Project Name: Restaurant Mobile App

Business Need:
To implement a mobile application order system that improves the current system, introducing a series of services that includes making table reservation, ordering from mobile application and making payments from mobile.

Functionality:

- On the mobile application, customers should be able to
- Making table reservation
- Register table number to the system
- Browse various food categories
- Placing orders
- Receive order confirmation
- Browse through the list of ordered food
- Checkout screen for every batch of order
- Order for delivery
- Make payment for delivery

Expected Value:
Tangible:

- Increasing the annual revenue by $250,000.00
- Decrease annual labor cost by $100,000.00

Intangible:

- Direct Marketing (tailored to repeat customers)
- Customer data collection (customer preference)

Special Issues and Constraint:

- Security constraint on keeping customer information safe.
- Filter fake reservations
- Cancelation of order when preparation for a food has started
- Driver cancels order delivery

Staffing Plan

Role	Description	Staff Name
Project Manager	Oversees the entire project to ensure the project and application meets its time, budget and scope constraints	Victor Llano
System and Infrastructure Analyst	Analyze the system requirement and design the system. Ensures that the newly integrated functions behave similarly to the infrastructure of the current system.	Jack Tan
Application Developer	Develop the mobile application that meets the requirement of the restaurant.	Syed Shah

Project Charter

Project Objective: The order placing mobile application project team will design and develop a mobile application to provide customers with the convenience of ordering without having to wait for waiter/waitresses and help the restaurant to reduce front-end staffs.

The project team will

1. Have one meeting every week before the end of work at 17:00 on Friday to provide updates to the process of the project.
2. Documentation of discussions for every meeting is required
3. Any problems that surface will be required to be reported to project manager (Victor Llano) regardless of whether they have been resolved (if it has been resolved, the solution should be reported as well).
4. Team members are greatly expected to provide any help/knowledge whenever necessary to ensure the completion of project under the time, budget, and scope constraints.

Feasibility Analysis

The objective of this project is to create a brand-new application that would serve more services than the current system that the restaurant has. The project team's Application Developer and System Analyst acquired the system request from the restaurant owner and carried out a feasibility analysis on the proposed application improvement.

Operational Feasibility

- The new application will be created with no disturbance to the restaurant's operations.
- The new application will be tested in a virtual environment prior to the live implementation, mitigating the risk of operational issues.
- The new system is designed to act as a solution to the restaurant's performance decline during peak hours and long accounting hours. However, the new application is a standalone that does not link with the restaurant's current mobile delivery application; hence the normal operation of the restaurant will not be affected.

Technical Feasibility

- With the existing mobile delivery application, the back-end employees of the restaurant have sufficient familiarity with working with such a system.
- Front-end employees will however need to have basic knowledge on using the mobile application to help customers register table number.
- Due to the existing application, back-end staffs do not require any additional knowledge to operate the system. However, front-end staffs do need minor training regarding on the simple use and layout of the new system.

Economic Feasibility

Total Cost of Ownership

Resource	Details	Cost
Labor	Consulting Firm	$20,000.00
Software	Complete Mobile Application with integrated back-end system	$50,000.00
Hardware	iPad mini for front-end employees' operations (4 for use+2 backup)	$2,400.00
Training	Minor front-end employee training for the new application	$500.00
	Total:	$72,900.00

Considering that the restaurant currently has an existing mobile application solely for delivery, the restaurant employees has sufficient knowledge on how to use the new system as it will also be iOS-based application that are to be integrated in Apple Devices. The majority of the cost will go into developing a mobile application system that would meet the system requirement of the restaurant. In addition, the new application will also be implemented and used for in-house operations, thus iPad minis are required for front-end employees to operate. Front-end employees are also expected to attend minor training to operate the new application system.

