

**BIS2-2**

BIS2102 Information Systems Analysis and Design

# **BIS2-2 Mini Project**

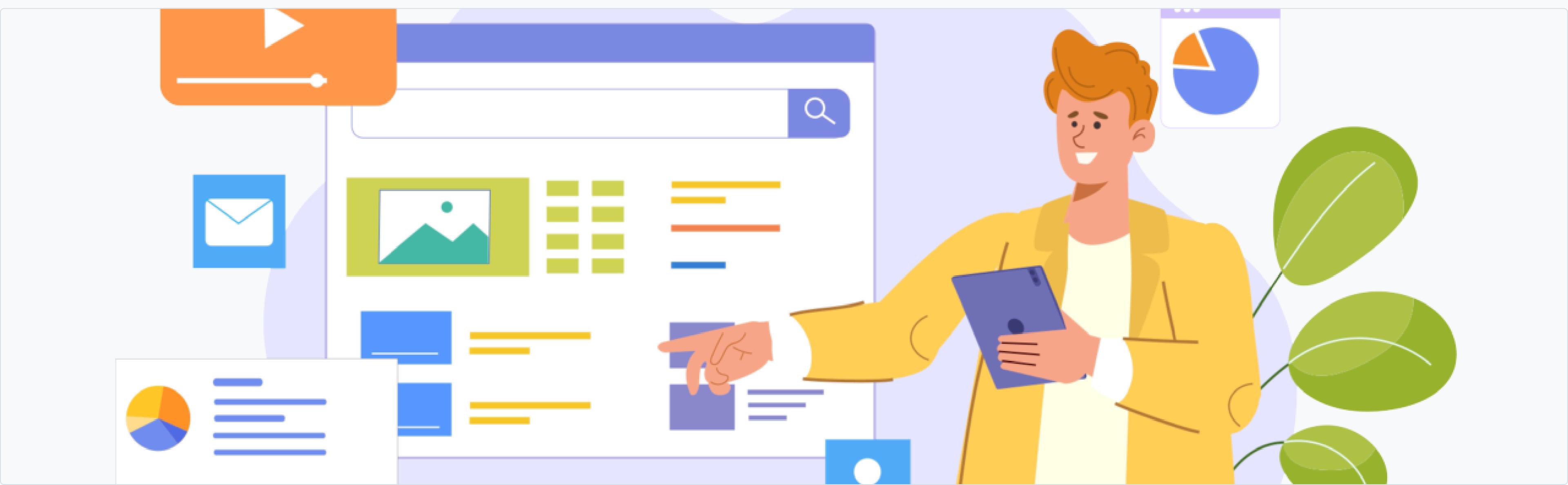
## **Company Profile**

**Explore ➤**

# Home



## Introducing the New and Improved POS Malaysia Mobile App

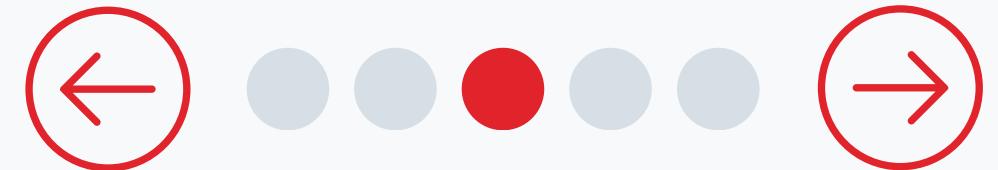


# Purpose

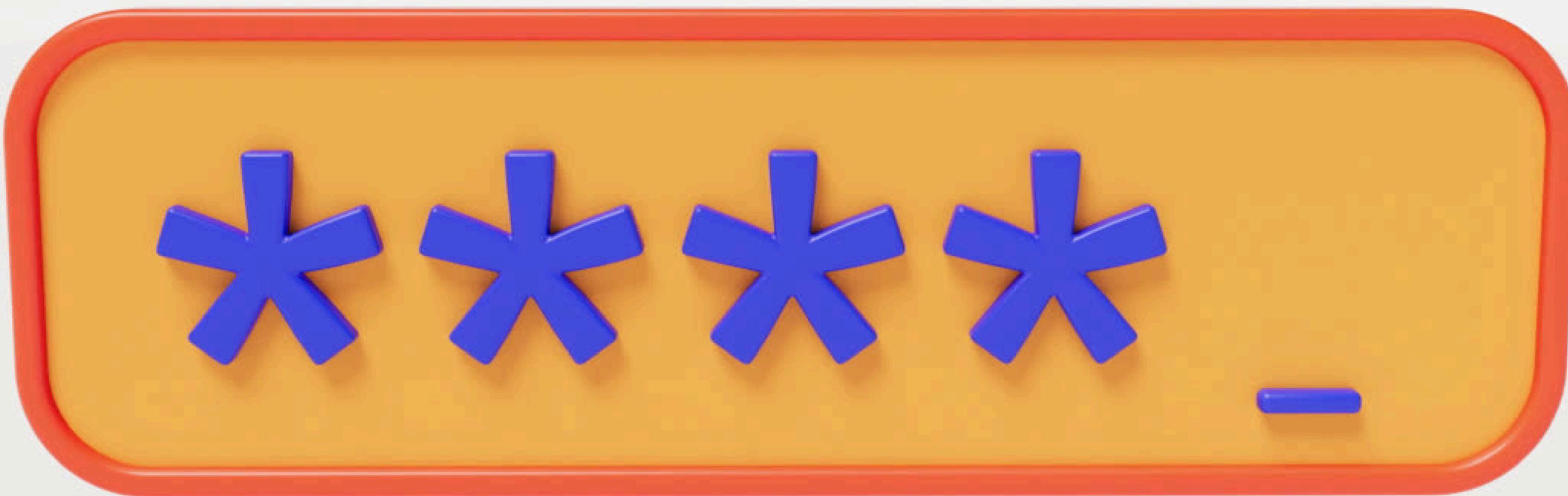


To Enhance the Performance and Usability of The App





## Verify Accounts Safely and Quickly with OTP Pins





## Obtain Accurate Shipping Rates with Additional Filters





## Manage, Update, and View Profiles Easily

# Meet the team

Contribution Statements



**Lauren Wong Hyun-Ee**  
**21046305**



**Khor Jia Ming**  
**21044516**



**Tai Yong Xuan**  
**22012835**



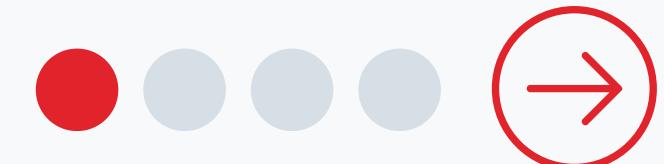
**Ooi Shi Qi**  
**21098272**



**Chia Wan Ying**  
**23020829**

# Contribution Statements

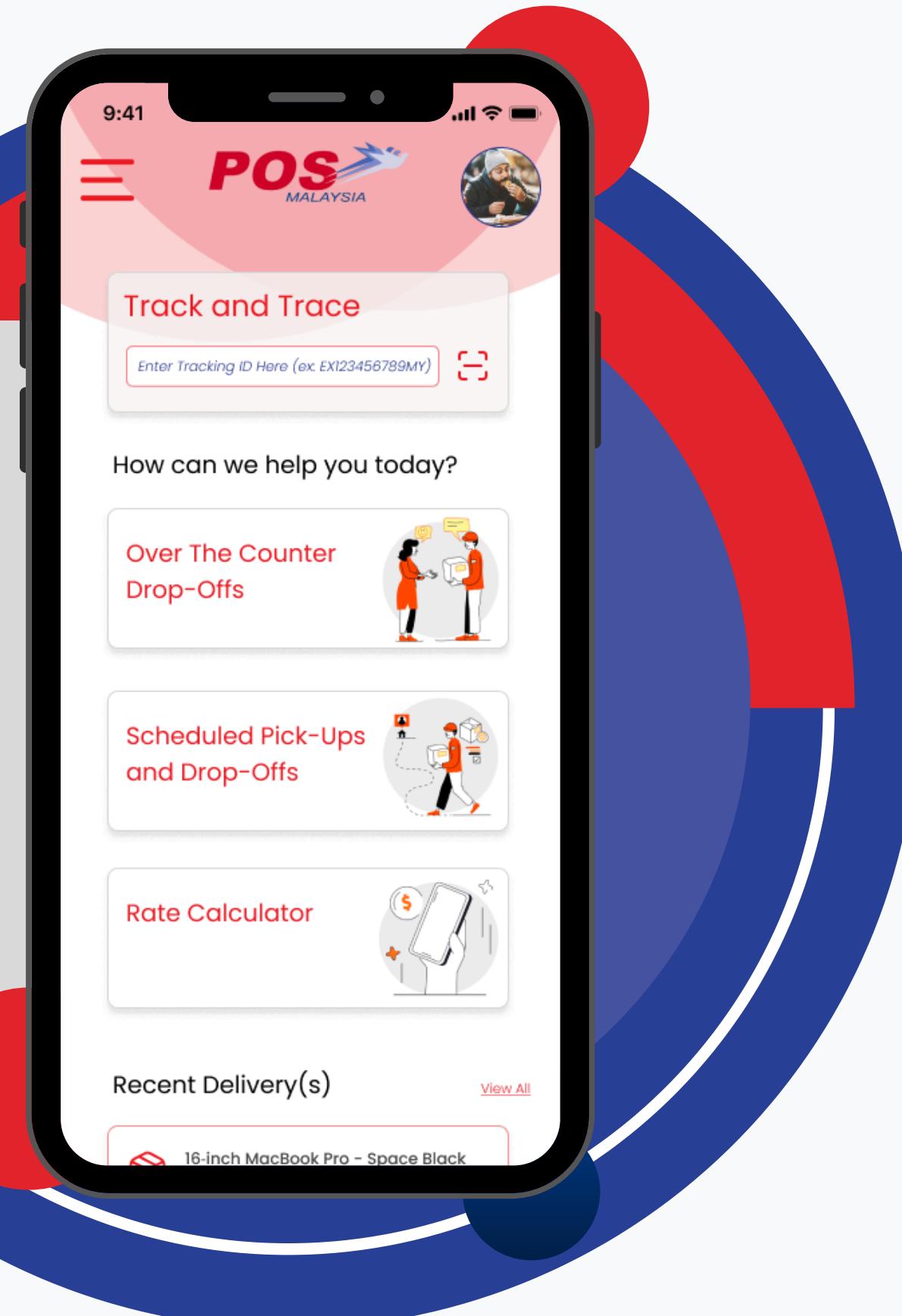
NAME	PERCENTAGE	DESCRIPTION
Lauren Wong Hyun-Ee	20%	Prepared abstract, literature review, and conclusion in final report, video prototype, company profile slides, and prototype pitching slides.
Khor Jia Ming	20%	Prepared methodology in final report, poster, company profile slides, and prototype pitching slides.
Tai Yong Xuan	20%	Prepared results in final report, poster, company profile slides, and prototype pitching slides.
Ooi Shi Qi	20%	Prepared introduction in final report, poster, company profile slides, and prototype pitching slides.
Chia Wan Ying	20%	Prepared discussion in final report, poster, company profile slides, and prototype pitching slides.



