This prompts the user to input delivery details. When the order is complete, if staff have the capacity to deliver the order they will, otherwise they can hire a third-party service (Menulog, Uber Eats) to complete the delivery on their behalf. The customer receives a notification when delivery is on its way.

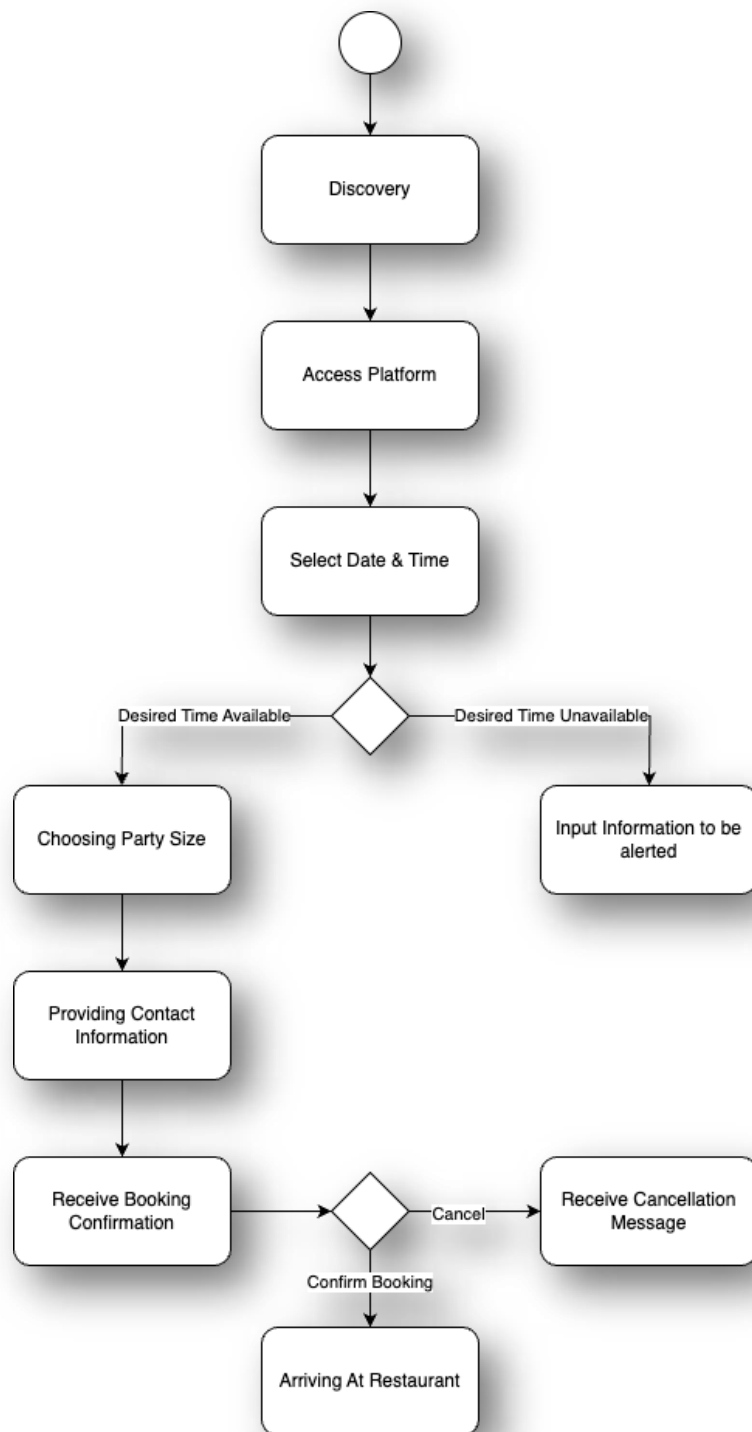
**Task 6 – Receiving Customer Feedback:** Make menus available online for customers to view, order take-away, and arrange delivery.