Total Benefit of Ownership

Resource	Details	Benefit
Revenue	Increase in annual revenue from increased turnover	$250,000.00
Labor	Reduction of annual labor cost	$100,000.00
Intangible	Annual savings from direct marketing	$10,000.00
	Total:	$360,000

The Total Benefit of Ownership is calculated by the estimation provided from the restaurant. Comparing the Total Cost of Ownership, which would only be a one-time investment, and Total Benefit of Ownership, which is estimation of annual return, it can be concluded that the economic aspect of the project is highly feasible

Schedule Feasibility

- Time frame of the complete project is estimated to take 16 weeks.
- Time frame of implementation is estimated to take 2 weeks.
- Factors that affect time frame for application development are accounted for.
- The current estimation of the project from planning to implementation is about 18 business weeks, 8 weeks earlier than the restaurant's expectation of 26 weeks, with majority of the time taken during application development phase.

Project Management for Restaurant Mobile App

Project Phases	Deliverables	Estimated Days	Actual days	Staffs
Planning				Project
System Request	System Request	1		Manager
Feasibility Analysis	Feasibility Report	1		
Risk Assessment	Risk Assessment Report	1		
Milestone	----------			----------
Analysis				Project
Details gathering for functions required	Structure Models	5		Manager and System
Details gathering for different screens	Behavior Models	5		Analysts
Application concept development	Structure and Behavior Models	3		
Milestone	----------			----------
Design				Project
System Architecture	System Architecture	9		Manager
Infrastructure	System Infrastructure	10		and System
User Interface	Navigation diagram	10		Analyst
	Interface Design	10		

Milestone				----------
Implementation				Project
Construction	Test Plan	2		Manager,
	Documentation	3		Project
	Complete Application	10		Analyst
				Application
Implementation	Implementation Plan	1		Developer
	Training Plan	1		
	Implementation of Application	8		
Milestone	----------			----------

Risk Assessment Report

1. Personnel Skill

Due to the customization of mobile applications that are to be modified to suits each restaurants' need, the application developer (Syed Shah) may not be able to fully utilize past experience for this application's development.

Risk Level: Moderately-Low

Potential Impact: Greatly increasing the time required to complete the application development.

Issue Address: Prior to the start of the development/coding, System Analyst and Project Manager should gather as much details for system requirement as possible from the restaurant to ensure that the application developer understand what skills are required to complete the development. If any addition knowledge is required, developer should address the issue to project manager immediately in order to provide additional development training or bring in additional developers.

2. Design compromise

Rushing the design phase of the project thus causing multiple problems in the implementation phase.

Risk Level: Low

Potential Impact: Complete rehaul of the mobile application in the implementation phase.

Issue Address: Sufficient time should have been assigned to the design phase of the project, if more time is required, Project Analyst should report to Project Manager either to address more time or bring in help from other project analysts.

3. Modification requirement

The restaurant may want to increase or reduce the functionality of the mobile application, thus requiring the project team to recalculate the details of the project or causing a scope creep.

Risk Level: Moderate

Potential Impact: Completely scrapping any work previously completed or having the application do what is not supposed to be in the original objective of the project.

Issue Address: Once the planning, analysis and design phases are completed, NO further modifications/requests are allowed until AFTER the completion of the development to ensure the mitigation of error in the development phase.

4. Insufficient Budget

The projected budget is calculated based on the high-end of an average mobile application design, and the final implementation may require higher budget than intended.

Risk Level: Moderately-Low

Potential Impact: Resulting in a weaker application or even failure of application development

Issue Address: Once the design phase has been completed, project team is to recalculate the budget and project a higher-than normal budget for some lee-way.

Analysis

Fact Finding

Interview Questionnaire

-What are the most common problems you have experience with traditional ordering system?

1. Low turnover rate and performance decline at peak hours
2. Mobile order application and in-restaurant transactions are not integrated, increasing the time for accounting calculation.
3. Inability to answer incoming customer phone calls for reservation or inquiries during peak hours

-Why do you think these problems are occurring?

1. Availability of part-time staffs are inconsistent
2. No single system that integrates the restaurant's operations

<u>Mobile application data gathering</u>

-What do you expect the application to do?