# POS Malaysia App

**With the improved app, you can now:**

1. Verify your account with a 6-digit **OTP** sent via SMS.
2. Check shipping fees by entering parcel details for **transparent pricing**.
3. **Easily access** the profile page to change your password, update your profile picture, and manage account details.



[Prototype Pitch](#)

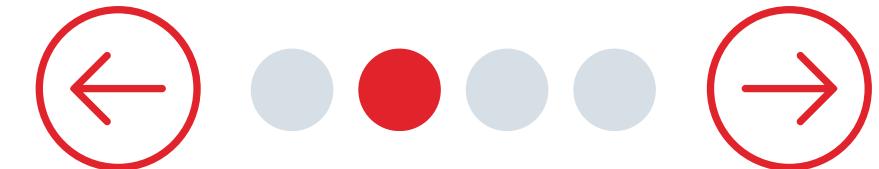
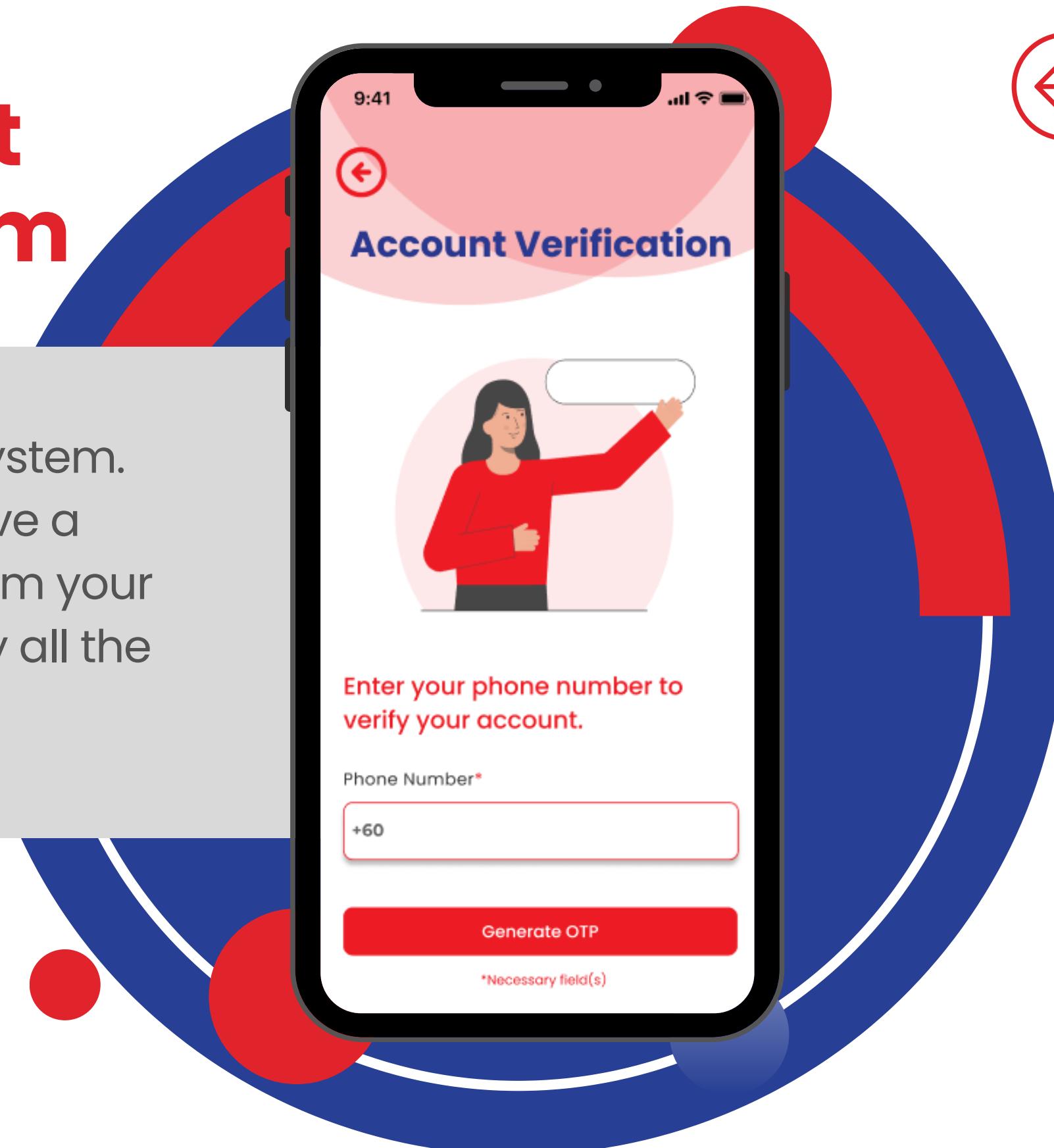
[Final Prototype](#)

[Video](#)

[Poster](#)

# Improved Account Verification System

Verify your account using our OTP system. Enter your phone number and receive a **unique 6-digit OTP** via SMS to confirm your identity. Once verified, you can enjoy all the app's services and functions.



[Prototype Pitch](#)

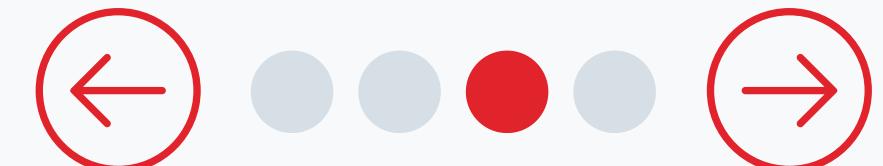
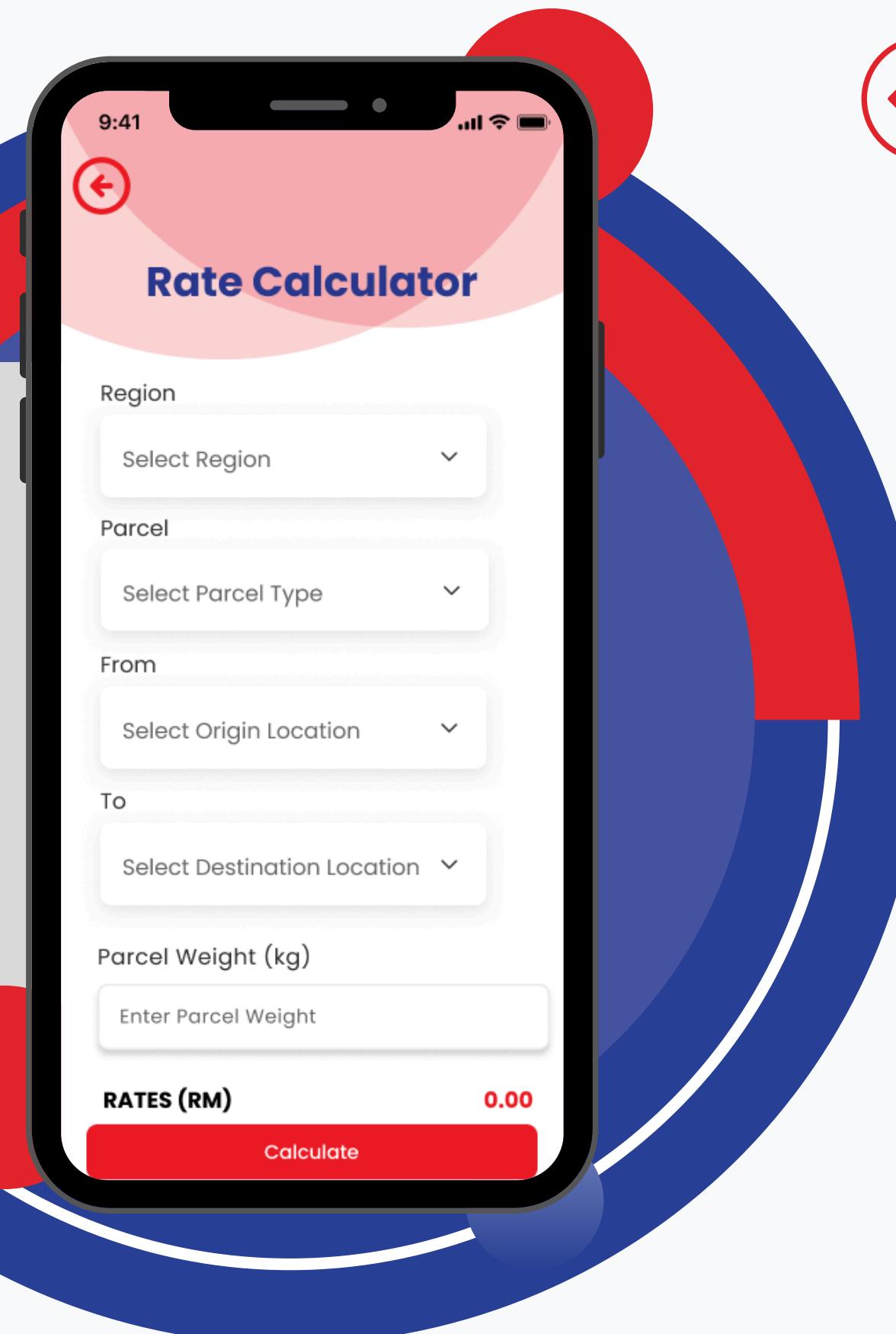
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# Additional Rate Calculator Filters

Easily check shipping fees by entering your parcel and shipping details, including region type, **origin and destination locations**, parcel type, weight, and **dimensions**. Once all fields are filled out, the system calculates and displays the shipping rates, promoting transparent pricing and enabling informed decisions.



