FPT ACADEMY INTERNATIONAL

FPT APTECH COMPUTER EDUCATION

Centre Name: ACE-HCMC-2-FPT

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NOURISH

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Batch	T1.2311.M0	
Group	1	
Serial No.	**Enrollment Number**	**Student Name**
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Acknowledge

We would like to express our heartfelt gratitude to everyone who supported and guided us throughout the completion of this project.

First, we sincerely thank **Aptech India** and **FPT Aptech** for providing us with a strong platform to learn, grow, and apply our skills in a practical setting. Their constant encouragement and access to resources have been a cornerstone of our journey.

We are deeply grateful to our supervisor Mr. Tran Phuoc Sinh, whose patience, wisdom, and constructive feedback have been invaluable. His guidance not only helped us overcome obstacles but also inspired us to strive for excellence while staying grounded.

We also want to acknowledge the efforts and dedication of our team members, whose hard work, collaboration, and mutual support made this project possible. Each member brought unique strengths that contributed to the success of this application.

Furthermore, we extend our gratitude to the stakeholders and users who provided invaluable insights and feedback during development. Their real-world perspectives enabled us to create a solution that genuinely meets the needs of its intended audience.

Above all, we are thankful for the opportunity to learn and grow through this project. It is our sincere hope that this application serves its purpose well and continues to be a step forward in improving player connection

management.

This project is a result of collective efforts, and we remain committed to using this experience as a foundation for future growth and contribution.

Sincerely,

Team 1

Introduction

The inspiration for **Nourish** emerged from the frustrations of having a balanced diet while maintaining a job in this day and age where we increasingly get busier. Workers spend half their day at work, the other half thinking of it. It's easy to grab a bite at any convenience stores and fast food restaurants alike, but overtime it proves to be very costly. While those food can sustain a person, it does not nourish their health - and that is where the idea of our name came from.

Recognizing this prevalent issue in the job industry especially amongst labour intensive jobs, we envisioned a program that takes care of workers' worries. At Nourish, we offer users a healthy planned selection of meals that they can browse for. Our own staffs deliver the ordered meals to users, ensuring quality and reliability. With just a few taps, we're transforming high quality groceries into nourishment with our in house kitchen.

REVIEW 1

1.1 Problem Definitions

The current state of the online food ordering market is experiencing rapid growth but is also accompanied by several challenges in management, operation, and user experience. These challenges include inefficient ordering/delivery processes, difficulties in managing multi-dimensional information (dishes, orders, customers, drivers), and a lack of specialized tools for managing the delivery fleet. The proposed **Online Food Ordering Shop System** is designed to address these issues and comprehensively enhance the overall business/shopping experience.

The **Online Food Ordering Shop System** aims to provide a user-friendly platform that allows customers to easily browse, order food, and track their deliveries; simultaneously, it helps administrators effectively manage all business activities, from menus to delivery operations. With a dedicated application for the Delivery Staff (Shippers), the system will also optimize the process of receiving and completing orders, ensuring timeliness and accuracy.

After analyzing the requirements of the online food business project, and to properly fulfill customer needs, we conclude that in order to achieve the best result, we should deal with the following queries:

FROM THE VIEW POINT OF THE CUSTOMERS

Online food customers often encounter issues such as: difficulty finding their desired meals, lack of detailed product information (ingredients, reviews), and potentially complicated ordering/payment processes. Crucially, the absence of real-time order tracking can lead to distrust and inconvenience.

The Online Food Ordering Shop System will address these issues by providing a user-friendly Mobile App that allows customers to:

- Easily browse and search the menu with detailed information and clear images.
- Perform fast ordering and payment (including multiple payment methods).
- Track the order status and the Shipper's location in real-time.

This will simplify the shopping process, enhance transparency, and improve the customer's overall food ordering experience.

FROM THE VIEW POINT OF THE ADMINISTRATOR/SHOP OWNER

The shop owner or administrator faces the challenge of simultaneously managing multiple aspects: updating the menu, processing orders, tracking revenue, and supervising the delivery team. Relying on manual methods or disparate systems often leads to errors, wasted time, and difficulty in making timely business decisions.

The Online Food Ordering Shop System will provide a centralized Web Admin interface, helping managers to:

- Manage the entire menu, including prices, stock status, and promotions.
- Efficiently monitor and process all orders from reception to completion.
- Manage the information of customers and registered Shippers in the system.
- Access revenue reports and order statistics for business analysis.

This system will help automate processes, minimize errors, and provide a comprehensive overview, ensuring the shop operates smoothly and professionally.

FROM THE VIEW POINT OF THE SHIPPER

Delivery drivers (Shippers) often face difficulties in efficiently receiving orders, optimizing delivery routes, and communicating with the shop/customers. They need a simple tool to manage pending and in-transit orders, and to track their earnings.

The Online Food Ordering Shop System will equip Shippers with a dedicated Mobile App to:

- Receive instant notifications for new orders and quickly confirm acceptance.
- View detailed order information, delivery addresses, and support for route optimization.

- Update delivery status in real-time (picked up, delivering, delivered) for both the Customer and the Administrator.
- Manage delivery history and track earnings.

This enables Shippers to work more efficiently, reduce downtime, and ensure food is delivered to customers as quickly as possible.

1.1.1 Current State Of The Problem, And Solution

Current Problems:

The online food ordering market is experiencing rapid growth, but many businesses still struggle with fragmented, inefficient, and outdated processes. Customers often face difficulties such as limited menu information, slow ordering experiences, and the inability to track their orders in real-time. Without transparency or timely updates, customers may lose trust and feel uncertain during the ordering process.

From the business perspective, shop owners frequently rely on manual or semi-manual systems to manage menus, orders, customer information, and delivery operations. These disjointed methods lead to errors, slow processing times, and challenges in making strategic decisions. Administrators also lack tools for centralized monitoring or automated workflow management, making it harder to maintain smooth operations and provide high-quality service.

Delivery staff (Shippers) face their own set of issues: difficulty receiving orders efficiently, lack of optimized routes, inconsistent communication with both customers and the shop, and no convenient system for tracking their income. These limitations result in delayed deliveries, low productivity, and an overall decrease in service quality.

Altogether, the absence of a unified digital solution for customers, administrators, and shippers contributes to inefficiencies, reduced satisfaction, and unnecessary

operational complexity. A comprehensive and modernized system is needed to bridge these gaps and enhance the entire online food ordering ecosystem.

Proposed Solution:

Nourish unifies the entire food ordering workflow:

- Customers browse menus, add items to cart, apply vouchers, and track orders in real time.
- Merchants manage products, categories, shippers, and promotions through a powerful React Web Dashboard.
- Shippers use a mobile app to receive delivery assignments and update statuses (Ready → On-route → Delivered).
- Admins manage system-wide data, analytics, and user permissions.

With integrated JWT authentication, secure payments, order processing APIs, and seamless mobile + web interfaces, Nourish minimizes friction for all stakeholders.

1.1.2 Customer's Requirements Specifications (CRS)

R1. Visitor Section (Guest Users)

R1.1: Visitors shall be able to register or log in using email/password or OAuth2 (Google/Facebook).

R1.2: Visitors shall be able to browse the list of available dishes, restaurants/shops, or categories.

R1.3: Visitors shall have access to a basic search bar on the homepage to quickly find dishes or shops.

R1.4: Visitors shall be able to perform advanced searches with filters such as price range, ratings, dish category, or availability.

R1.5: The homepage shall display featured products or promotions with clear images.

R1.6: Visitors shall be able to access static information pages such as FAQ, About Us, or News.

R1.7: Visitors shall be able to send inquiries via a contact form with email notifications sent to the administrator.

R2. Customer Section (Registered Users)

R2.1: Customers shall have access to a personal profile page showing order history and account details.

R2.2: Customers shall be able to view and rate dishes or shops they have ordered from.

R2.3: Customers shall be able to place, manage, or cancel food orders within allowed time conditions.

R2.4: Customers shall be able to update account details such as name, phone number, delivery address, and avatar.

R2.5: Customers shall be able to pay for their orders using various payment methods (Cash, e-wallets, or online banking).

R2.6: Customers shall be able to track their order status in real-time.

R2.7: Customers shall be able to receive notifications about order confirmation, shipping updates, or promotions.

R2.8: Customers shall be able to save multiple delivery addresses for quick checkout.

R3. Shipper Section (Delivery Staff App)

R3.1: Shippers shall be able to register and undergo account verification before starting work.

R3.2: Shippers shall receive instant notifications for new delivery requests.

R3.3: Shippers shall be able to accept or reject incoming delivery tasks.

R3.4: Shippers shall be able to view detailed order information and optimized delivery routes.

R3.5: Shippers shall be able to update delivery status (Picked Up → Delivering → Delivered) in real-time.

R3.6: Shippers shall be able to track their completed delivery history and earned income.

R4. Administrator/Shop Owner Section (Web Admin Panel)

- **R4.1:** Administrators shall be able to manage all users (customers and shippers), including adding, editing, deleting, or verifying accounts.
- **R4.2:** Administrators shall manage the menu, including dish names, prices, stock availability, ingredients, and images.