1. Easy to understand and use
2. Taking orders
3. Security
4. Calculating the total revenue on a daily basis and have it correctly reflected in the new back-end system.

-Interest in specific technologies

1. Apple Devices
2. Data collection for tailored marketing

-What do you expect to achieve with this application?

1. Reduce the staffing requirement during peak hours, front-end employees can prioritize on providing better customer services, and improve customer turnover rate.

Interview Report

Details of the interview:

Person interviewed: Cassie Tan
Interviewer: Project Team
Date: April 6, 2019

Primary Purpose:

- Gather information about overall business processes, business problems, reasons behind them, basic information about requirement in mobile application, and the purpose of the project.

Summary:

- Inconsistency in temporary employees.
- Performance decline during peak hours.

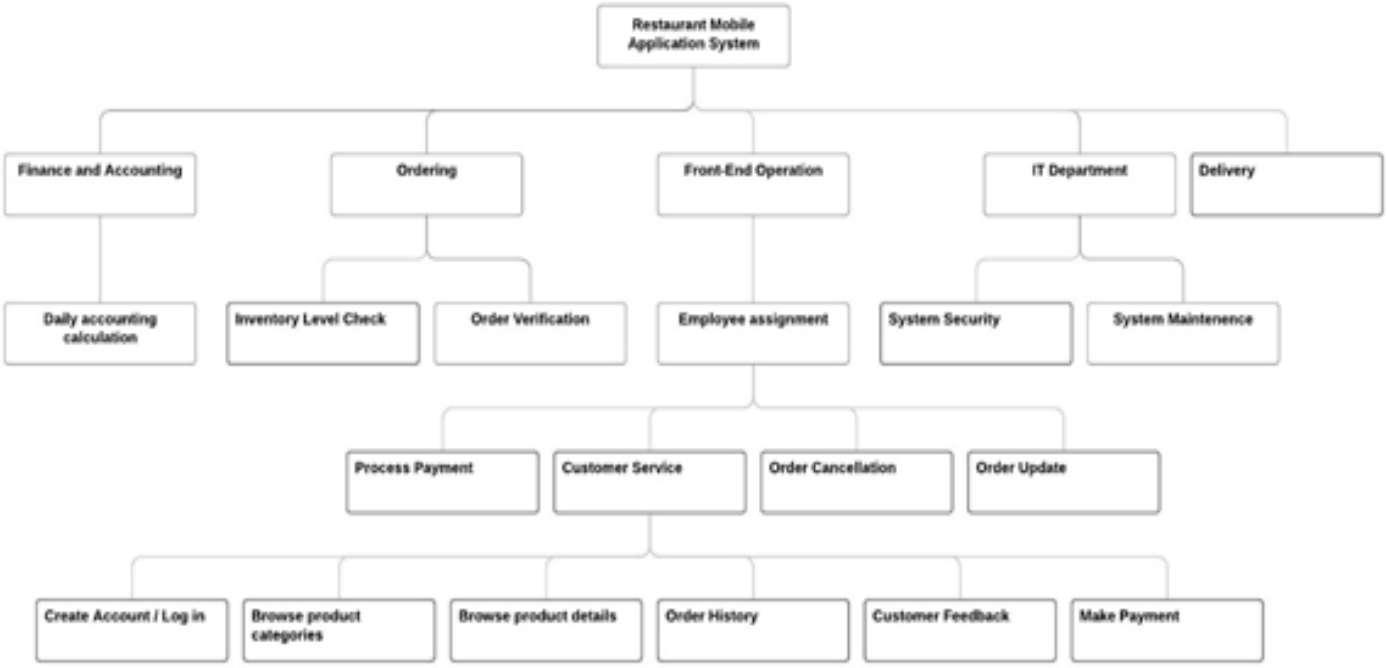
Specific technology requirement:

- Hardware: Apple iPad, Apple Mac Computer
- Software: Apple XCode developer.