[Prototype Pitch](#)

[Final Prototype](#)

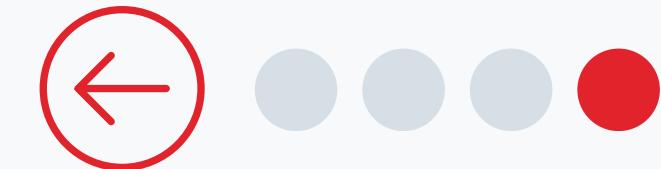
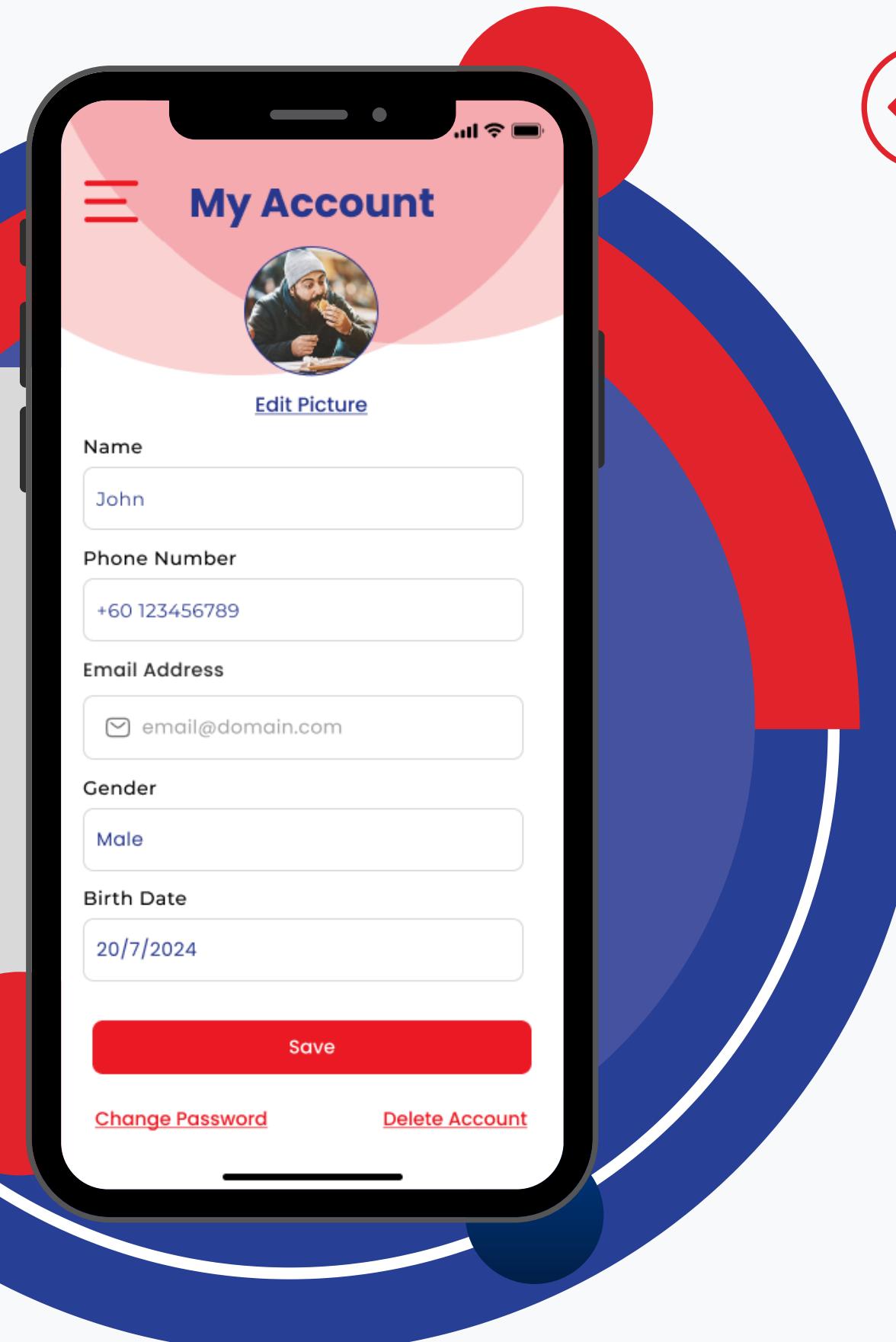
[Video](#)

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# User-Friendly Account Management

The redesigned profile page is now conveniently **accessible from both the home page and side menu bar!**

You can **update your profile picture** using the camera or from your album, **change passwords** in the account settings, view or edit details in your account information, and **delete your account** by confirming with your password.



[Prototype Pitch](#)

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# Prototype Pitch



*CLICK IMAGE TO ACCESS*

Prototype Pitch

Final Prototype

Video

Poster

# Final Prototype



*CLICK IMAGE TO ACCESS*

Prototype Pitch

**Final Prototype**

Video

Poster

# Prototype Video

**Download Now and  
Enjoy...**

- Enhanced Features
- Improved User Interface
- Increased Performance



CLICK IMAGE TO ACCESS

Prototype Pitch

Final Prototype

**Video**

Poster

# Poster



The poster is titled "POS Malaysia Mobile Application Modification Project" and is presented by "Team: BIS2-2". It includes sections for Team, Introduction, Methodology, Problem Statement, Prototype, Objectives, Value Proposition, Benefits to Users, Benefits to Society, and Commercialisation Potential. The poster also features screenshots of the mobile application interface.

**Team:** BIS2-2

- Team Leader: Lauren Wong Hyun-Ee 21046305
- Tai Yong Xuan 22012835
- Ooi Shi Qi 21098272
- Khor Jia Ming 21044516
- Chia Wan Ying 23020829

**Introduction**

POS Malaysia is the national postal service provider. Its mobile application, launched on 13th May 2016, now offers both online and in-person postal services. With over 1 million downloads, it has significantly expanded its digital services to enhance user convenience. The app offers several features such as Send Parcel, Outlet Finder, and Track & Trace. However, persistent issues have caused user frustration and dissatisfaction, risking customer loss. To address this, we have enhanced the app to improve its functionality and user experience.

**Methodology**

Iterative Model

- 1) System Planning
- 2) System Analysis
- 3) System Design
- 4) System Implementation
- 5) System Support & Maintenance

**Problem Statement**

1. Troublesome Account Verification Process
2. Lack of location & dimensions filters in Rate Calculator
3. Limited Profile Management Functions

**Prototype**

**Objectives**

1. To improve usability with enhanced OTP Account Verification
2. To enhance user satisfaction with improved Rate Calculator features
3. To optimise interaction with upgraded Account Management functions

**Value Proposition**

1. Fast and Easy Verification Process with OTP pins
2. Accurate Shipping Rates with Additional Location and Dimension Filters
3. Easy Profile Access for Password and Profile Picture Modification

**Benefits to Users**

- Reduced Frustration
- Transparent Pricing & Informed Delivery Decisions
- Immediate Profile Access

**Benefits to Society**

- Enhanced Economic Activity
- Increased Security
- Reduced Workload

**Commercialisation Potential**

Sell to POS Malaysia for RM600,000 to increase its app's user base & boost revenue