Task 6 – Receiving Customer Feedback	
<b>Purpose:</b>	Understanding the sentiment and the experience of your customers in order to make broader business decisions

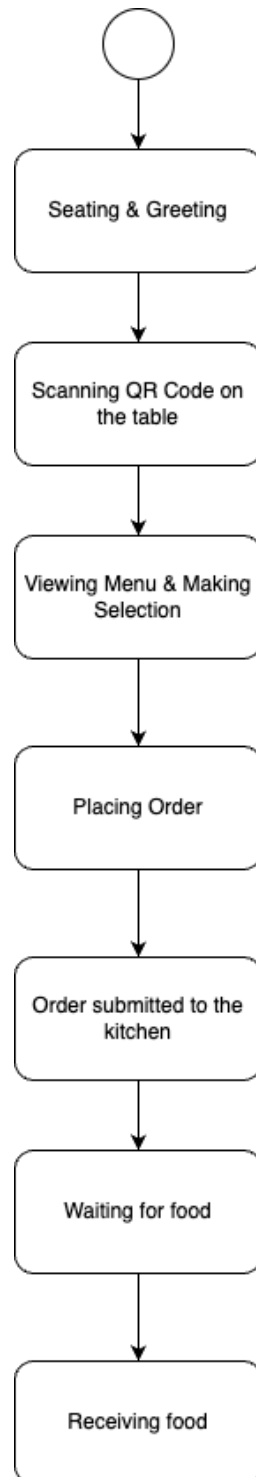
	such as if employees need certain training, if the music is liked, if the general ambience of the venue is appreciated, etc.
<b>Trigger / Precondition:</b>	Customers must physically attend the restaurant.
<b>Frequency:</b>	Approx. 10x a day.
<b>Critical:</b>	Medium
<b>Work Area:</b>	Front Desk
<b>Subtasks:</b>	<b>Example Solution:</b>
1. After customer pays the bill, staff request casual feedback.	A QR code is placed at the front desk, where each review earns the customer a ticket in a raffle. This QR code links to a review site, where the customer is asked basic questions in a form.
2. Staff are instructed that if there are recurring compliments or criticisms from customers, this should be noted and emailed to the owner after each day.	The information collected from the form is automatically stored online in a database, meaning employees do not need to remember or subjectify the feedback. Whatever appears in the database is authentic and untampered.
3. At the end of each week, the owners and managers meet to discuss customer feedback and action decisions from it.	Due to the data being stored in a database, it can easily be integrated into easy-to-use platforms that allow instant analytics, visualisation, and querying. This allows for easy analysis.
<b>Variants:</b>	