- **R4.3:** Administrators shall be able to process and monitor all food orders from placement to completion.
- **R4.4:** Administrators shall be able to manage registered Shippers, assign delivery tasks, and track delivery progress.
- **R4.5:** Administrators shall have access to extensive reports and analytics (revenue, order volume, customer activity).
- **R4.6:** Administrators shall be able to manage promotions, discount codes, and featured dishes.
- **R4.7:** Administrators shall moderate customer reviews and handle feedback or complaints.

1.2 The Requirements Of The Project

1.2.1 Functional Requirements

- **User Authentication**:
    - Support login and signup using email/password.
    - Support OAuth2 login via Google or Facebook.
    - OTP verification for secure registration.
- **Menu Browsing & Food Ordering**:
    - Customers can search, view, and filter dishes based on category, price, or rating.
    - Customers can add items to the cart and place orders.
    - Customers can reorder previous meals.
- **Order Processing**:
    - Real-time order status updates (Received → Preparing → Ready → Delivering → Delivered).
    - Customers can cancel orders within allowed time.
    - Admin can approve/reject/cancel orders.

- Shippers can accept delivery tasks and update statuses via the mobile app.

- **Delivery Management**:
  - Shippers receive push notifications for new delivery requests.
  - Shippers view customer address, restaurant location, and route suggestions.
  - Real-time GPS tracking for both customers and administrators.
- **Payment Processing**:
  - Support multiple payment methods: Cash on Delivery, e-wallets, credit/debit cards.
  - Secure online payments using integrated payment gateways.
- **Notifications**:
  - In-app and push notifications for order confirmation, shipping updates, and promotions.
  - Email notifications for order receipts, password resets, and support messages.
- **Admin / Shop Owner Management**:
  - Manage menus (add/edit/delete dishes, prices, stock, promotions).
  - Manage orders and delivery assignments.
  - Manage customers and shippers (verify, disable, statistics).
  - Generate revenue reports and daily/weekly/monthly analytics.
- **Reviews & Ratings:**
  - Customers can rate dishes and leave feedback.
  - Admin can moderate reviews.
- **Static Content Management:** Manage FAQ, About Us, News, and policy pages.

1.2.2 Non-Functional Requirements

- **Scalability**: Support a growing number of customers, orders, and shippers without performance loss.
- **Security**:
  - Encrypt sensitive information (passwords, payment details).
  - Secure API communication via HTTPS/TLS.
  - Role-based access control (Customer, Shipper, Admin).
- **Reliability**:
  - The system should maintain 99.9% uptime.
  - Automatic recovery from server failures.
- **Usability**:
  - Intuitive UI/UX for mobile apps (Customer & Shipper) and Web Admin.
  - Clear navigation with multilingual support if needed.
- **Performance**:
  - Response time under 2 seconds for core operations (search, ordering).
  - Real-time updates delivered within 1 second through WebSocket or Firebase.

1.2.3 Technical Requirements

- **Backend:** Spring Boot (REST API)
- **Frontend Web:** React.js
- **Mobile App:** React Native
- **Database:** SQL Server
- **Authentication:** JWT + Social Logins
- **Notifications:** Email/SMS push
- **Hosting:** Cloud-based (AWS/Azure)
- **CI/CD:** GitHub Actions

1.2.4 Stakeholder Requirements

- **Customers:**
  - Easy browsing and ordering experience.
  - Transparent pricing and delivery tracking.
  - Secure and diverse payment options.
  - Fast support and order notifications.
- **Shippers:**
  - Simple interface to view assigned orders.
  - Accurate address and route information.
  - Clear income and delivery history.
- **Administrators / Shop Owners:**
  - Tools for managing dishes, orders, users, and shippers.
  - Comprehensive reporting and analytics.
  - Ability to update promotions and featured items.

1.2.5 Data Processing Processes

1. Data Collection

- User data (profile, address, contact).
- Menu information (ingredients, images, prices).
- Order details (items, quantity, location).
- Shipper activity and delivery updates.
- System logs for monitoring and debugging.

2. Data Validation

- Validate email format, phone number, and delivery address.
- Prevent invalid orders (out-of-stock items).

- Prevent duplicate or overlapping delivery assignments.
- Validate payment amounts before processing.

3. Data Storage

All structured data stored in SQL Server:

- Users, orders, menus, payments, delivery assignments.

Images and receipts stored in cloud storage.

Automatic daily backup.

4. Data Retrieval

- Search dishes by name, category, or price.
- Retrieve order history and delivery routes.
- Admin queries for revenue and analytics.

5. Data Processing & Analysis

- Order analytics (daily revenue, top-selling dishes).
- Estimated delivery time calculation.
- Stock level monitoring.
- Customer behavior analysis (favorite dishes).

6. Data Security & Privacy

- AES-256 encryption for sensitive fields.
- Password hashing (BCrypt).
- Access control based on user roles.
- GDPR-compliant data storage and deletion procedures.

7. Data Output

- Push notifications and email messages.
- Order receipts and payment confirmations.

- Admin dashboards with charts/reports.
- Delivery tracking UI for customers.

1.2.6 Algorithms

- Search & filter algorithms
- Order calculation logic
- Delivery routing logic (basic version)
- Discount validation
- Notification scheduling
- Error handling / validation algorithms

1.2.7 Hardware / Software Requirements

1. HARDWARE

- Webserver

Processor	Intel Core I7 or higher.
Memory	32 GB RAM or greater.
Modem/ADSL	Internet access is required.

- Client

Processor	Intel Core I5 or higher.
Memory	8 GB RAM or greater.
Monitor	Super VGA (1024x768) or higher resolution.
Modem/ADSL	Internet access is required.

2. SOFTWARE

- Webserver

Operating System	Window 7 or later.
Browser	Google Chrome version 35.

Database	SQL SERVER
Software	Internet Information Service
	● INTELLIJ IDEA ● REACT ● MICROSOFT SQL SERVER MANAGEMENT STUDIO ● GOOGLE CHROME ● GIT ● ANDROID STUDIO ● ChatGPT

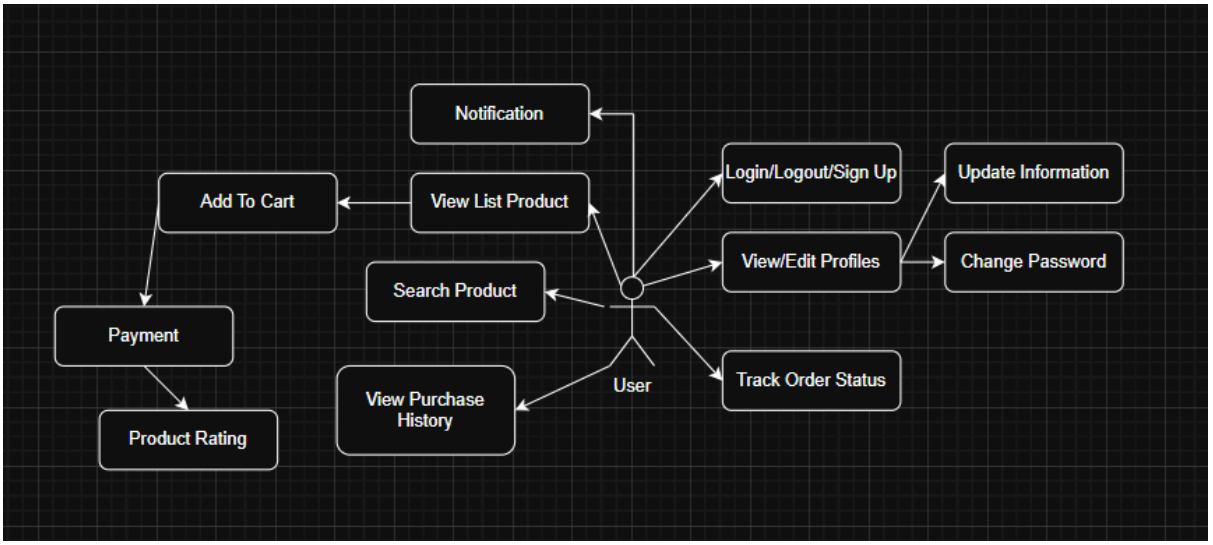
3. TECHNOLOGY

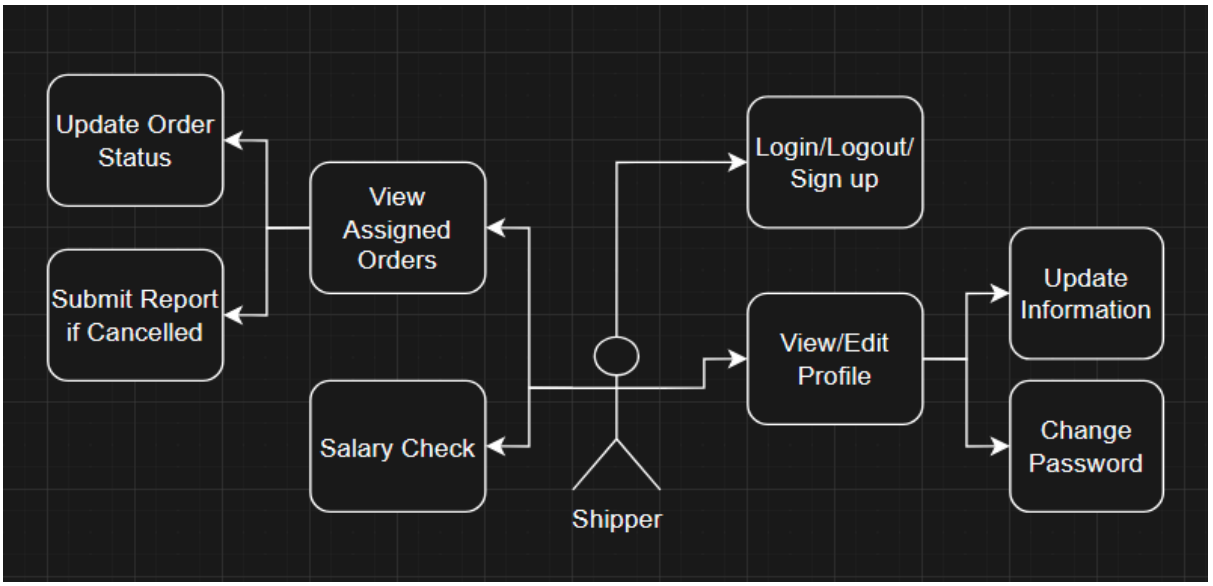
Language	**Framework**
● Javascript. ● Typescript ● JSX ● HTML ● CSS/SASS ● Tailwind CSS	Nextjs
● Dart	Flutter
● Java	Spring Boot
● Python	