**CLICK IMAGE TO ACCESS**

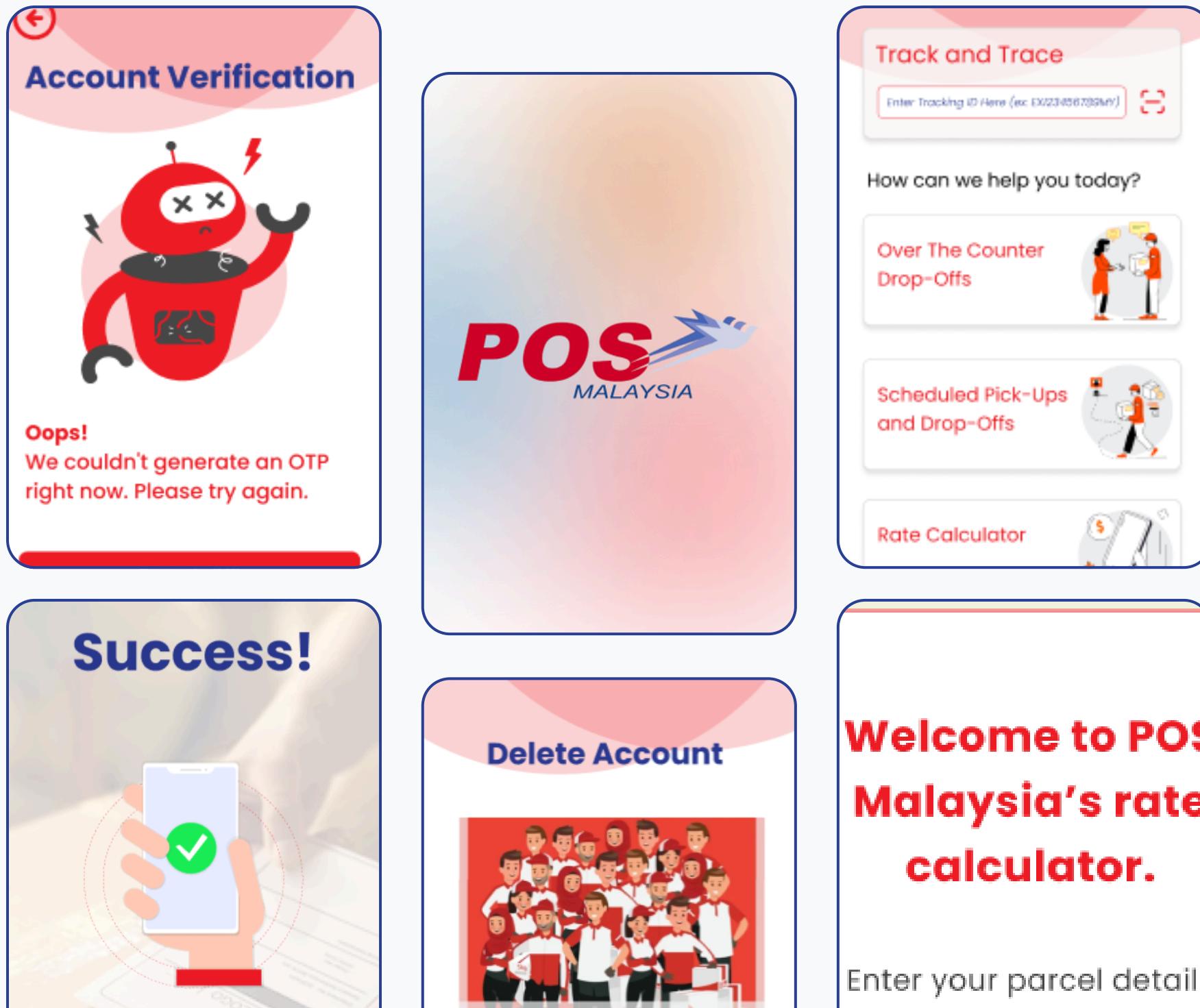
Prototype Pitch

Final Prototype

Video

**Poster**

# Design



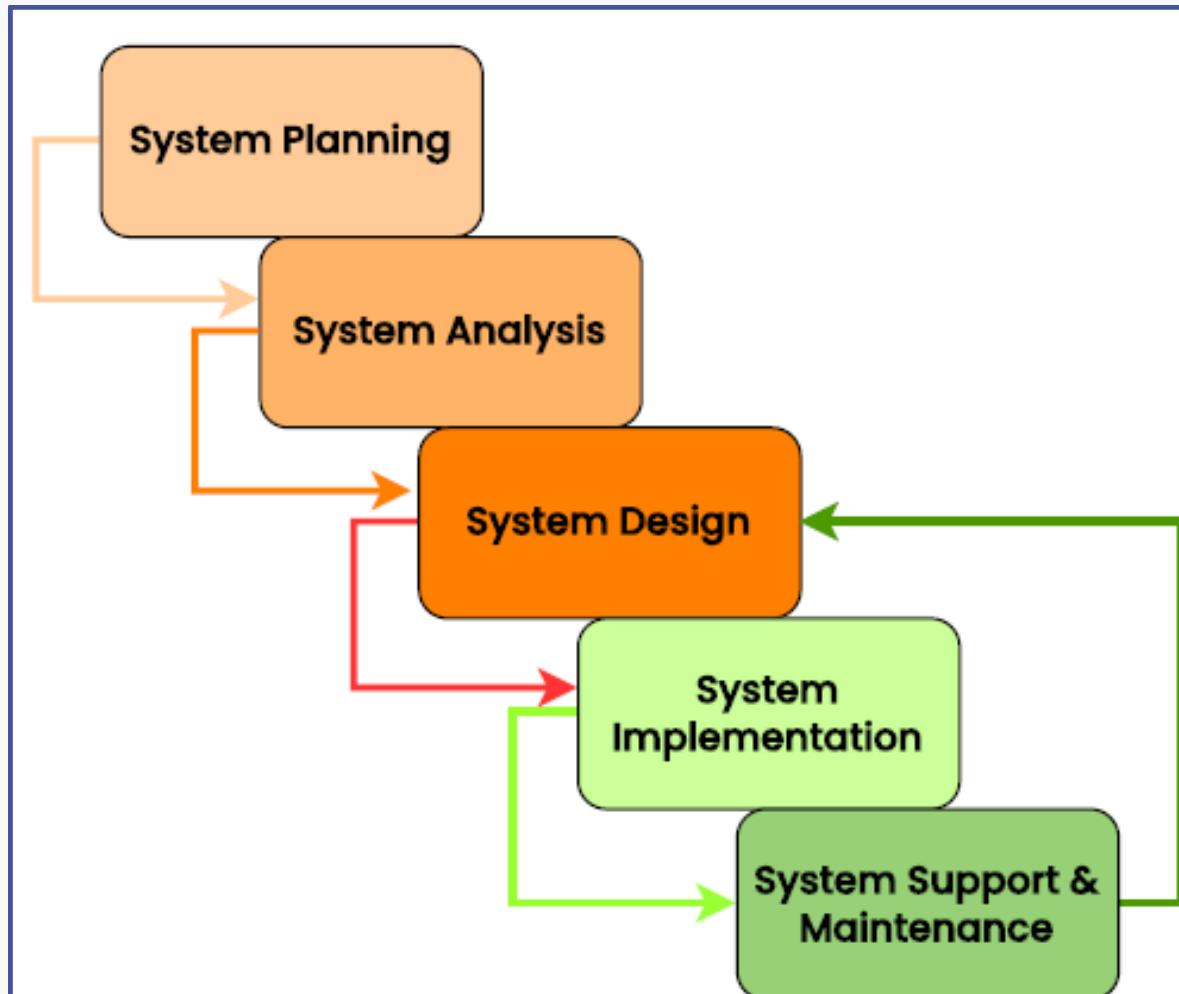
The app's design was inspired by POS Malaysia's existing app. It features a vibrant **red** (#e1242b) and **blue** (#273f94) color scheme to ensure a familiar and visually appealing user experience. Secondary colours like grey and beige were used to complement the primary colours used.

**Rounded buttons** throughout the app provide a sleek and modern interface.

# Research Process

## Iterative Software Development Methodology

The iterative model is a software development methodology that emphasizes the **cyclical repetition of various phases**. Instead of completing the entire project in one go, the iterative model breaks down the project into smaller, manageable parts or iterations. For the POS Malaysia app enhancement project, we employed the iterative model to ensure that **each feature is developed, tested, and refined before moving on to the next**. This approach allows for a more **flexible and adaptive development process**. The iterative model for the enhanced POS Malaysia app involves repeating cycles of **system design, system implementation, and system support and maintenance for each feature**, with the sequence of releases being OTP account verification, improved rate calculator, and enhanced account management feature. **System planning and system analysis are done once at the beginning.**



System Planning

System Analysis

System Design

System Implementation

System Support & Maintenance

# System Planning

## Stakeholder Analysis & Approval

- Stakeholder: Mr Amit Mehta (**Head of Product**)
- Gather stakeholder requirements
- Send system request form and business case for approval

## Defining Objectives & Goals

- Define project objectives, project scope, resources, schedule & risk
- Perform **SWOT analysis**

## Resource Allocation

- **RM590,300** allocated for software development, labour cost, travel expenses etc
- 5 teams involved (i.e. Team Lead, IT Development, IT Operation Team, IT Security Team, UI/UX Team)

## Conduct Feasibility Study

- Technical, operational, economic, schedule feasibility

## Risk Management & Project Plan

- Implement backup procedure
- **Task breakdown, critical path, Gantt Chart**

[System Planning](#)

[System Analysis](#)

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# System Analysis

## 1 Purpose and System Overview

- Gather requirements for system modification
- Describes the requirements modeling, data and process modeling, and object modeling

## 3 Fact-finding & Team-oriented Methods

- Collect system requirements and problems of the current system
- Conducted an interview with the head of product – Mr Amit Mehta
- Conducted observation and analysis on POS Malaysia's app

## 5 Setting Priorities

- Set priorities for each task based on needs, constraints, importance and urgency.
- Iteration 1: OTP authentication is the highest priority
- Iteration 2: Integrating location and dimension options into the rate calculator function is also high priority to ensure accurate shipping rates.
- Iteration 3: User account management function

System Planning

System Analysis

System Design

System Implementation

System Support & Maintenance

# System Design

## Modifying Account Verification Process

- User interface: a Phone Number Input Screen, an OTP Entry Screen, and a Verification Success Screen
- Data design: update the user table to add phone number and verification status fields and create a new OTP table
- System architecture: an OTP Generation Service, an SMS Gateway Integration service, and an OTP Verification Service

## Improved Rate Calculator Feature

- User interface: one field for entering origin and destination locations and another for inputting parcel dimensions
- Data design: create a Locations Table and a Parcels Table
- System architecture: a Rate Calculation Service, a microservice that calculates shipping costs and connects to a pricing database

## Enhanced Account Management Function

- User interface: an accessible Account Management Main Screen, a Password Change Screen, and a Profile Picture Update Screen
- Data design: update the User Table
- System architecture: an Account Management Service and a File Storage Service