## 7. Workflow

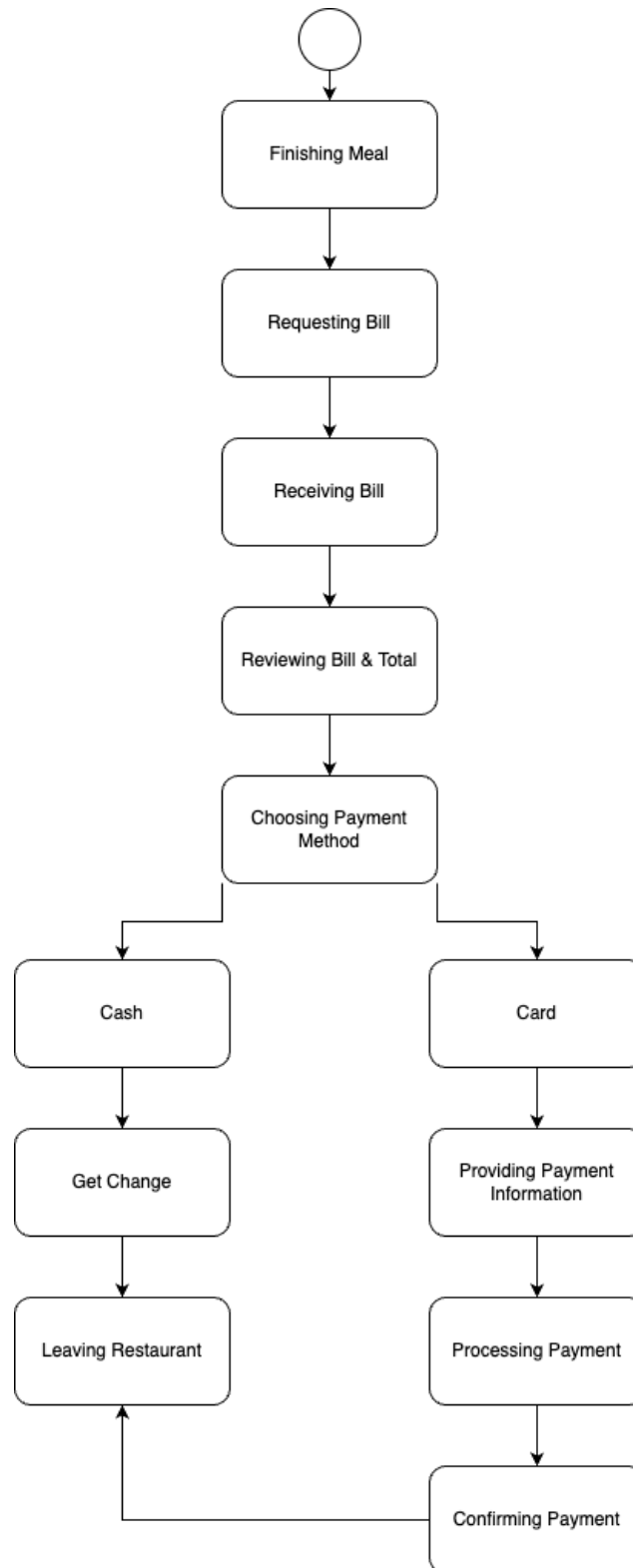
### Task 1: Making Bookings Online



## Task 2: Order Taking Process

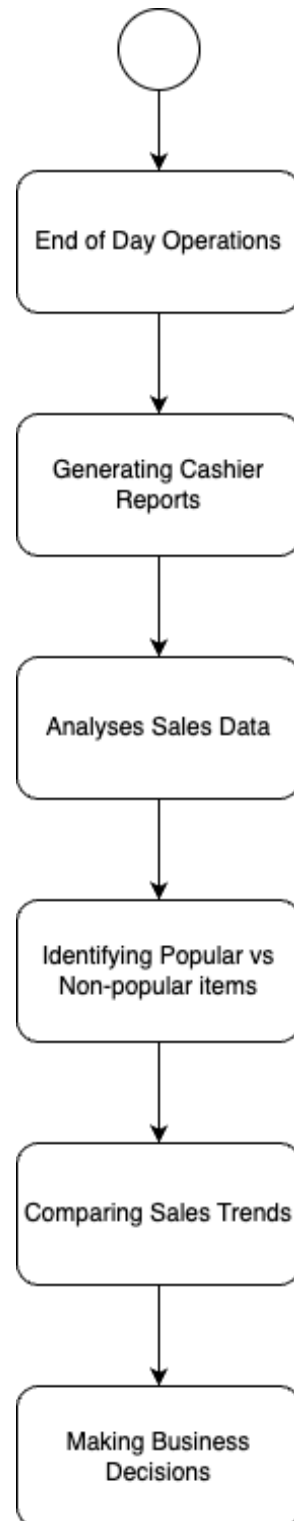


### Task 3: Invoicing & Payments

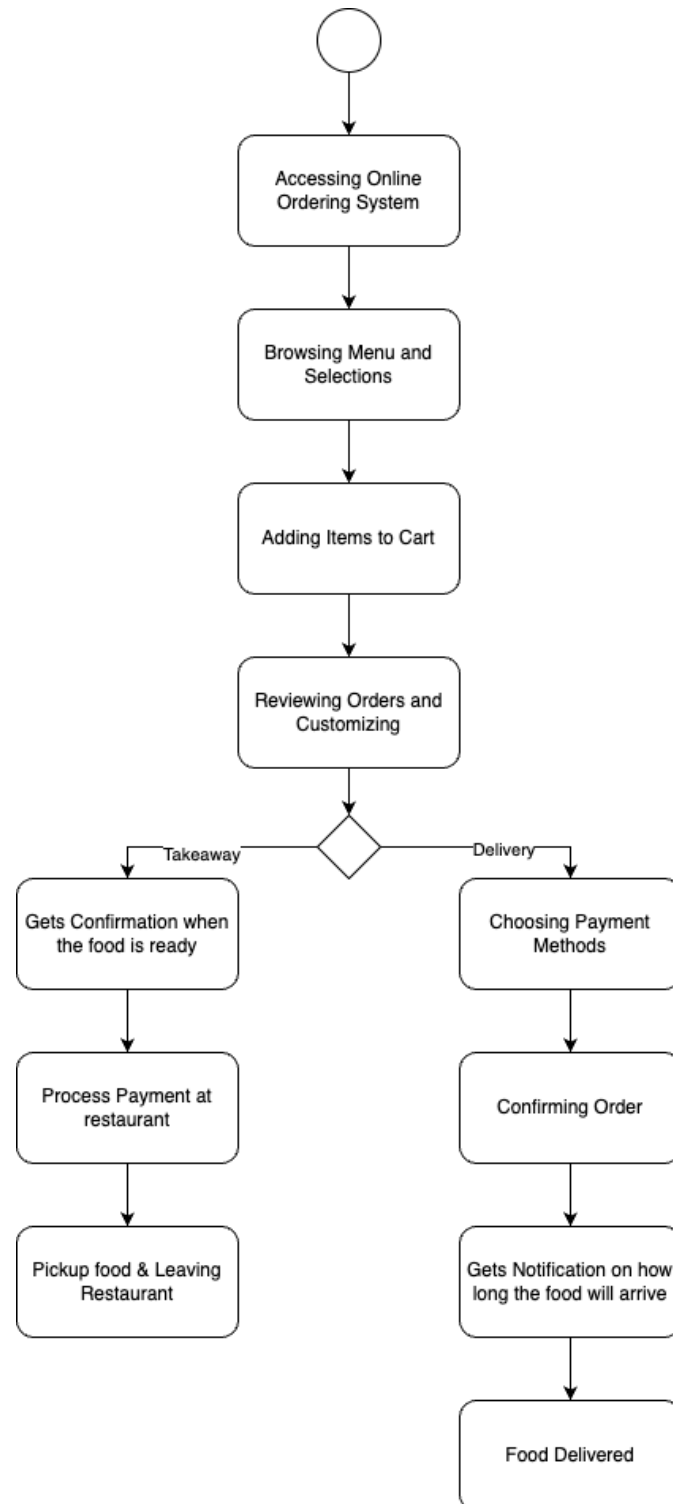




#### Task 4: Data Analytics



### Task 5: Online Menu



## 8. Quality Attributes

### 1. Usability

- **Intuitive Interface:** The system should have a clear, well-organized layout with easy navigation for staff members. Minimal training should be required.
- **Error Prevention:** Input validation and clear prompts should minimize the potential for data-entry mistakes (e.g., incorrect orders, miscalculated prices).
- **Responsive:** The system should respond quickly to user actions to prevent delays and frustration during busy service periods.

### 2. Reliability

- **Uptime:** Minimize downtime with robust hardware and software design. System outages or crashes disrupt operations and lead to revenue loss.
- **Data Integrity:** Implement safeguards to protect data accuracy (orders, reservations, payments), ensuring correct billing and preventing customer disputes.
- **Recovery:** Have mechanisms in place for quick recovery in case of unexpected errors or data corruption.

### 3. Functionality

- **Core Features:** Ensure seamless implementation of essential functions: reservation management, order taking, kitchen communication, billing, and basic analytics.
- **Accuracy:** Calculations (e.g., totals, discounts) and order details must be consistently correct.
- **Online Ordering Integration:** If included, the online ordering platform should be well-integrated with the main system, allowing for efficient processing of takeaway orders.

### 4. Scalability

- **Capacity:** The system should handle the increased volume of reservations, orders, and data associated with the expanded restaurant.
- **Extensibility:** Consider potential future needs (e.g., loyalty programs, advanced inventory management) and design the system with potential for expansion.

### 5. Performance

- **Order Processing Speed:** Order entry and transmission to the kitchen should be fast to ensure order flow and prevent customer wait times.

- **Billing Efficiency:** Generating invoices and processing payments should be swift, especially during peak hours.
- **Report Generation:** Analytics and sales reports should be generated without significant delays.

## 6. Security

- **Data Protection:** Safeguard customer information (names, payment details if stored) with appropriate encryption and access controls.
- **Compliance:** Adhere to relevant data privacy regulations and payment processing standards.