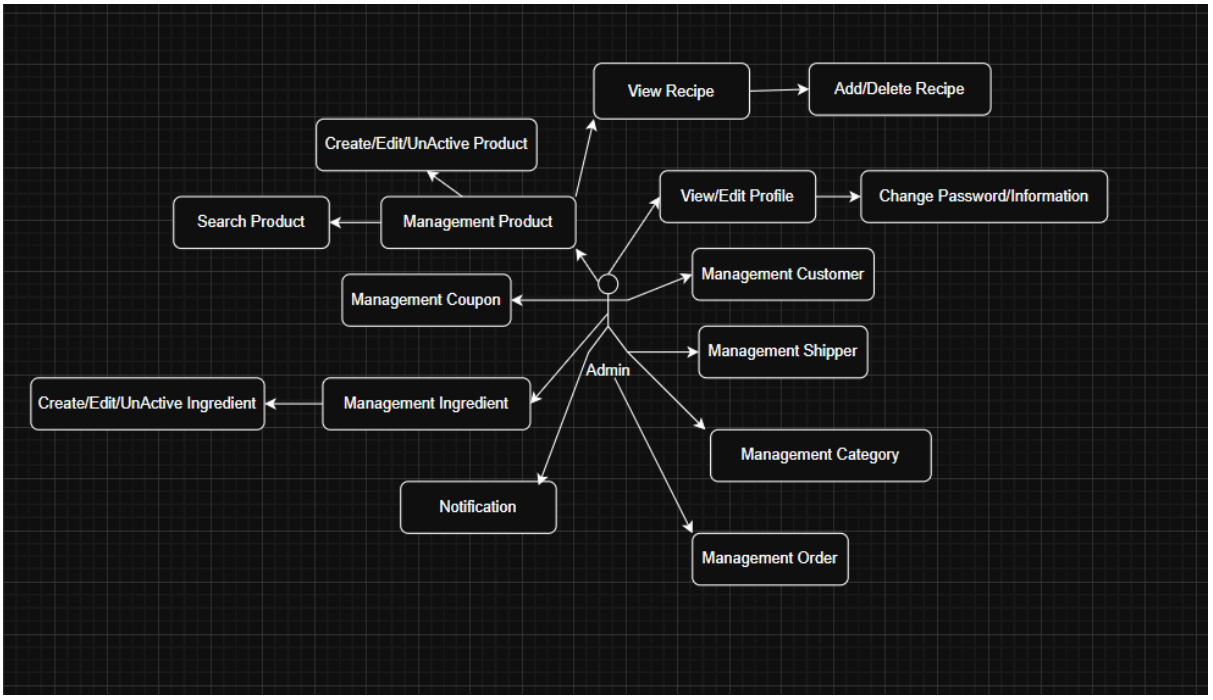
1.2.8 Limits Of The Project

- Real-time GPS tracking may depend on device accuracy.
- Advanced AI recommendations not included in first release.
- No offline functionality.
- Payment processing relies on third-party services.

1.3 General Use Case







1.4 Task Sheet Review 1

Project Ref.No		Project Title	Activity plan prepared by	Date of preparation of Activity plan			
#	Task			Start date	End date	Actual days	Member's name
1	Acknowledgement	Nourish	Trương Võ Hữu Huân	2025-11- 17	2025-11- 26	2	Phan Vũ Anh Khoa
2	Introduction			2025-11- 17	2025-11- 26	2	Phan Vũ Anh Khoa
3	Problem definition			2025-11- 17	2025-11- 26	2	Phan Vũ Anh Khoa
4	Customer's Requirements Specifications			2025-11- 17	2025-11- 26	2	Trương Võ Hữu Huân
5	Current state of the problem, and solution			2025-11- 17	2025-11- 26	2	Trương Võ Hữu Huân
6	The requirements of the project			2025-11- 17	2025-11- 26	2	Trương Võ Hữu Huân
7	Non-functional requirement			2025-11- 17	2025-11- 26	2	Trần Quế Nghi
8	Data processing processes			2025-11- 17	2025-11- 26	2	Trần Quế Nghi
10	Hardware/software requirement			2025-11- 17	2025-11- 26	2	Trần Quế Nghi

11	Limits of the project			2025-11- 17	2025-11- 26	2	Phan Vũ Anh Khoa
12	General use case			2025-11- 17	2025-11- 26	2	Trần Quế Nghi
13	Task Sheet review 1			2025-11- 17	2025-11- 26	2	Phan Vũ Anh Khoa

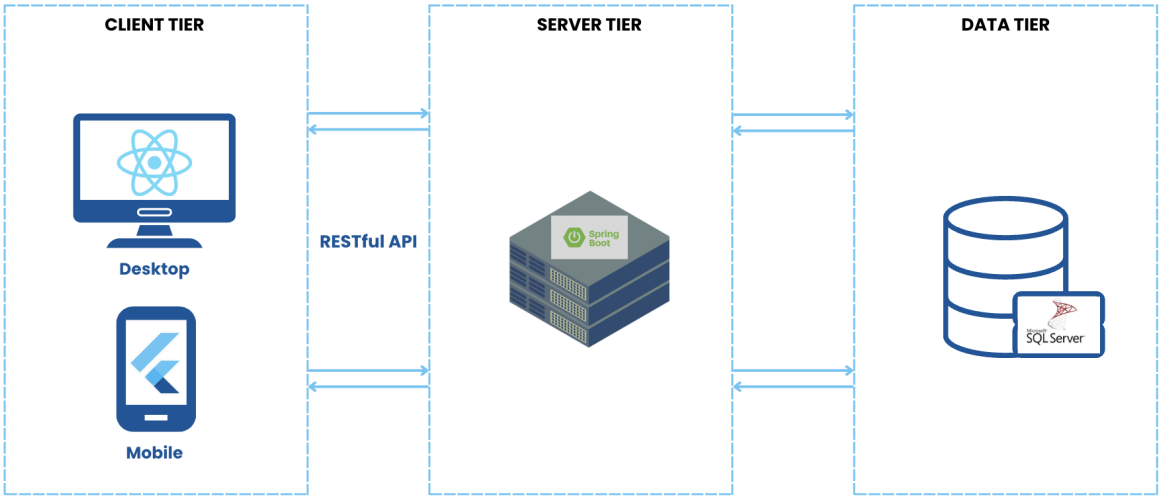
Signature of instructor	Signature of Team Leader
Mr. Trần Phước Sinh	**Mr. Nguyễn Trang Thanh Vũ**