Additional Notes:

The design of this mobile application focuses on the basics of any order taking system, from order placement to requesting check at the end of the meal. The application should be designed with an open-end to allow easier future modifications after acquiring customers' feedbacks. The owner is not requesting for the new application to link with the legacy system, but to stand independent from it; hence the development of the application do not need to worry about having to link the new system and the legacy system.

Functional Decomposition Diagram



System Requirement Checklist

Output:

- The system must send payment receipt to the customer
- The system must generate a daily sales report
- The system must provide correct product information
- The system must provide reservation confirmation and details

Input:

- Customer must register an account to use the application
- Customer name
- Customer email address
- Customer password
- Customer payment details
- Customer must select product to place in cart
- Customer must enter correct reservation details
- Date, time and number of people
- Admin must enter correct product information

Process:

- Cart details must be updated when customer adds a product
- List of ordered must be updated when a customer completes an order
- System must generate reservation confirmation and details when customer completes a reservation
- System must generate payment confirmation when customer completes a payment

Performance:

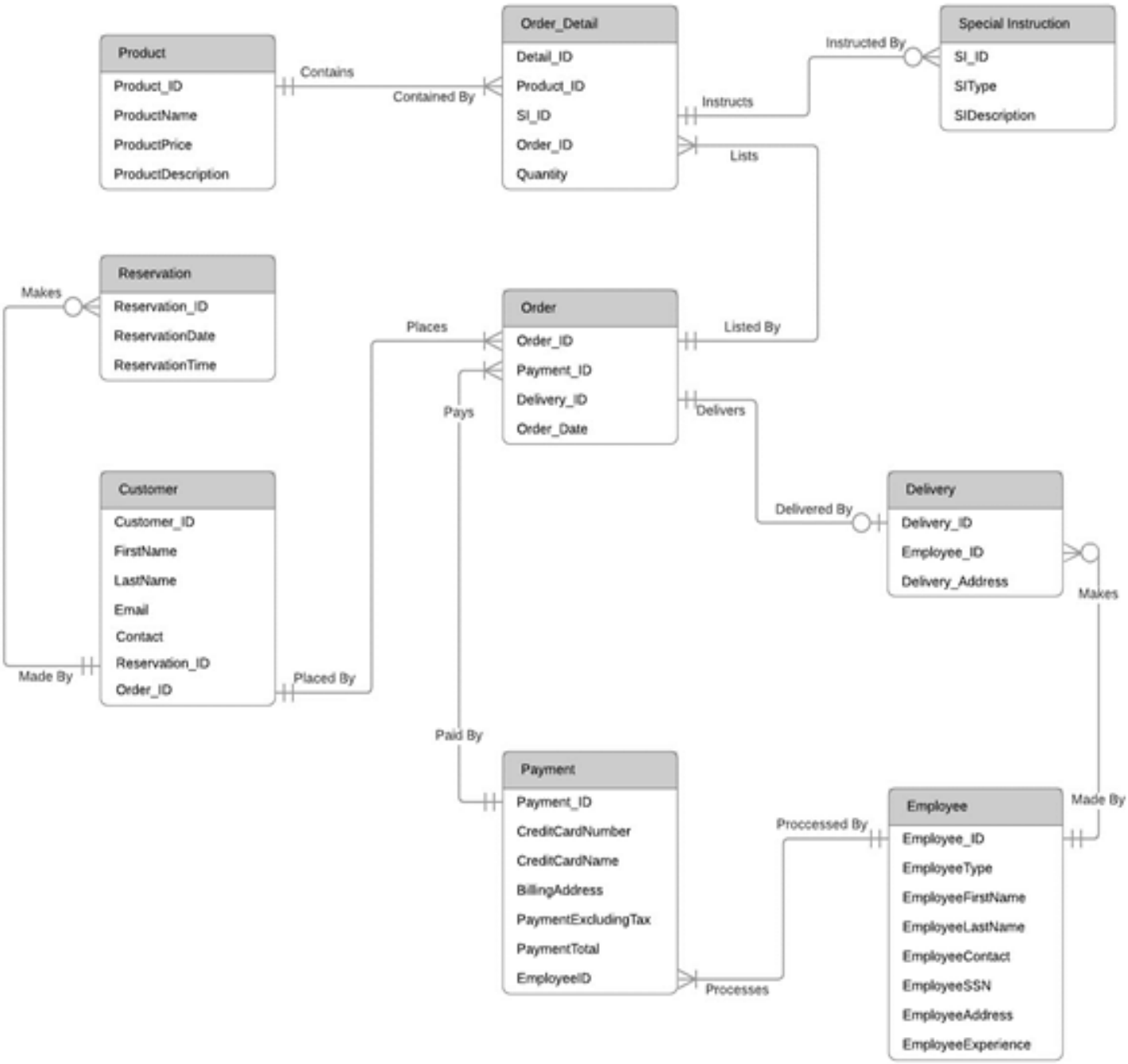
- The system must generate reservation confirmation and details within 10 seconds
- The system must process and generate payment confirmation within 30 seconds
- The system must be operational using the seven 9's standard