# 9. Product and Design Level Requirements

## User Interface Guidelines:

The Restaurant Information System must be designed in strict adherence to Swinsoft Consulting's user interface guidelines to ensure consistency, usability, and accessibility across all IT systems developed by the company. Key principles from these guidelines that are particularly relevant to this project include:

- **Accessibility:** The system should be accessible to users of all abilities, including those with disabilities. This includes ensuring that text is readable, interfaces are navigable with keyboard and screen readers, and content is understandable for users with various types of disabilities.
- **Responsiveness:** The interface must be fully responsive, ensuring optimal viewing and interaction experience across a wide range of devices (e.g., desktops, tablets, smartphones) and screen sizes. This is crucial for both the staff operating the system in the restaurant and customers accessing online services.
- **User-Centric Design:** The UI/UX design should prioritize ease of use and intuitive navigation, minimizing the learning curve for both restaurant staff and customers. This includes clear labelling, logical flow of tasks, and consistency in the placement of elements to facilitate a seamless user experience.
- **Visual Consistency:** The look and feel of the interface should align with Swinsoft Consulting's design language, incorporating brand colors, typography, and visual elements consistently across the system. This coherence reinforces brand identity and contributes to a professional and trustworthy user experience.
- **Feedback and Error Handling:** The system should provide immediate and clear feedback in response to user actions. This includes confirmation messages for successful actions, informative prompts for next steps, and descriptive error

messages that offer guidance on how to correct issues. Such feedback mechanisms are essential for a smooth, frustration-free interaction.

- **Performance and Efficiency:** Design elements should be optimized for performance, ensuring that the system responds swiftly to user inputs. This is particularly important for time-sensitive tasks like order processing and payment transactions, where delays can negatively impact the user experience.
- **Security:** UI elements related to security, such as login forms, payment information inputs, and personal data fields, must be designed with best practices in mind to protect user information. This includes the use of secure input fields, clear indicators of secure connections, and guidelines for creating strong passwords.

By adhering to these detailed guidelines, the Restaurant Information System will not only meet the functional needs of the Relaxing Koala but also provide a user-friendly, accessible, and secure experience for all users. This commitment to excellence in design and usability is expected to enhance satisfaction and efficiency, aligning with the overarching goals of the project.

## 10. Workflow Description

### Reservation Workflow:

1. Customer initiates a reservation via the restaurant's website, mobile app, or by calling the restaurant. Online interfaces provide real-time table availability.
2. System prompts the customer for reservation details: date, time, number of guests, and any special requests (e.g., allergies, occasion).
3. The system immediately checks for table availability based on the input and suggests alternatives if the desired slot is unavailable.
4. Once a suitable time is selected, the system confirms the reservation with the customer via an immediate on-screen confirmation and an email or SMS notification.
5. The system sends a reminder to the customer a day before the reservation via email or SMS.
6. Customers can modify or cancel their reservations through the link provided in their confirmation email/SMS. The system updates in real-time to reflect these changes.

### Order Workflow:

1. Customer is seated and scans a QR code at the table or is approached by a staff member with a tablet for order placement.
2. Customers can browse the digital menu through their device or the staff's tablet, select their items, specify any customizations, and submit their order directly to the system.

3. Orders are instantly communicated to the Kitchen Display System (KDS), displaying order details, special requests, and preparation priority.
4. The system updates the customer and staff on the order status (e.g., "being prepared," "ready to serve") through the customer's device or staff's tablet.
5. Once an order is ready, kitchen staff mark it as complete in the KDS, notifying the serving staff. The server then delivers the order to the respective table.

#### **Payment Workflow:**

1. Customer requests the bill: Via their device or through a server. The system generates an itemized invoice based on the table's order history.
2. Customers can review their invoice through their device or a printed copy provided by the server. Payment can be made directly through the customer's device using integrated payment gateways or through traditional methods handled by the server.
3. The system processes the payment, secures authorization, and immediately updates the transaction status. For cash payments, the server inputs the amount received into the system for record-keeping.
4. Upon successful payment, the system generates a digital receipt sent to the customer's email or a printed receipt, based on the customer's preference.
5. After payment, the system prompts the customer to provide feedback on their dining experience, which can be completed via their device.

## **11. Conclusion**

This requirements specification document has been meticulously updated to include comprehensive enhancements and additional details, ensuring a robust foundation for the development of the Restaurant Information System tailored for the Relaxing Koala. The introduction of an enhanced domain model, along with explicit attention to data security and privacy, sets a solid groundwork for protecting customer information and complying with regulatory standards. By incorporating feedback mechanisms and the potential for a loyalty program, the system is poised to not only meet current operational needs but also adapt to future growth and customer engagement strategies.