End Of Design Documents

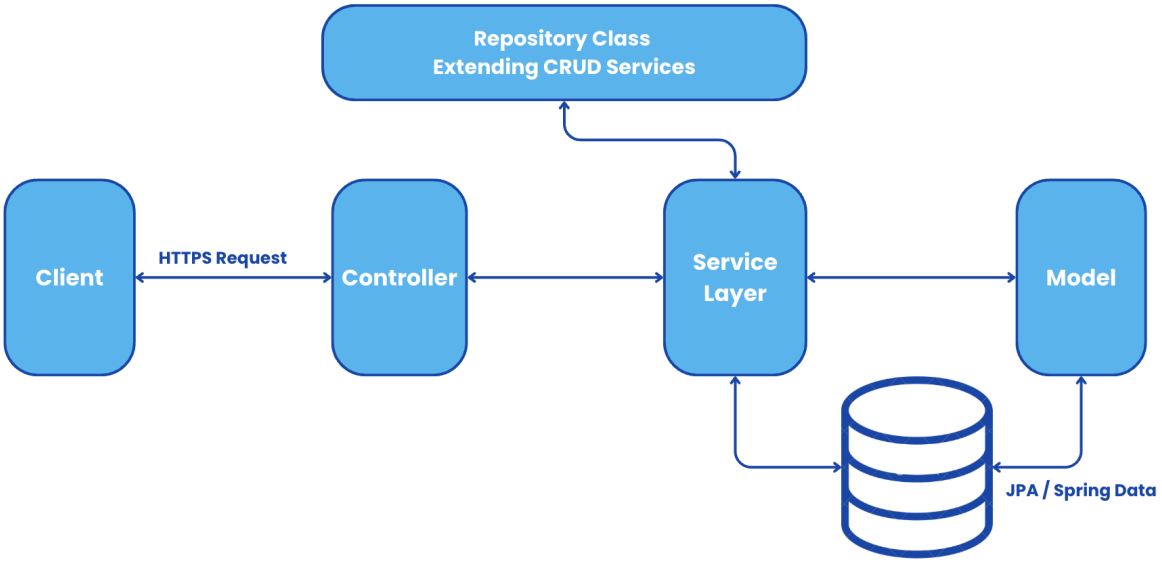
REVIEW 2

Architecture and Design

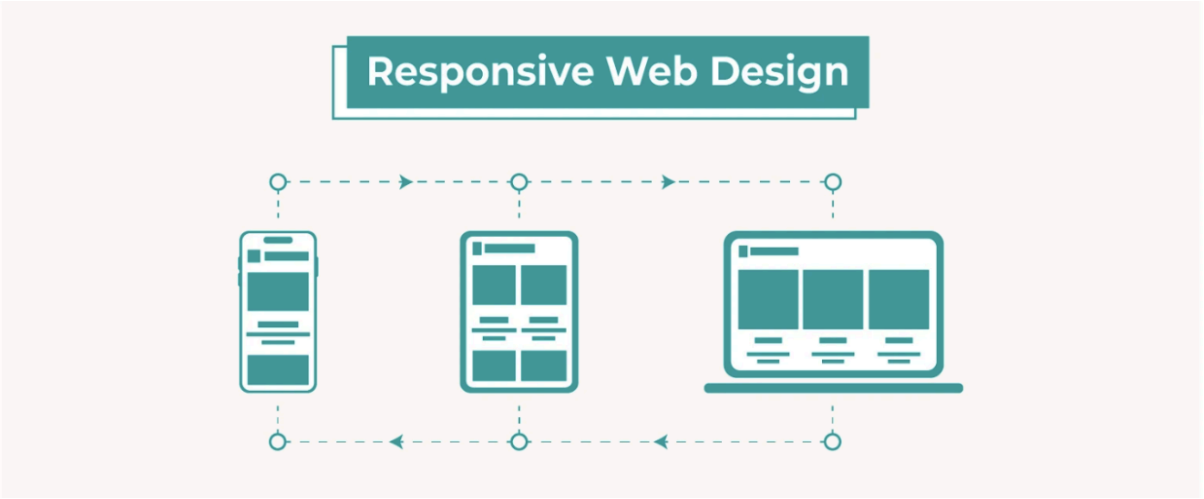
2.1 System Architecture Diagram



Server Tier

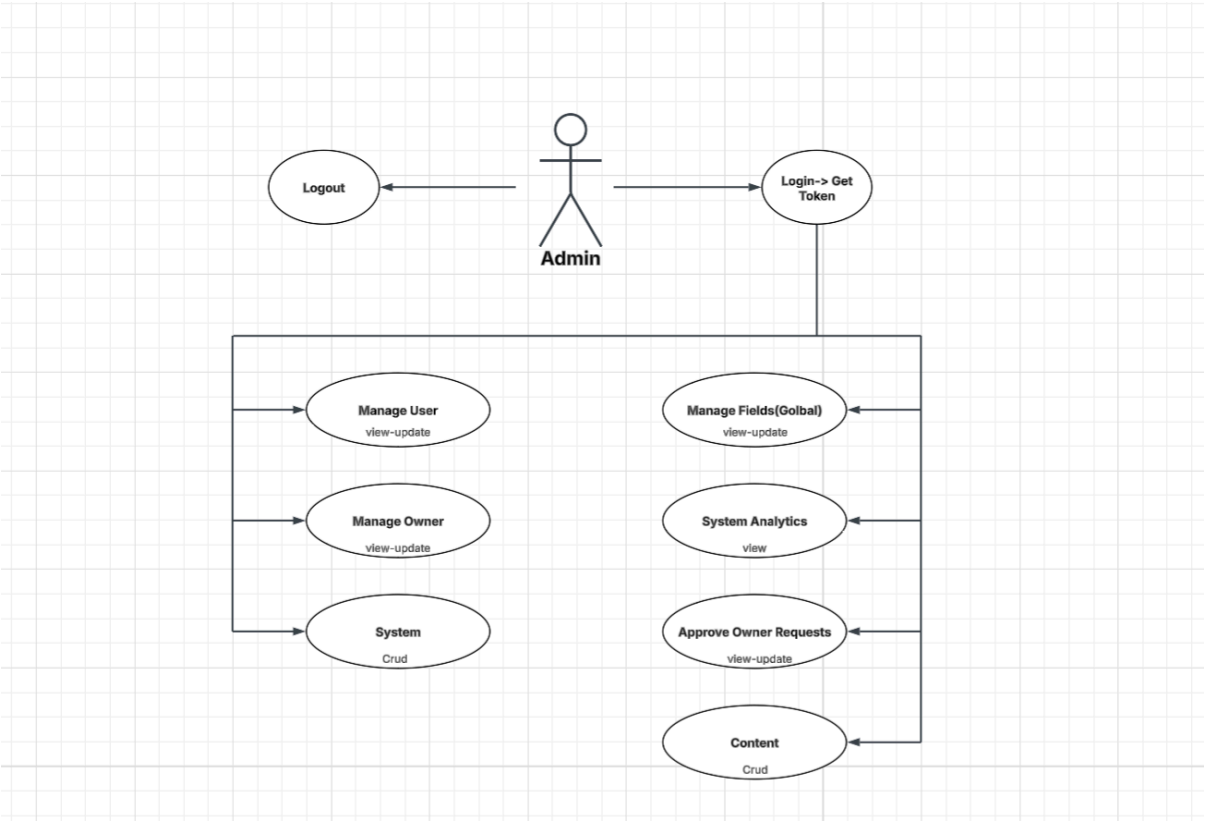


Responsive

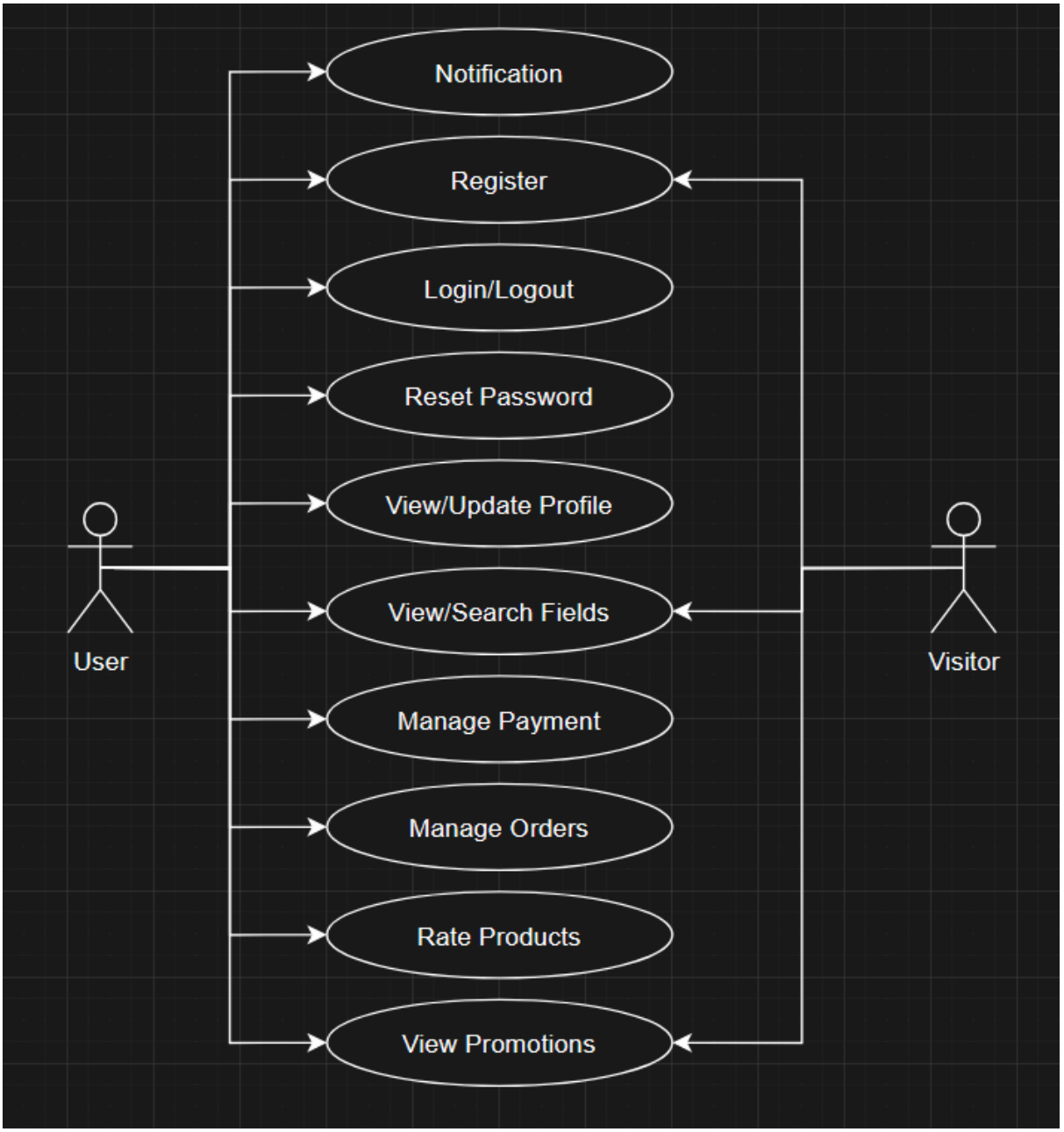


2.2 Use Case

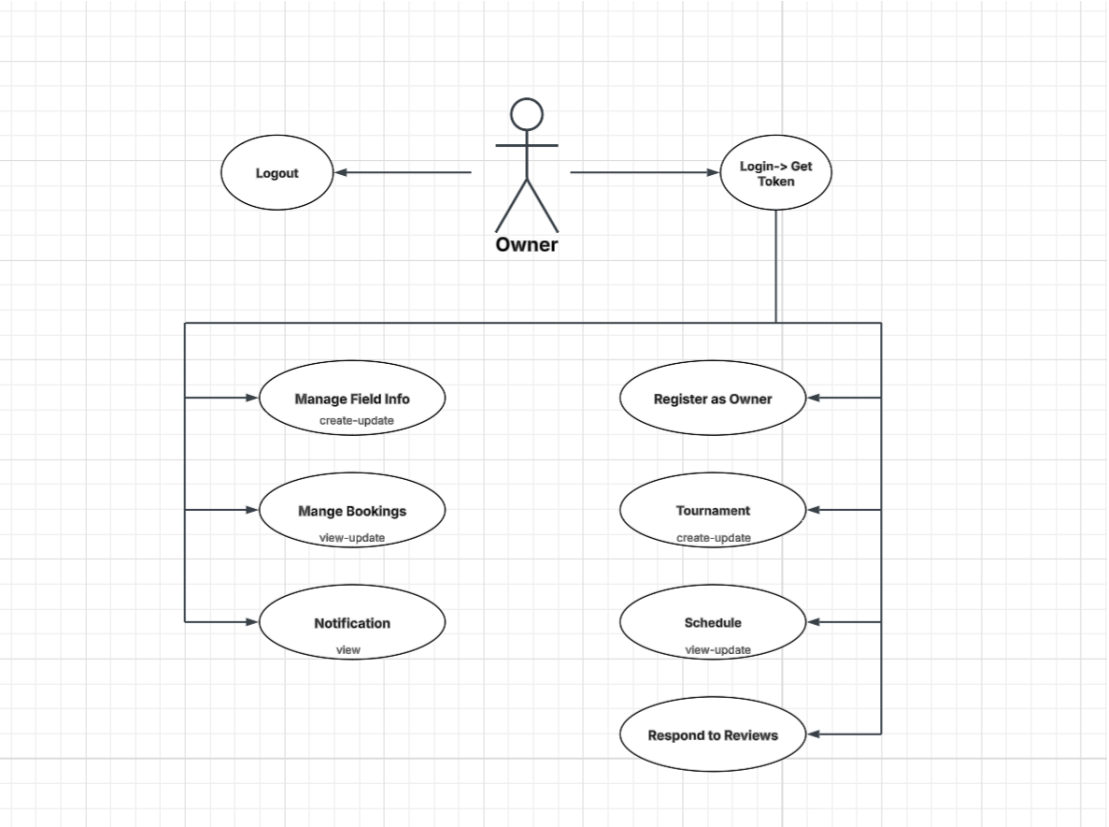
2.2.1 Admins



2.2.2 User And Visitors


Notification
Register
Login/Logout
Reset Password
View/Update Profile
View/Search Fields
Manage Payment