Control:

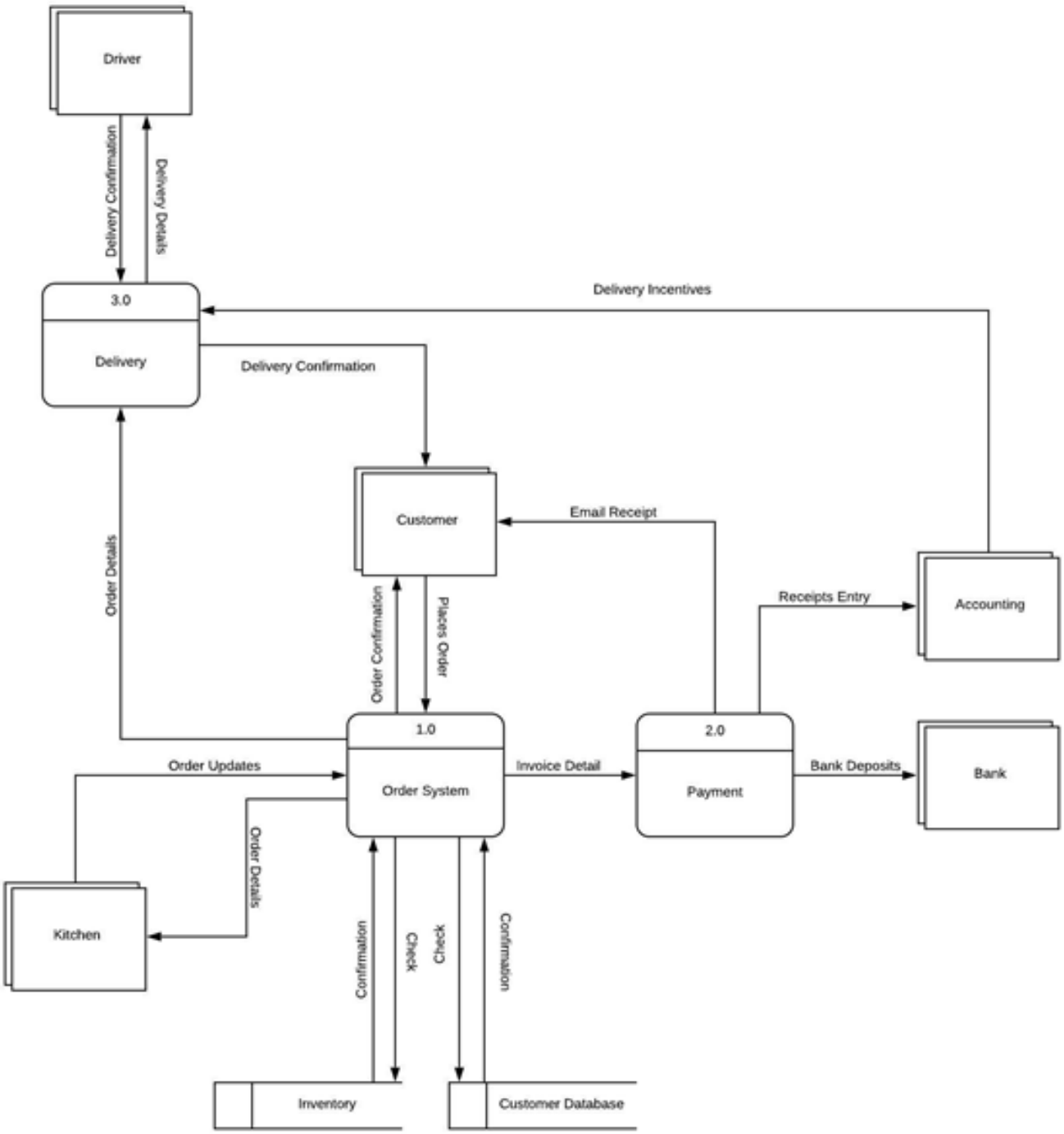
- The application must only allow customer log in only with the exact correct credentials
- The system must have separate authorized level for admin and employees
- The highest level of authorization must only be provided to designated admin
- All transactions must be logged
- All changes made to the system must be logged