Quality attributes have been expanded to highlight the importance of adaptability, user training, and support, ensuring that the system remains effective and user-friendly as the restaurant evolves. Documentation standards and validation and testing strategies have been outlined to guarantee that the system is developed to the highest standards, with rigorous testing to meet the specific needs of the Relaxing Koala.

#### **Next Steps:**

1. **Stakeholder Review:** The updated requirements specification will be presented to the stakeholders for review, ensuring alignment with the Relaxing Koala's operational goals and addressing any additional feedback.
2. **Development Planning:** Based on this comprehensive specification, the project team will outline a development plan, including timelines, resource allocation, and milestones to guide the system's construction.
3. **Validation and Testing:** A detailed plan for validation and testing will be executed, involving real-world scenarios and user acceptance testing to ensure the system's reliability and effectiveness.
4. **Training and Implementation:** Concurrent with system development, a training program will be prepared for the Relaxing Koala staff, ensuring a smooth transition to the new system and minimizing operational disruptions.
5. **Ongoing Support and Evaluation:** After implementation, the system will be under continuous evaluation to identify any areas for improvement, with Swinsoft Consulting providing ongoing support to address any issues or updates required.

In conclusion, this document presents a clear and comprehensive roadmap for developing a Restaurant Information System that not only addresses the immediate operational efficiencies needed by the Relaxing Koala but also lays the groundwork for future enhancements and growth. The collaborative efforts of the Swinsoft Consulting team, combined with stakeholder input, will ensure the successful realization of this ambitious project, transforming the daily operations of the Relaxing Koala and enhancing the dining experience for its customers.

# Swinburne University of Technology

## School of Science, Computing and Engineering Technologies

### Contribution Document

Subject Code: SWE30003

Unit Title: Software Architectures and Design

Assignment number and title: 1. Requirements

Due date: 7<sup>th</sup> April 2024

Tutorial Day and Time: Tuesday 2::30 - 3:30 pm

Project Group: 8

Tutor: Ms Thakshila Dilrukshi

#### 1. Time spent (hours) and contribution description

1.1 Fill in the time spent on each significant work item in the following table:

Work Item	Member 1 Name: Thai Duc Nguyen	Member 2 Name: Marco Giacoppo	Member 3 Name: Corey Santarossa	Member 4 Name: Rafia Sanjida Chowdhury
Table of contents, document review and structure				1 hour
Quality Attribute	3 hour			
Project Goal	1 hour			
Problem Domain	1 hour			
Domain Vocabulary	1 hour			
Context of system				1 hour
Product and Design Level requirements				1.5 hours
Workflow model	2 hour			
Workflow description				1.5 hours
Project Scope	1 hour			
Task Descriptions			4 hours	
Introduction, Overview, Assumptions, Problem Scope		2 hours		
Workflow		3 hours		
Conclusion				1 hour

Note: Please adjust and add more rows, as necessary.

1.2 Description of contributions (each member provides a brief description of their contributions):

**Member 1 Name:** Marco Giacoppo : Started the outline of the project, giving points on where to start. Creating the overview, assumptions, problem scope, introduction. Then finished off by creating the workflows.

**Member 2 Name:** Thai Duc Nguyen : Focus on pinpointing Project overall goals, ensure output quality to match requirement, list out all possible problem and pain points, making sure project scope have everything need in the project.



**Member 3 Name:** Corey Santarossa : My main objectives were to analyse the current system to gain a better understanding of its limitations, so that I could analyse the functional requirements in order to create solutions. This was captured in my user task descriptions.

**Member 4 Name:** Rafia Sanjida Chowdhury : I worked on the context of system, Product and design level requirements and workflow description. I also wrote the conclusion, made the table of contents, structured and reviewed the document.

2. **Evidence of collaboration / teamwork on each significant work item (eg, discussions, mutual revisions and reviews, etc.):**

**Discussion notes:**

Implementing a Kitchen Display System (KDS)

- Rafia: Suggests integrating a KDS to streamline communication between the front of house and kitchen, reducing wait times for customers and improving order accuracy.
- Corey: Points out the importance of the KDS in enhancing operational efficiency, particularly for handling peak times efficiently and reducing kitchen errors.
- Thai: Raises concerns about the ease of integration with existing systems and the training required for kitchen staff to adapt to the new technology.
- Marco: Proposes a phased implementation plan for the KDS, starting with a pilot in a limited area of the kitchen to gather feedback and make adjustments before a full rollout.