Manage Orders
Rate Products
View Promotions
User
Visitor

2.2.3 Owner



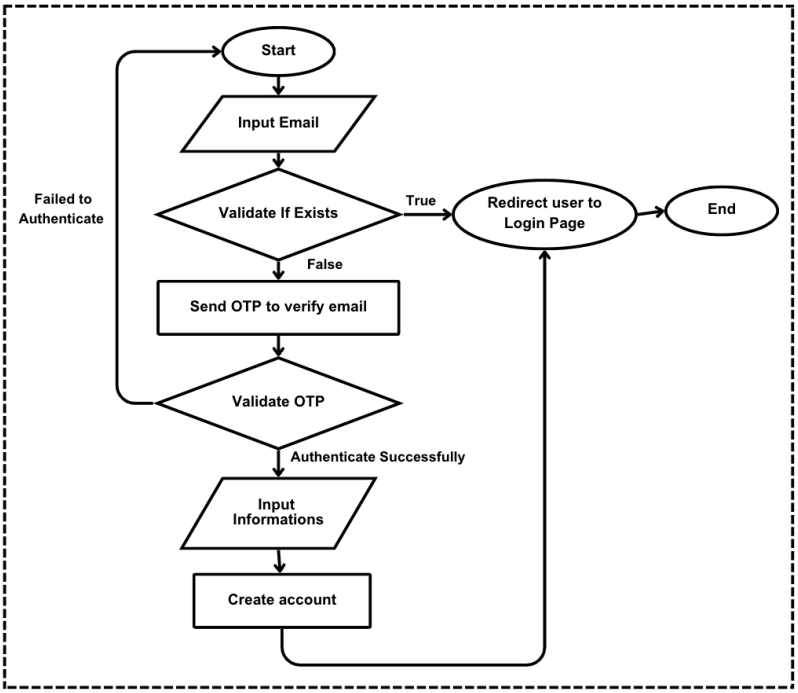
2.3 Flowcharts

Symbol Generates:

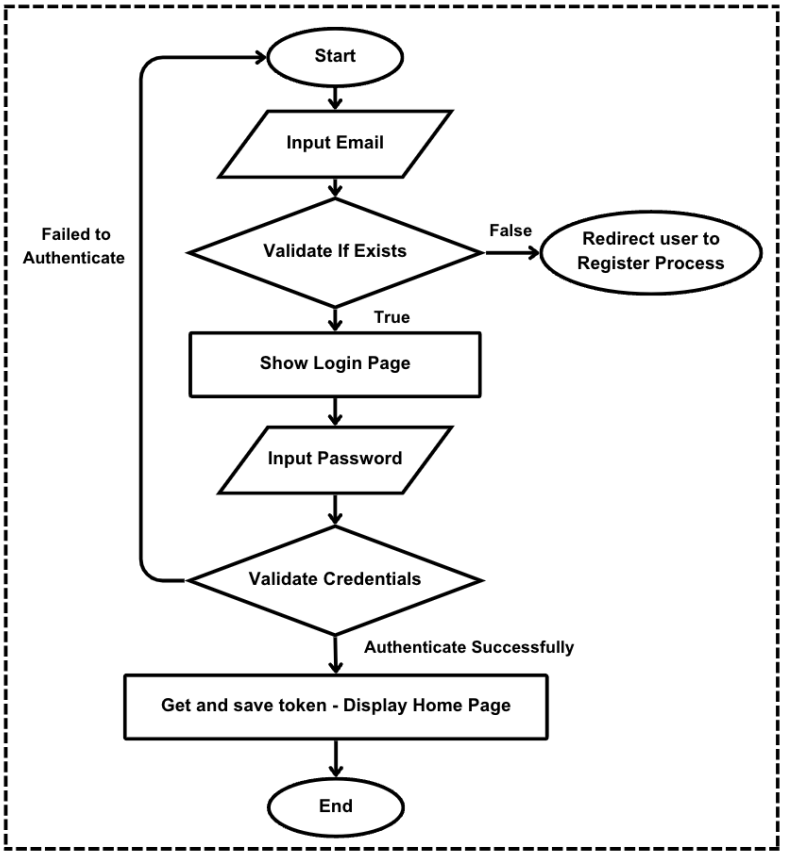
Symbol	Name	Function
	Start/End	An oval represents a start or end point.
	Arrows	A line is a connector that shows relationships between the representative shapes.
	Input/ Output	A parallelogram represents input or output.
	Process	A rectangle represents a process.

	Decision	A diamond indicates a decision.