Design

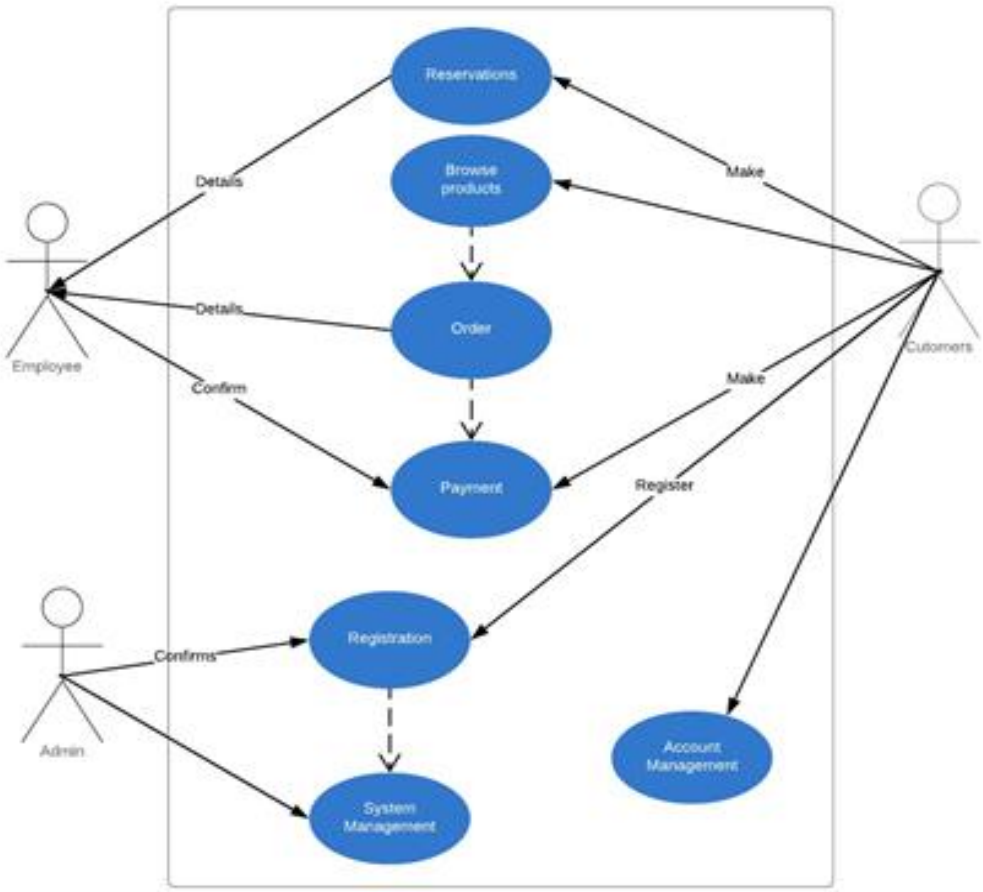
Entity Relationship Diagram



Data Flow Diagram



Mobile Application Use Case Diagram



Use Case Description

Use Case Name: Reservations	ID:1
Primary Actor: Customers	
Description: The customers are to navigate the application menu make table reservations	
Trigger: Customer navigates to reservation screen	
Basic flow of events: 1. The customer chooses the schedule and number of people 2. The customer executes Make Reservation 3. The customer logs in to complete reservation 4. The application provides confirmation to the customer 5. The application provides reservation details to the customer 6. The employee will take note of the reservation confirmation and details	
Alternate Flow 1:	
Alternate Flow 2:	

Use Case Name: Browse product	ID:2
Actor: Customer	
Description: Customer browse through the product offered by the restaurant	
Trigger: The customer navigates to the product screen	
Basic flow of events: 1. The customer chooses the category of food 2. The customer clicks into a product to acquire the detail 3. The system provides a thorough details including diet and allergy warning to the customer	
Alternate Flow 1:	
Alternate Flow 2:	

Use Case Name: Order	ID:3
Actor: Customers	
Description: The customer places an order in the application	
Trigger: Customer puts a product in cart and execute Order	
Basic flow of events: 1. The customer adds food products in the cart 2. The customer executes Order button 3. The application provides a review of order 4. The customer confirms the order and execute second level Order 5. The application provides confirmation to the customer 6. The system provides order details to employees	
Alternate Flow 1:	
Alternate Flow 2:	

Use Case Name: Payment	ID:4
Primary Actor: Customers	
Description: The customer makes a payment	
Trigger: The customer executes Make Payment	