Conclusion by Team:

The team agrees on the critical need for a KDS to improve kitchen efficiency and order accuracy. They decide to move forward with Marco's phased implementation plan, incorporating Thai's suggestions for staff training and system integration. This approach allows the restaurant to gradually adapt to the new system, ensuring a smoother transition and minimal disruption to operations.

Advanced Payment Processing Solutions?

- Rafia: Suggests the need for a versatile payment system that can handle multiple forms of payment, including mobile payments and contactless cards, to accommodate customer preferences.
- Corey: Emphasizes the importance of integrating the payment system seamlessly with the existing order management system to ensure smooth transaction flows and accurate record-keeping.
- Thai: Expresses concerns about compliance with payment industry security standards and the need for regular security audits to protect customer payment information.
- Marco: Proposes partnering with a reputable payment platform provider to leverage their expertise and ensure the system is both secure and reliable.

Conclusion by Team:

The team concurs on implementing an advanced payment processing solution, incorporating Rafia's suggestion for multi-modal payment acceptance to enhance customer convenience. They agree with Corey on the importance of seamless integration for operational efficiency and decide to adopt Thai's recommendation for stringent security measures and compliance. Marco's idea of partnering with an established provider is seen as a way to ensure reliability and security, providing a solid foundation for the new system.

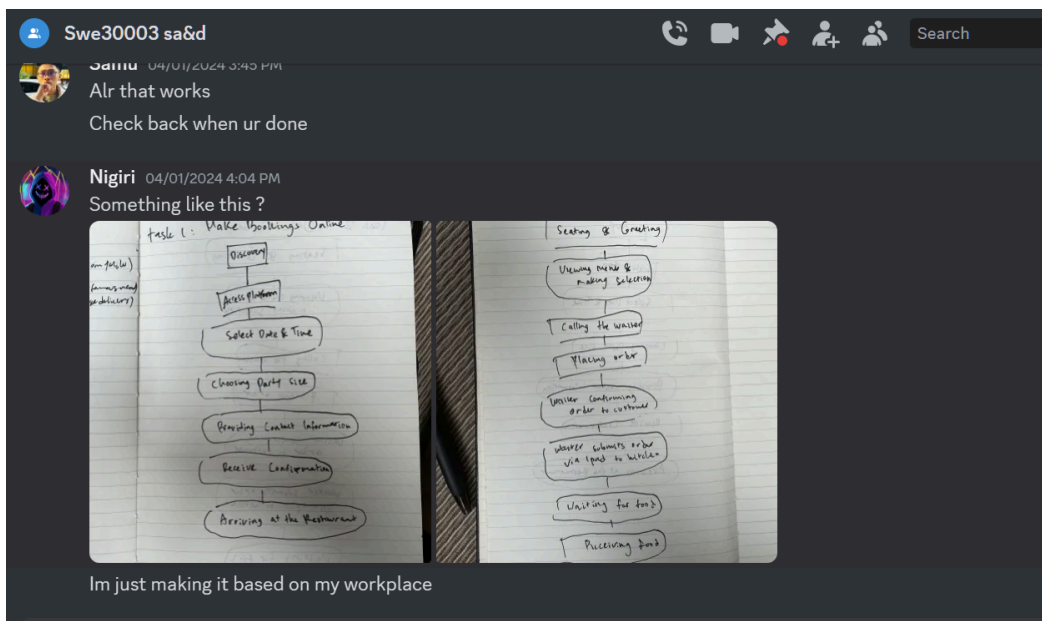
Real-Time Table Availability and Reservation System?

- Rafia: Proposes the idea of a real-time table availability feature within the online reservation system to improve customer experience by allowing patrons to choose their preferred seating in real-time.
- Corey: Stresses the operational benefits of such a system in managing restaurant capacity more effectively and reducing the likelihood of overbooking or underutilization of space.
- Thai: Raises potential technical challenges in syncing real-time data across platforms and suggests implementing a robust backend system to ensure accuracy.
- Marco: Recommends conducting a pilot test of the feature during off-peak hours to gather data and customer feedback before full implementation.