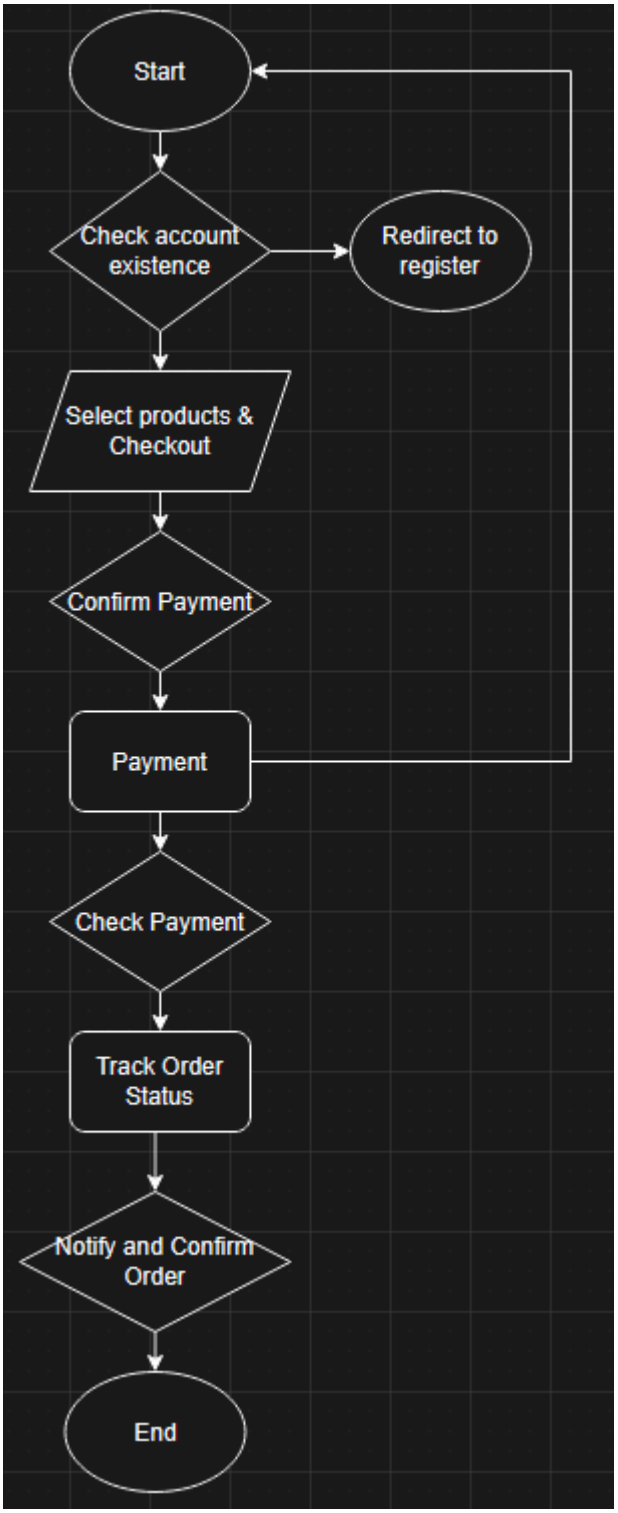
2.3.1 Register process



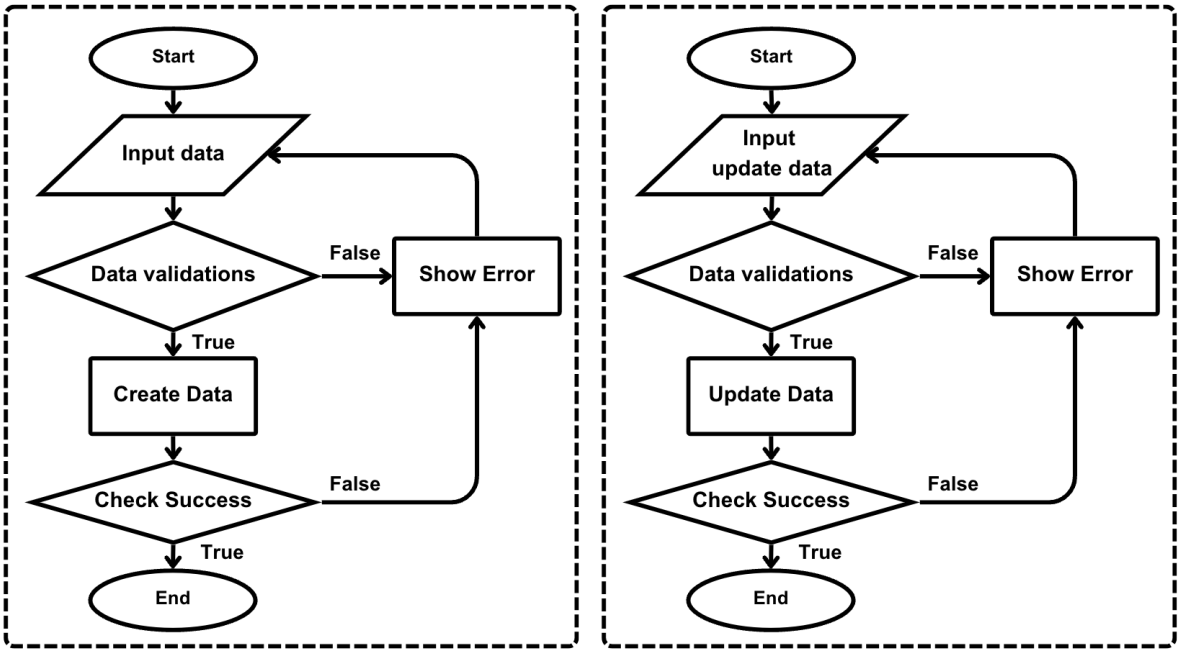
2.3.2 Login process



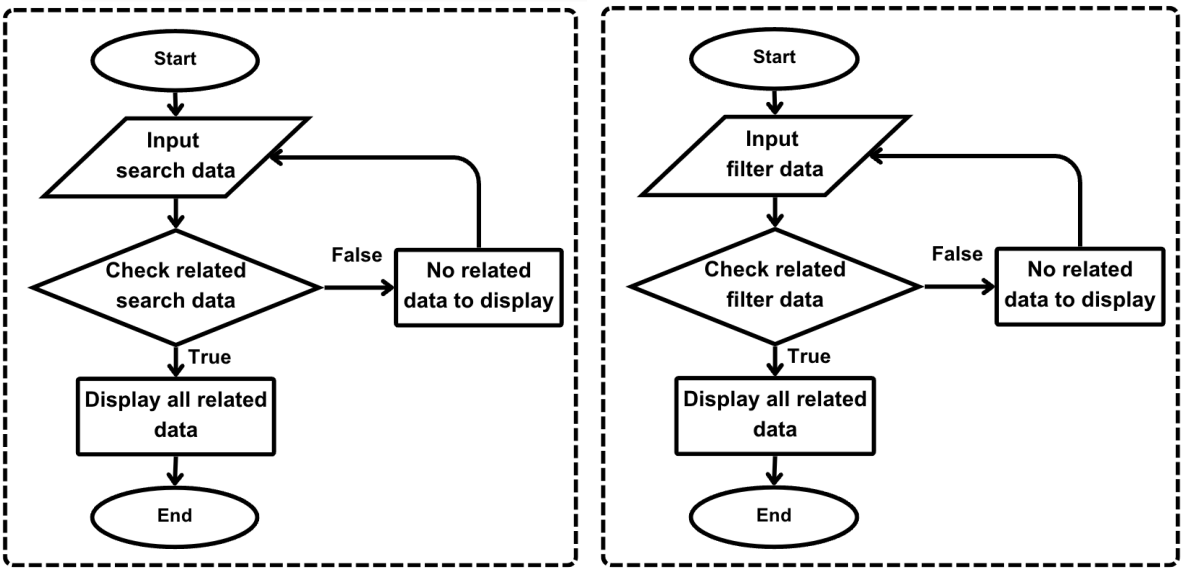
2.3.3 Ordering Food process



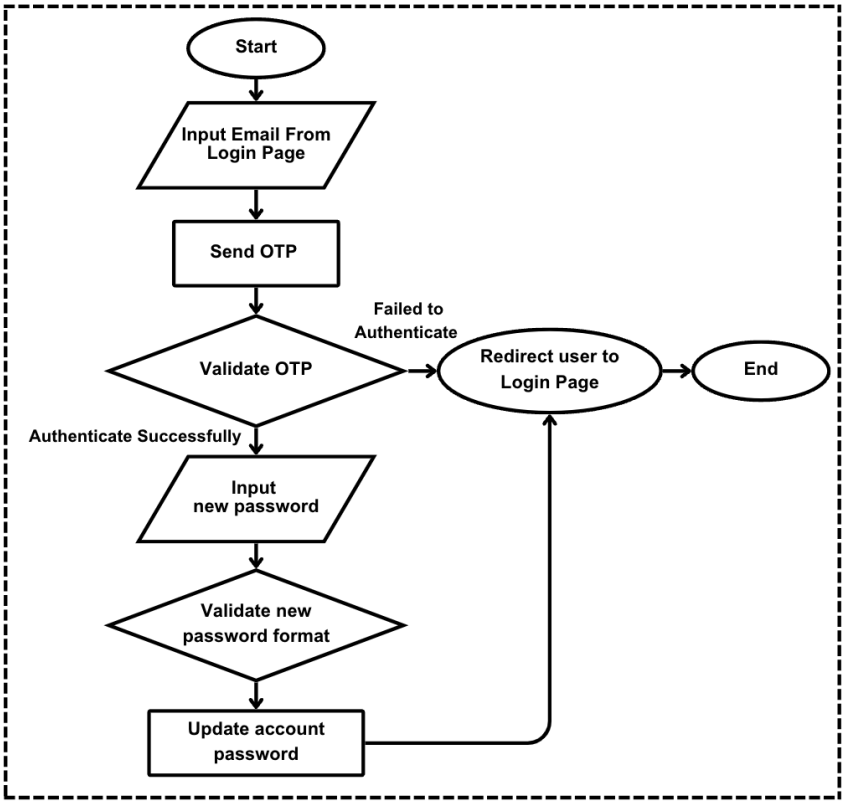
2.3.4 Create / Update data process



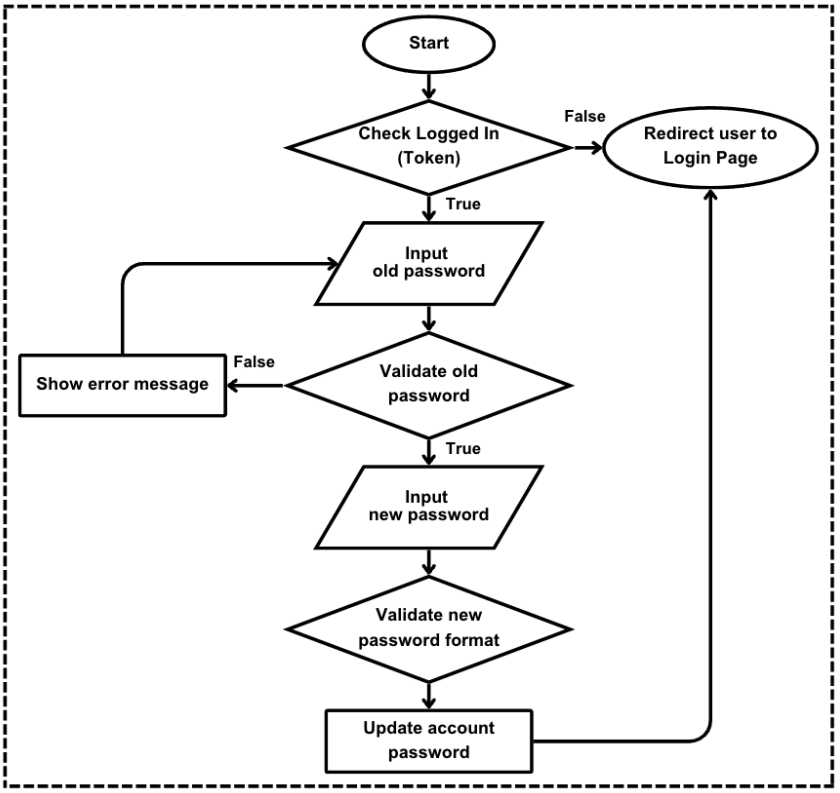
2.3.5 Search / Filter data process



2.3.6 Forgot Password process