[System Planning](#)

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# System Implementation

## Improved Rate Calculator Feature

- Careful scheduling and a feature toggle will be used for a phased rollout
- Backend updates for new inputs
- Close performance monitoring post-deployment

## Enhanced Account Management Function

- Update user interface for easy access
- Backend support for new features like password changes and profile updates
- Monitor user feedback collection to ensure functionality and user satisfaction

## Modified Account Verification

- Schedule updates during off-peak hours
- Update database schemas for phone numbers and OTPs
- Ensure proper logging and monitoring

[System Planning](#)

[System Analysis](#)

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[System Support & Maintenance](#)

# System Support and Maintenance

## Improved Rate Calculator Feature

- Comprehensive monitoring to assess accuracy and usage
- Active feedback analysis and user support
- Regular updates maintain accuracy and incorporate user feedback

## Enhanced Account Management Function

- Ongoing monitoring focused on adoption and security
- User support for issues
- Periodic updates based on feedback to refine functionalities

## Modified Account Verification

- Robust monitoring system to track performance and security
- Analytics to gauge user engagement

[System Planning](#)

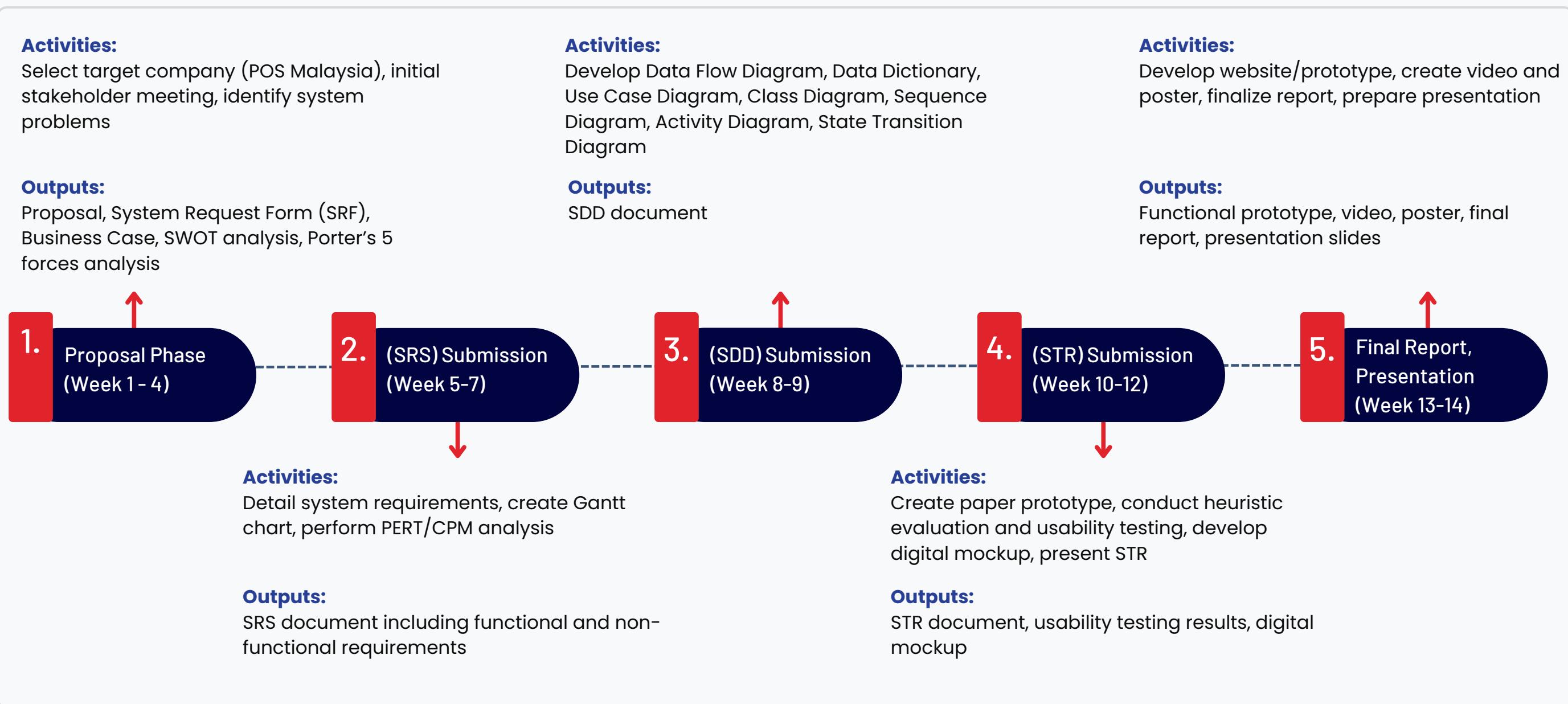
[System Analysis](#)

[System Design](#)

[System Implementation](#)

[System Support & Maintenance](#)