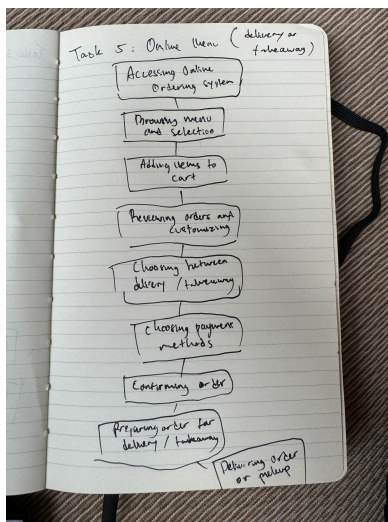
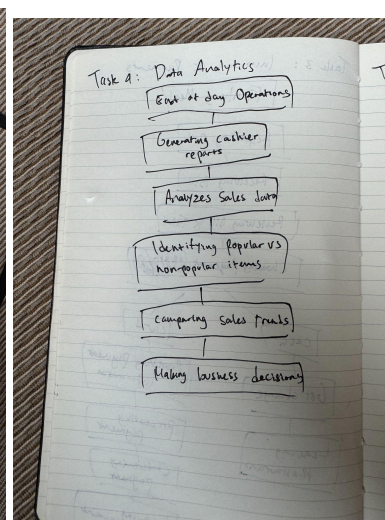
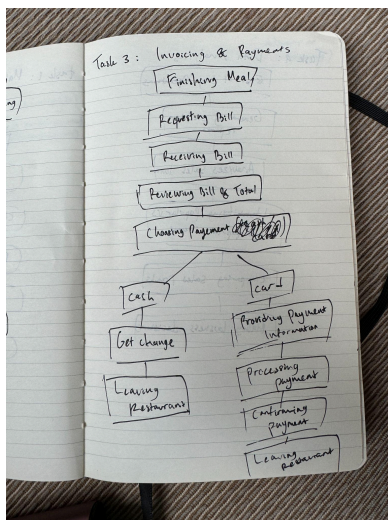
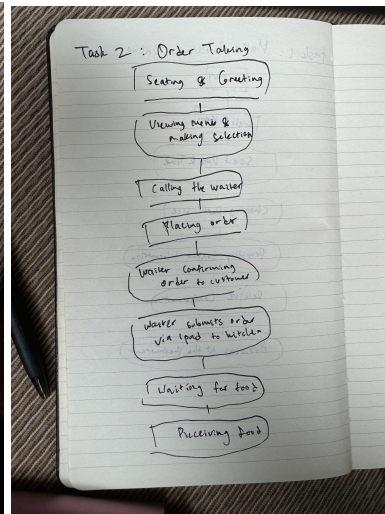
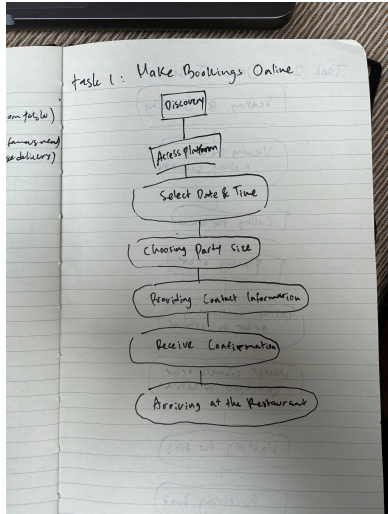
Conclusion by Team:

Agreeing on the value of enhancing the customer experience and operational efficiency, the team decides to proceed with Rafia's suggestion for a real-time table availability feature. They recognize Corey's operational insights as crucial for effective space management. Thai's concerns lead to a decision to focus on developing a reliable backend system for real-time updates, and Marco's proposal for a pilot test is adopted to ensure the system's effectiveness and gather insights for improvement.

**Screenshot of discussion from our team communication channel:**



## Brainstorming notes:



3. Signed by all members:

ID Number	Name	Signature
<u>104071453</u>	<u>Marco Giacoppo</u>	<u>MarcoG</u>
<u>103806719</u>	<u>Thai Duc Nguyen</u>	<u>duc</u>
<u>103389809</u>	<u>Corey Santarossa</u>	<u>CSantarossa</u>
<u>103177473</u>	<u>Rafia Sanjida Chowdhury</u>	<u>Rafia</u>