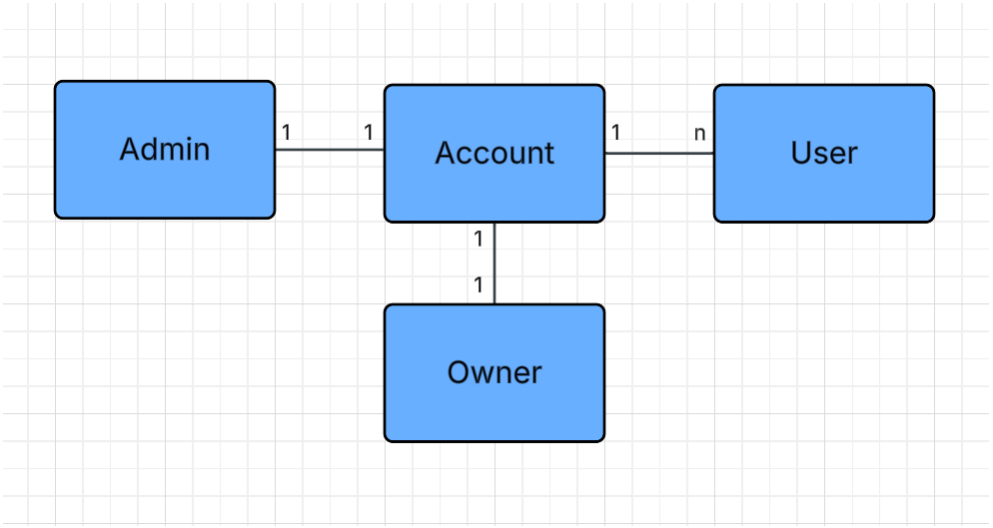
2.3.5 Change Password process


Start
Check Logged In (Token)
False
Redirect user to Login Page
True
Input old password
Validate old password
False
Show error message
True
Input new password
Validate new password format
Update account password

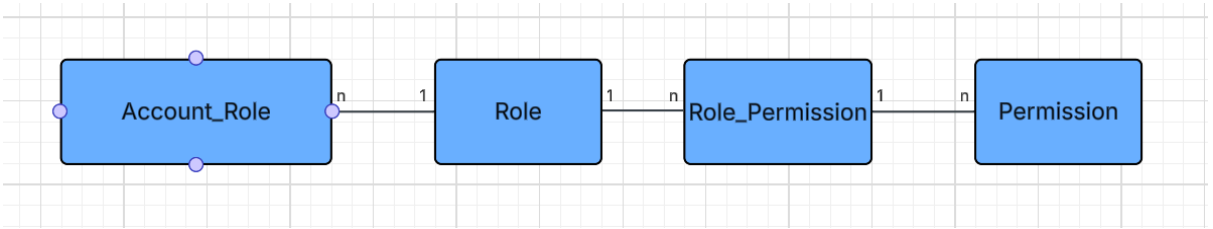
2.4 Entity Relationship Diagram (ERD)