# Milestone



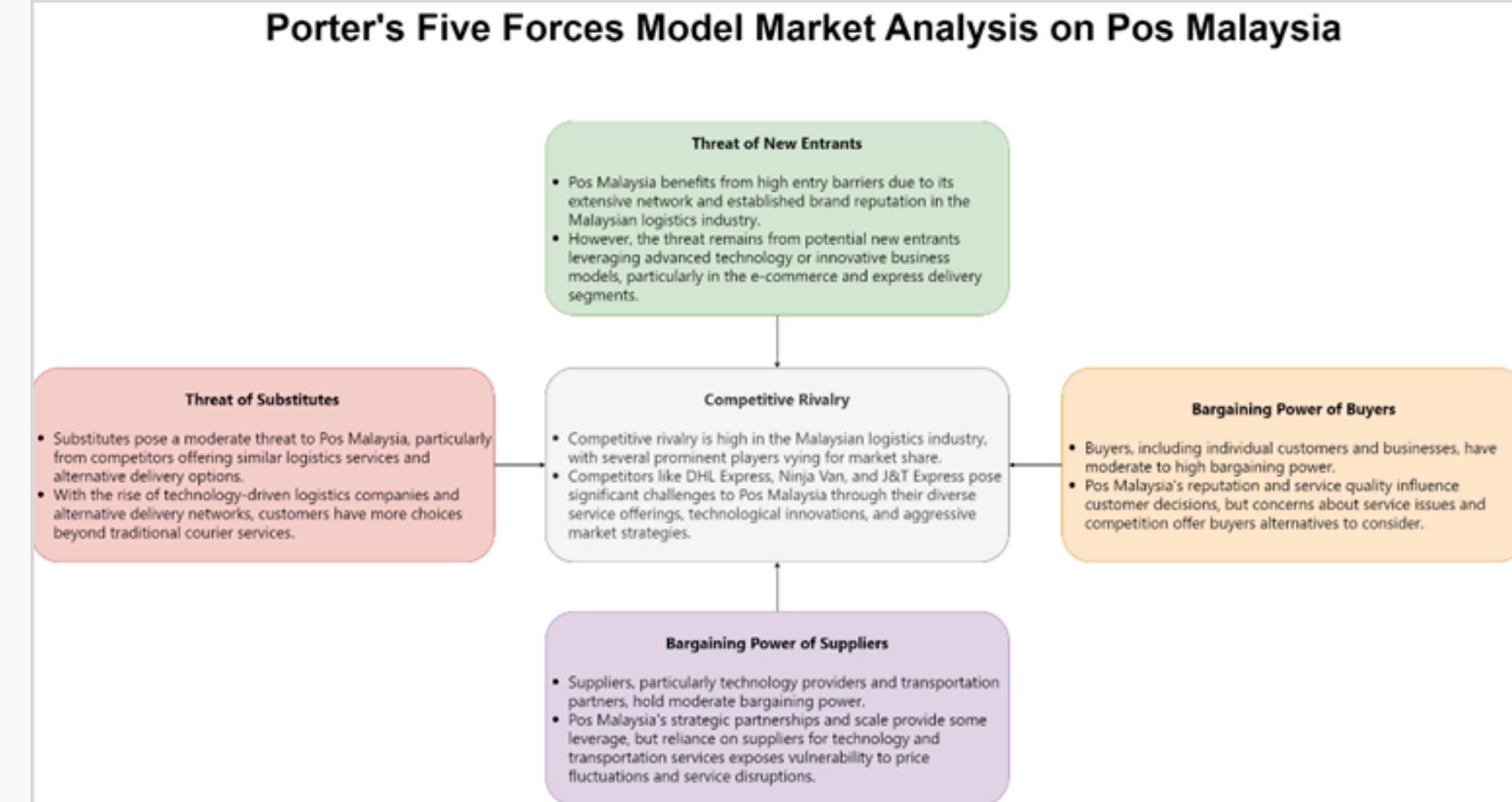
# Gallery



## Business Case Documentation

INTERNAL FACTORS	
STRENGTHS	WEAKNESSES
<ol style="list-style-type: none"> <li><b>Comprehensive Services:</b> The Pos Malaysia application offers a wide range of services, including parcel tracking, postage rate calculation, address validation, and online payment options, providing convenience to users.</li> <li><b>Real-Time Tracking:</b> Pos Malaysia's application provides real-time tracking updates for parcels, allowing users to monitor the status and location of their shipments conveniently.</li> <li><b>Customer Engagement:</b> The application enables direct communication between Pos Malaysia and its customers, fostering engagement through notifications, promotions, and feedback mechanisms.</li> <li><b>Integration with E-Commerce Platforms:</b> Integration with popular e-commerce platforms allows seamless shipping and delivery solutions for online sellers, enhancing customer satisfaction and loyalty.</li> </ol>	<ol style="list-style-type: none"> <li><b>Verification Process Errors:</b> One significant challenge faced by users of the Pos Malaysia application pertains to the verification process required to access its services. To utilize the application, users must undergo a verification process, which involves submitting a profile picture to Pos Malaysia. However, an obstacle arises during this process as users encounter an error message stating "Failed to initialize camera" when attempting to submit their picture. This technical issue hampers users' ability to verify their profiles, consequently preventing them from fully experiencing the services offered by the Pos Malaysia application. Over time, this impediment diminishes the overall user experience and satisfaction with the application.</li> <li><b>Lack of Location and Dimension Filters in Shipping Rate Calculator:</b> This impairs the accuracy and relevance of the rate calculations, leading to potential discrepancies in shipping costs. Without the ability to specify location, users cannot account for varying regional shipping rates, which can differ significantly based on distance, international borders, and local shipping regulations. This can result in unexpected costs and logistical complications for both senders and recipients.</li> <li><b>Limited User Control over Passwords and Profile Management:</b> From a security standpoint, not allowing users to update their passwords leaves their accounts vulnerable to potential breaches. Regular password updates are a fundamental aspect of maintaining account security, and without this option, users may feel uneasy about the safety of their personal information within the app. Without a designated profile page, users may struggle to find where and how to perform essential tasks, leading to frustration and decreased satisfaction with the app.</li> </ol>
EXTERNAL FACTORS	
OPPORTUNITIES	THREATS
<ol style="list-style-type: none"> <li><b>Streamlined Verification Process:</b> Pos Malaysia can seize the opportunity to streamline its verification process by addressing the "Failed to initialize camera" error. Implementing alternative verification methods like OTP verification codes could enhance user experience and expedite the verification process.</li> <li><b>Enhanced Shipping Rate Calculator:</b> Adding location and dimension filters to the shipping rate calculator will improve the accuracy and relevance of shipping cost estimates. This enhancement will account for regional rate variations, reducing unexpected costs and logistical issues. Offering this customization will increase user satisfaction and reliability.</li> <li><b>Improved User Control and Security:</b> Allowing users to update their passwords and manage their profiles will enhance account security and user trust. Implementing a profile management page will make essential tasks easier, boosting user experience and satisfaction. This improvement will demonstrate a commitment to user security and convenience.</li> <li><b>User Engagement Strategies:</b> Pos Malaysia can leverage these weaknesses as opportunities to engage with its user base proactively. Implementing user feedback mechanisms or providing transparent communication regarding ongoing improvements to the verification process and application performance can foster trust and loyalty among users.</li> </ol>	<ol style="list-style-type: none"> <li><b>Competition:</b> Intense competition from other logistics providers and technology companies offering similar applications could erode Pos Malaysia's market share and customer base.</li> <li><b>Regulatory Changes:</b> Changes in regulations related to data privacy, cybersecurity, or e-commerce may require compliance measures that increase operational costs and complexity.</li> <li><b>Technological Disruption:</b> Rapid advancements in technology and changing consumer preferences may necessitate continuous innovation and investment to stay competitive in the digital landscape.</li> <li><b>Cybersecurity Risks:</b> Cybersecurity threats such as malware, phishing attacks, or data breaches pose a significant risk to the application's security and user trust.</li> </ol>

SWOT Analysis

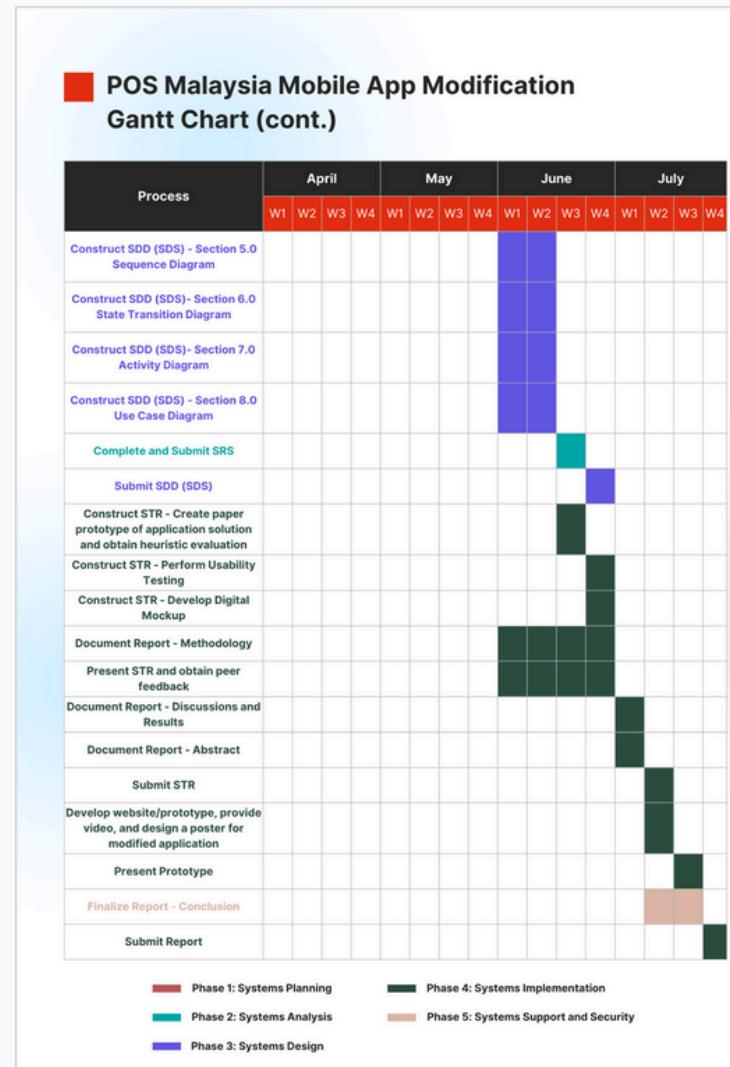
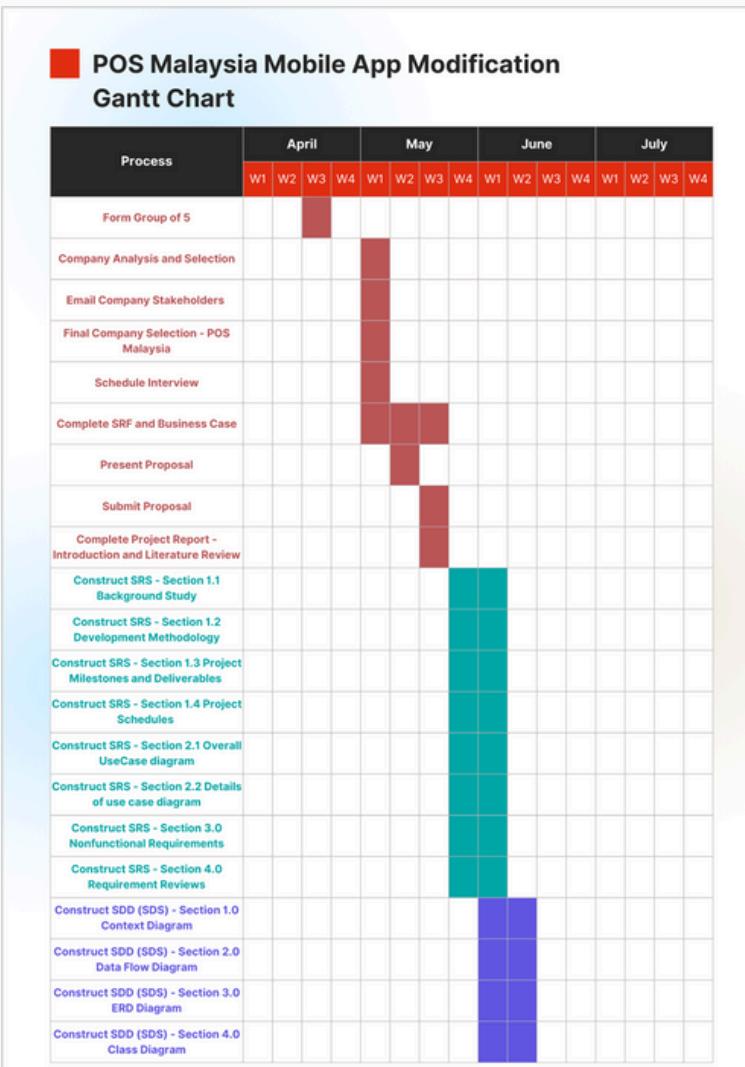