Basic flow of events: 1. The customer navigates to check out screen 2. The application provides the list of ordered food 3. The customer confirms the list is correct 4. The customer executes Payment 5. The application request final payment details 6. The system process payment 7. The system confirms payment 8. The system emails a receipt to the customer 9. The application confirms payment 10. The system provides payment details to employee	
Alternate Flow 1: 1. The customer discover list is incorrect 2. The customer notifies employees 3. Employees recheck the system 4. Employees make necessary changes	
Alternate Flow 2: 1. System fails to process payment 2. The application notifies customer 3. Customer provide alternative payment method	

Use Case Name: Registration	ID:5
Primary Actor: Customer	
Description: New customer register as a customer in the application system	
Trigger: Customer navigates to the sign-up screen	
Basic flow of events: 1. Customer enter details required by the application 2. Customer executes Register 3. Application registers the customer 4. System records the information 5. System provide information to admin 6. Admin confirms and logs the customer information	
Alternate Flow 1:	
Alternate Flow 2:	

Use Case Name: System Management	ID:6
Actor: Admin	
Description: Admin manages the system, including authorization.	
Trigger: Admin logs in to the system	
Basic flow of events: 1. Admin enter credentials 2. Admin logs in to the system 3. The system logs the admin 4. Admin browses through the system 5. Admin make necessary changes to the system 6. Admin save the changes 7. The system logs the changes 8. The admin logs out 9. The system logs the session	
Alternate Flow 1:	
Alternate Flow 2:	

Use Case Name: Account management	ID:7
Actor: Customer	
Description: The customer makes changes to his/her account	
Trigger: The customer navigates to the account settings page	
Basic flow of events: 1. The customer logs in to the application 2. The system logs the customer 3. The customer browse through the page 4. The customer makes necessary changes 5. The customer saves the changes 6. The system logs the changes 7. The customer logs out	
Alternate Flow 1:	
Alternate Flow 2:	