2.4.1 Logical Entity Relationship Diagram

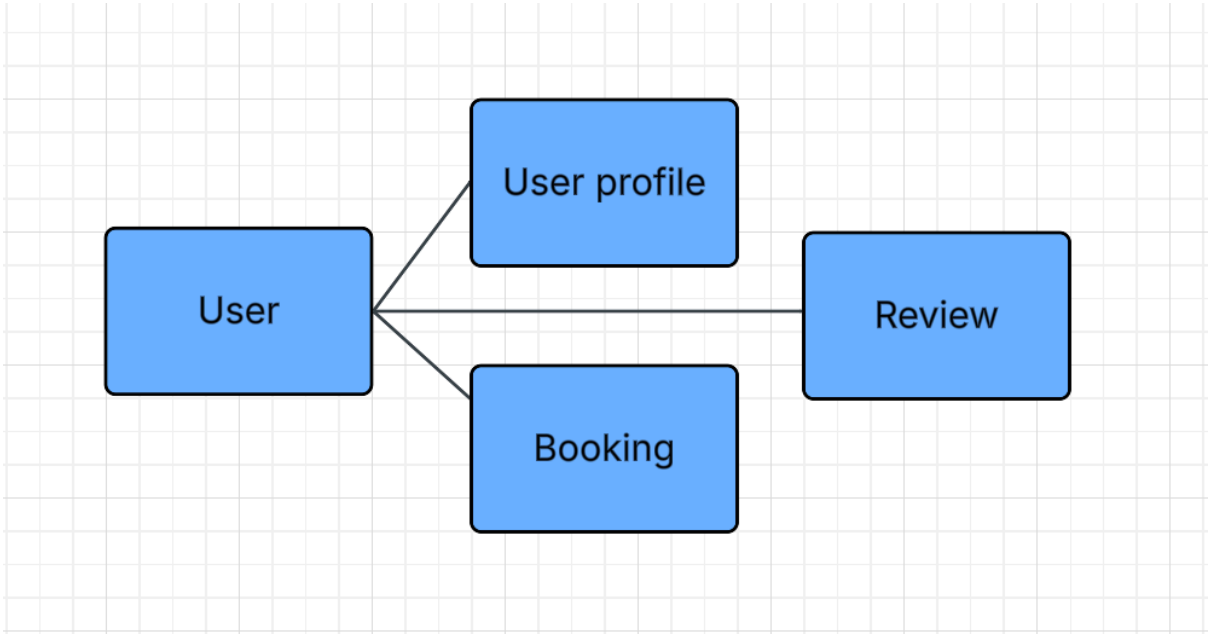
1. Accounts



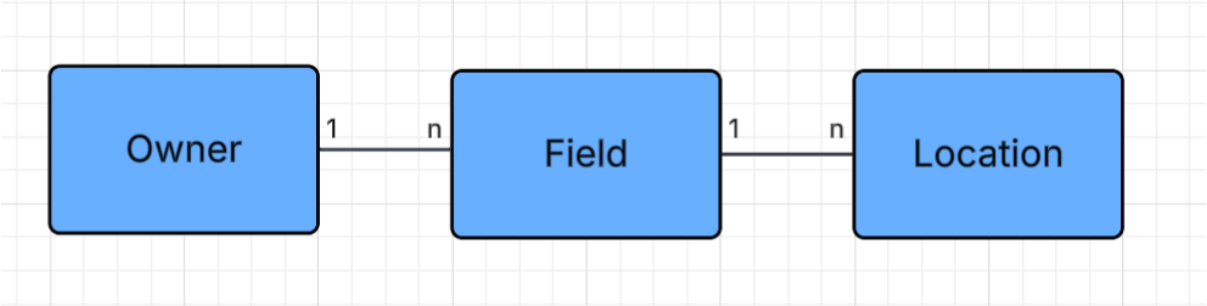
2. Role



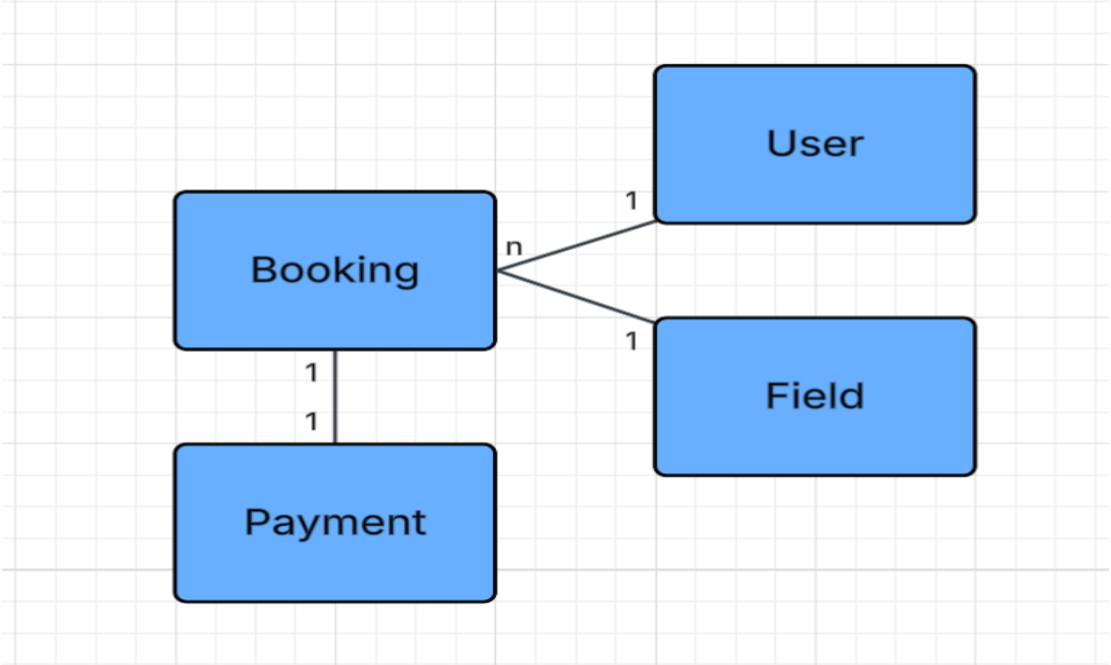
3. User



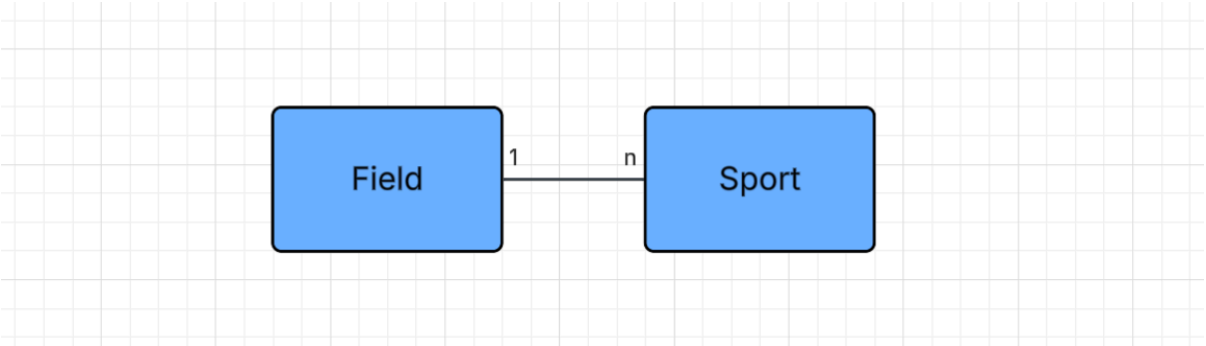
5. Owner



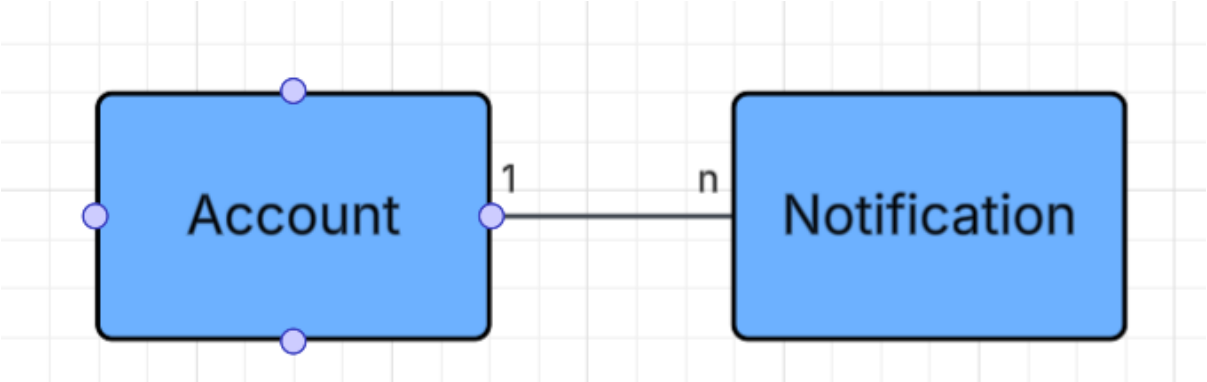
6.Appointment



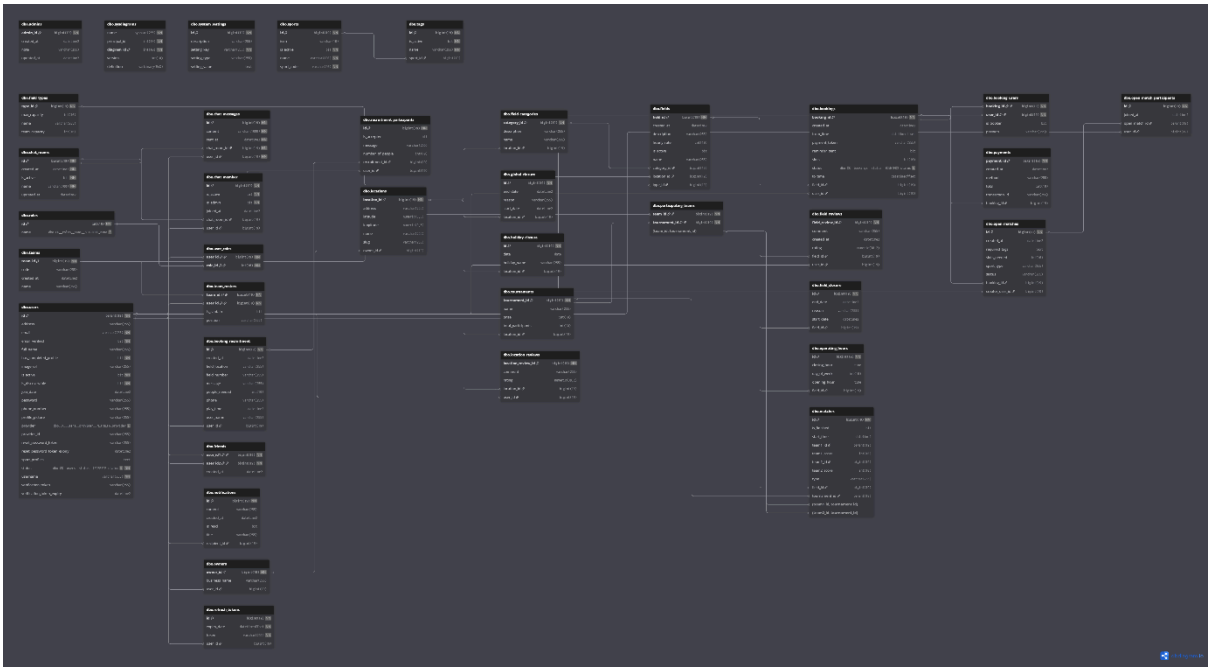
7. Field



8. Notification



2.4.2 Physical Entity Relationship Diagram



2.5 Task Sheet Review 2

Project Ref.No		Project Title	Activity plan prepared by	Date of preparation of Activity plan				
#	Task			Start date	End date	Actual days	Member's name	Status
1	Architecture & Design of the Project	PlayerConnect	QUACH THANH NHA	2025-07-14	2025-07-30	2	Quach Thanh Nha	**Done**
2	Algorithms Data Flow Chart			2025-07-14	2025-07-30	2	Nguyen Hai Hoang Minh	**Done**
3	Data Flow Diagram			2025-07-14	2025-07-30	2	Dang Tran Binh Nguyễn	**Done**
4	Entity-Relationship Diagram			2025-07-14	2025-07-30	2	Vo Dang Gia Huy	**Done**

Signature of instructor	Signature of Team Leader
Mr. Trần Phước Sinh	**Mr.Quách Thanh Nhã**

On behalf of my team and myself, I would like to express our sincere gratitude to the review panel for taking the time to evaluate our design documents. Your valuable insights and feedback are instrumental in refining our approach and enhancing its effectiveness. We deeply appreciate your expertise and thoughtful consideration, and we welcome any further suggestions you may have.

Best regards,
Team 1