Porter's Five Forces Analysis

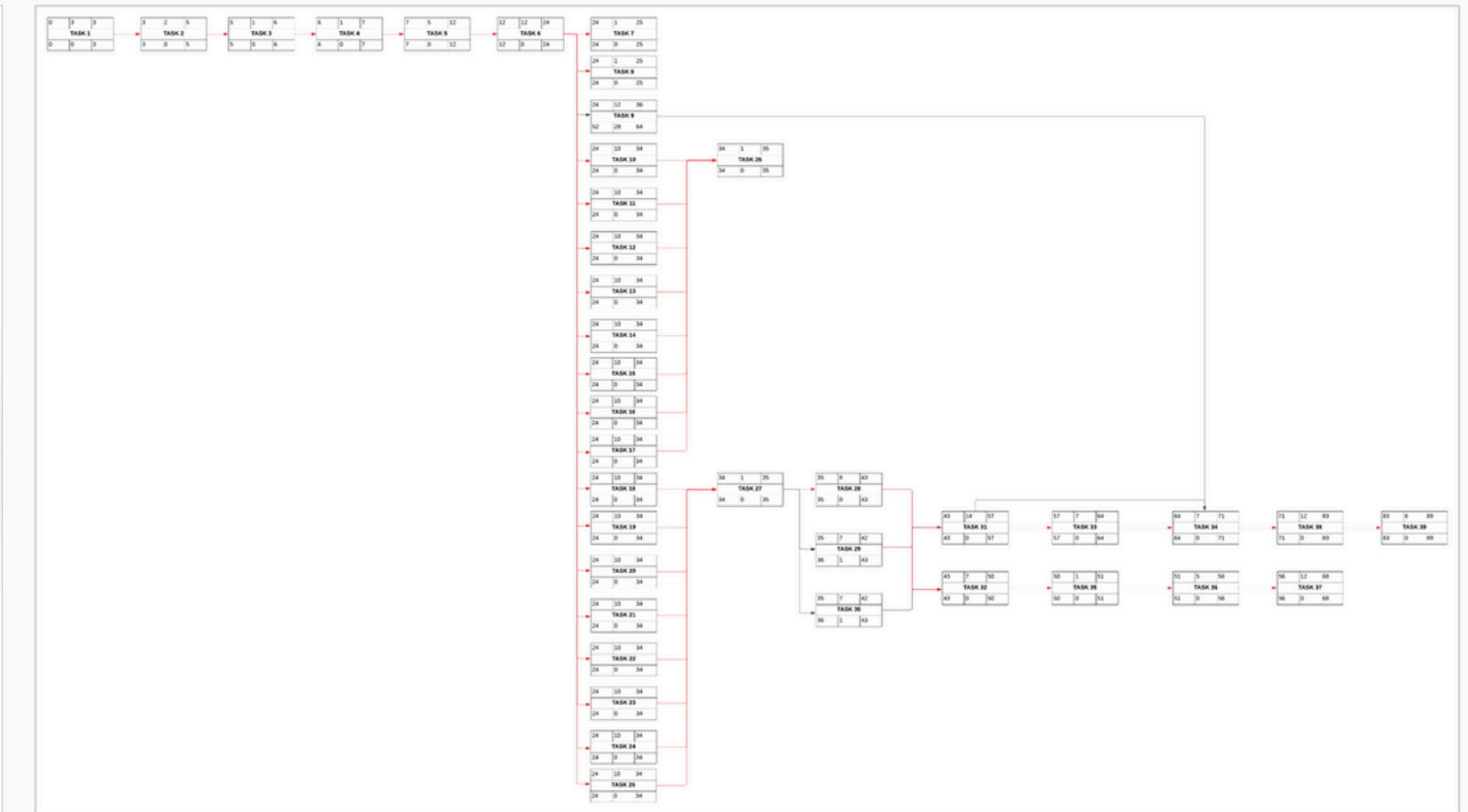
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## Software Requirement Specifications (SRS) Documentation

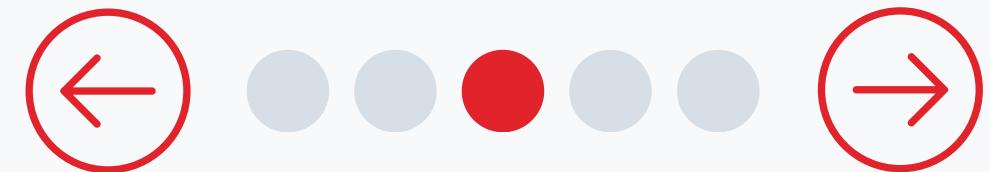


Gantt Chart

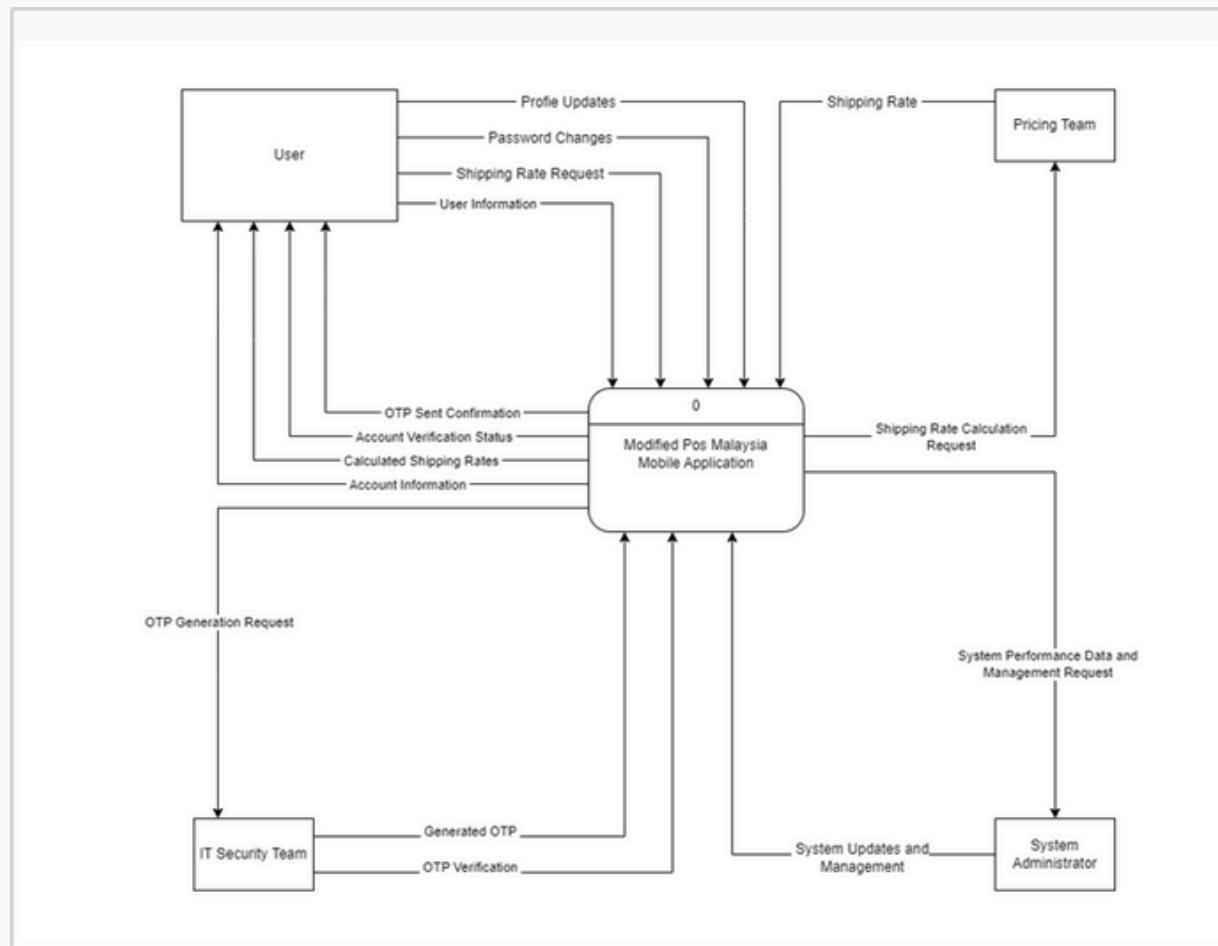


CPM Chart

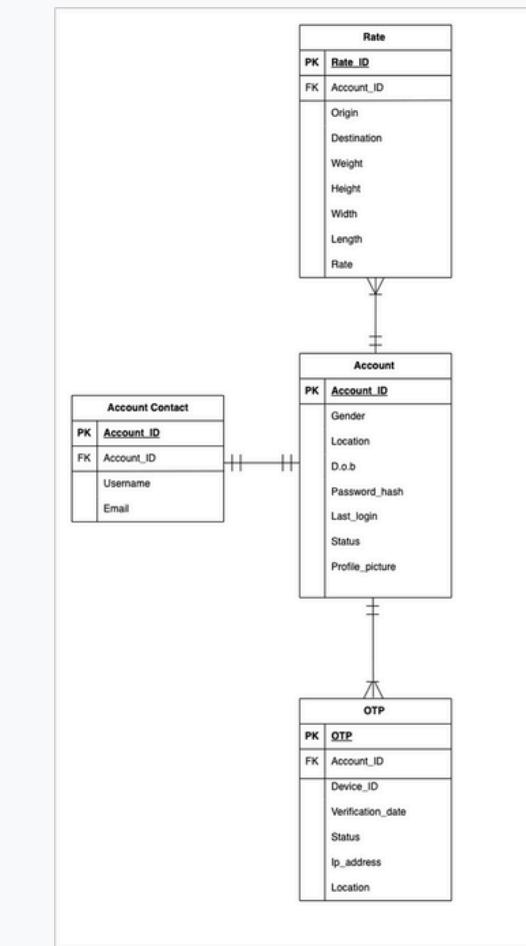
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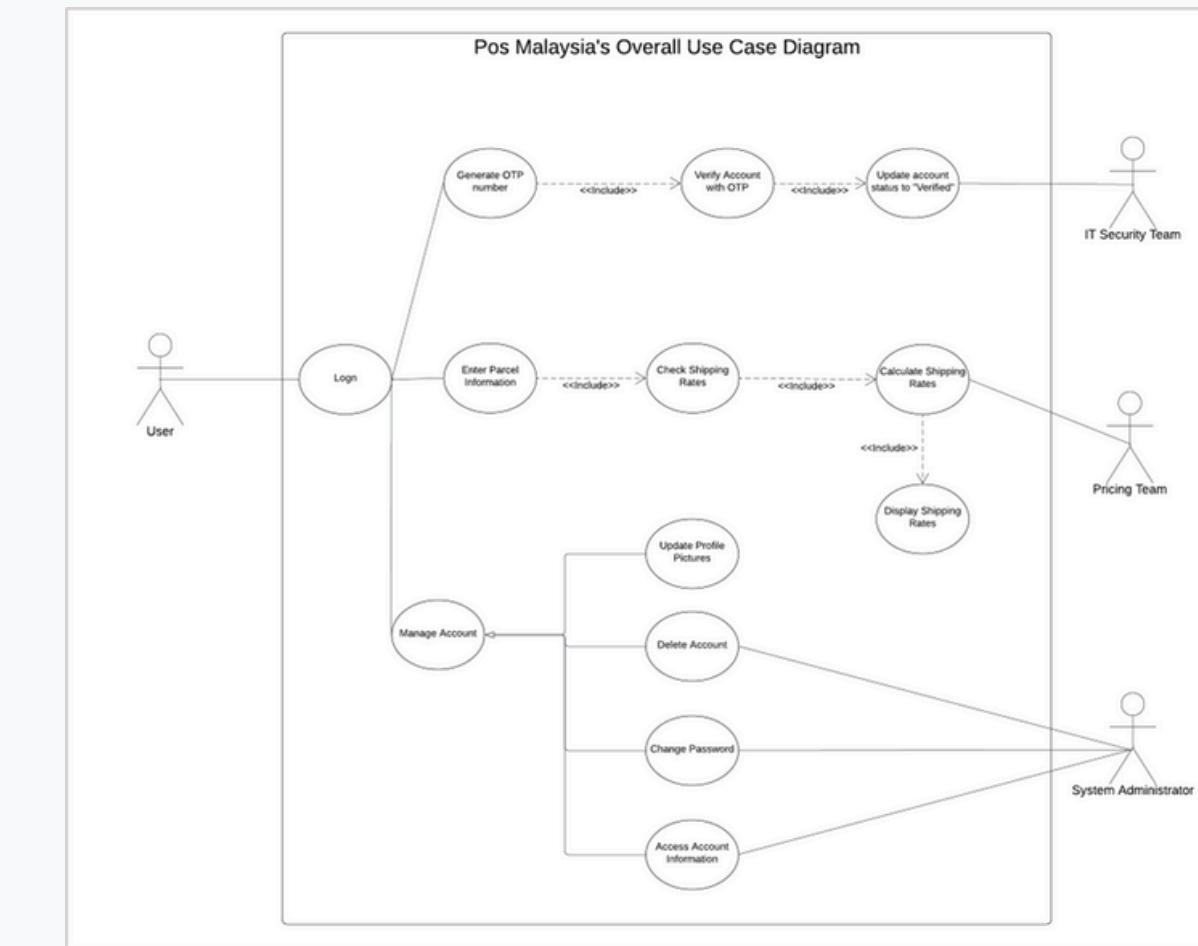
## Software Design Document (SDD/SDS) Documentation



Context Diagram



Class Diagram



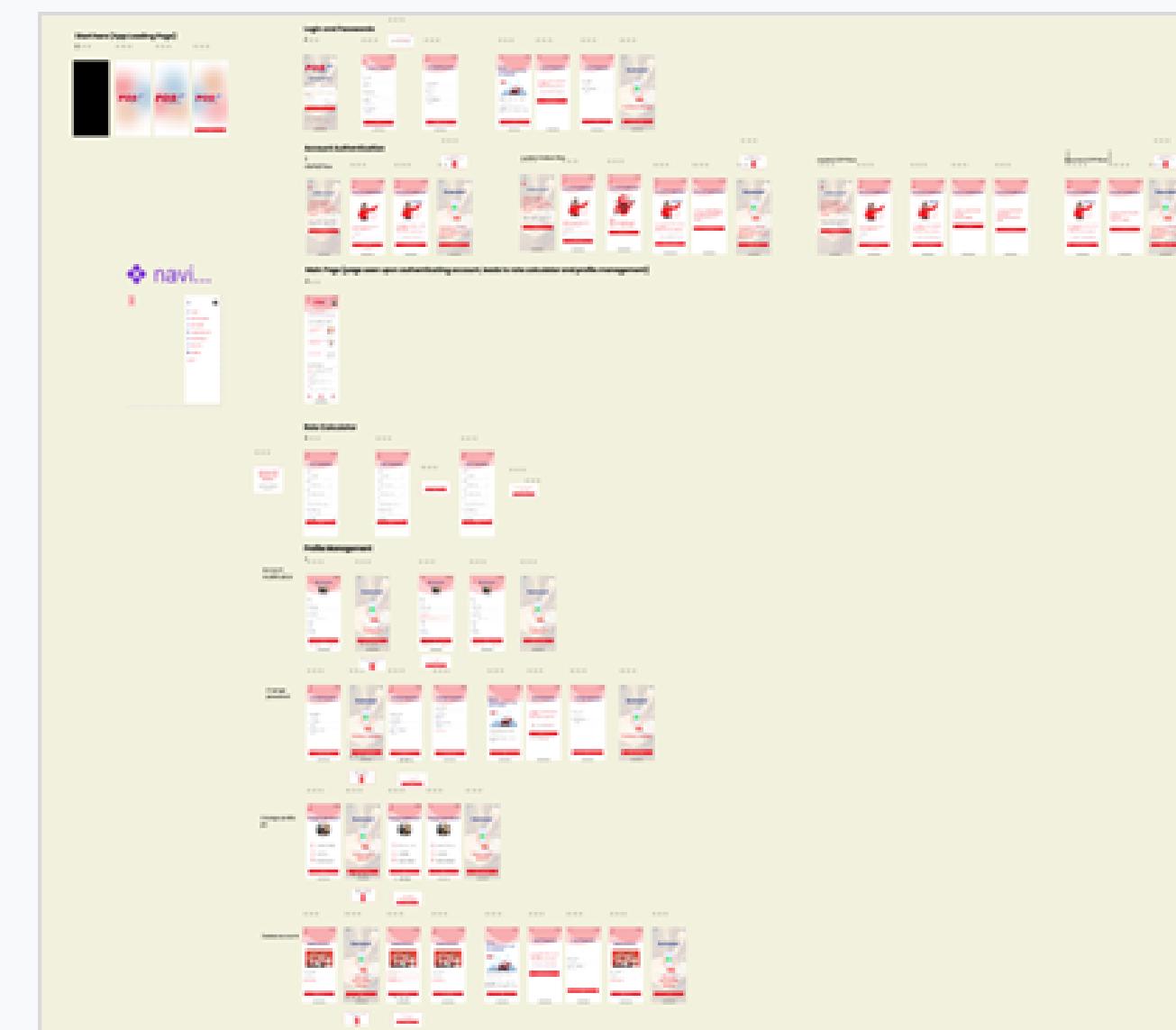
Use Case Diagram

# Gallery

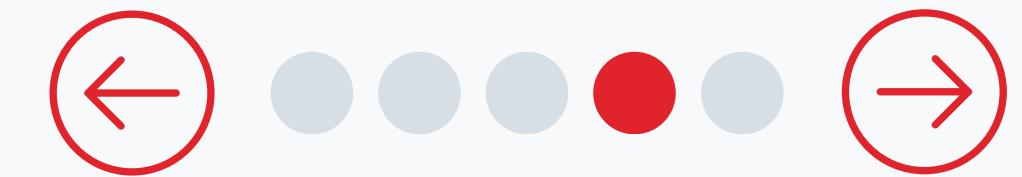
## Systems Test Report (STR) Documentation



Initial Prototype



Final Prototype



# Gallery



## Report Documentation

In the rapidly evolving landscape of postal and courier services, the adoption of advanced digital technologies has become pivotal for enhancing customer experiences. This literature review examines the comparative dynamics of mobile applications between POS Malaysia, the national postal service of Malaysia, and J&T Express, a leading courier service known for its superior mobile app interface. Pos Malaysia, facing increasing competition and rising customer expectations, stands a chance to improve its digital presence by taking inspiration from J&T's user-friendly mobile application. By analyzing existing literature on mobile app interfaces, user interface (UI), user experience (UX) design, and the specific features that make J&T's app a benchmark in the industry, this review aims to shed light on the strategies POS Malaysia can employ to improve its digital services. The comparative analysis not only underscores the critical aspects of mobile app functionality and user engagement but also highlights the broader implications for operational efficiency and customer satisfaction in the postal service sector.

### Literature Review

For the POS Malaysia app enhancement project, we are employing the iterative model to ensure that each feature is developed, tested, and refined before moving on to the next. This approach allows for a more flexible and adaptive development process. The iterative model for the enhanced POS Malaysia app involves repeating cycles of system design, system implementation, and system support and maintenance for each feature, with the sequence of releases being OTP account verification, improved rate calculator, and enhanced account management feature. System planning and system analysis are done once at the beginning.

#### System Planning

##### 1. Objectives and Goals

The planning phase involves defining the objectives, project scope, its resources, schedule of the project and risk that may be encountered. SWOT analysis is performed to provide valuable insights to enhance this process. The purpose of this project is to modify the account verification process, improve the rate calculator function, and enhance account management functions. The project scope comprises modifications to the existing account verification process, enhance user convenience in verifying accounts, rate calculating, and updating profiles.

##### 2. Feasibility Study

A feasibility study evaluates 4 aspects including technical, operational, economic, and schedule feasibility. The IT team compares the current technology with the suggested modification and determines the additional features required under the technical feasibility study. Operational feasibility assesses the impact of system modifications on the current system and user interaction. Economic feasibility evaluates financial metrics like net present value and return on investment. Schedule feasibility determines the project timeline, resources, slack time, and potential risks for delays.

##### 3. Resource Allocation

RM590,300 is allocated in the budget estimation for software development, software tools, infrastructure, equipment, labour cost, training, presentation materials, travel expenses, and contingency, with a 3-month project duration and 5 key milestones including the planning, analysis, design, implementation, and support and security. Five teams are involved in this project which are the team lead, IT development team, IT operation team, IT security team and UI/UX team.

##### 4. Risk Management and Project Plan

Risk management is conducted to identify the risk of losing application function, data, and valuable information. In order to mitigate these risks, POS Malaysia can use strategies such as implementing a robust backup procedure, test before launching, and conduct regular briefings. The project plan includes a

### SDLC Methodology