IT313: Software Engineering Project

Software Requirements Specification
For
Online Mobile Recharge Portal

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1. Introduction

1.1 Purpose

An online mobile recharge portal is a web-based application that allows users to recharge their mobile phones with any major mobile operator.

This project focuses at providing and easy and reliable platform to recharge mobile of any telecommunication company via online without the need of buying recharge cards. Users can typically choose from a variety of recharge plans and discounts, and they can pay for their recharge using a variety of payment methods, such as credit cards, debit cards, and net banking.

1.2 Intended Audience and Reading Suggestions

The intended audience of software developers who will be responsible for implementing the online mobile recharge portal. However, it may also be useful for project managers, testers, and end-users who need to understand the requirements of the system.

- Software developers should use this SRS document to understand the functional and non-functional requirements of the portal and to guide their design and implementation decisions.

- Project managers should use this SRS document to understand the scope of the project, the overall requirements of the portal, and the potential risks associated with the development process. They should also use this document to track the progress of the project and to ensure that the portal meets the specified requirements.

- Testers should use this SRS document to understand the requirements of the portal and to develop test cases that will ensure that the portal meets those requirements. They should also use this document to document the results of their testing activities.

- End-users should use this SRS document to understand the features and functionality of the online mobile recharge portal. They should also use

this document to report any problems or issues that they encounter with the portal

1.3 Product Scope

The online mobile recharge portal should provide a user-friendly interface that allows users to easily select their mobile operator, enter their mobile number, and choose a recharge amount. The portal should provide transaction history, account management features, support multiple payment methods.

1.4 Tools and Technologies Used

Frontend: HTML, CSS, Bootstrap

Backend: Python Django

Database: Firebase

Version Control: Git, GitHub

UI/UX Design: Figma

2. Functional and Non-Functional Requirements

2.1 Functional Requirements

- **User Authentication and Registration:** Users should be able to create an account, log in to their existing account, and log out of their account.

- **Mobile Operator Selection**: Users should be able to select their mobile operator from a list of all major operators in the target market.

- **Mobile Number Entry:** Users should be able to enter their mobile number, and the system should validate the number to ensure that it is a valid mobile number for the selected operator.

- **Recharge Plan Selection:** Users should be able to select a recharge plan from a list of available plans. The system should display the recharge amount and any applicable discounts for each plan.

- **Payment Processing:** Users should be able to pay for their recharge using a variety of payment methods, such as credit cards, debit cards,

net banking, and mobile wallets. The system should securely process the payment and update the user's account balance accordingly.

- **Recharge Confirmation:** Users should receive a confirmation message after their recharge is successful. The confirmation message should include the recharge amount, the transaction ID, and the updated account balance.

- **Transaction History:** Users should be able to view their transaction history, including the date, time, amount, and status of each transaction.

- **Account Management:** Users should be able to manage their account information, such as their profile details, payment methods.

- **Operator and Offer Management:** Admins should be able to add, edit, and remove mobile operators, along with managing recharge offers and plans.

- **User Feedback Handling:** Admins should have access to user feedback and respond promptly.

2.2 Non-Functional Requirements

- **Accessibility:** The portal should be accessible to everyone on the Internet.

- **Usability:** The portal should have an intuitive user interface and be simple for people to use and comprehend.

- **Reliability:** The portal should be reliable and should always be available to users. The system should be able to handle system failures and recover quickly from outages.

- **Scalability:** The portal should be scalable to accommodate a growing user base and transaction volume. The system should be able to handle an increasing number of users and transactions without compromising performance or reliability.

- **Security:** The portal should be secure and should protect user information from unauthorized access, as it's a privacy concern.

3. Use Cases and User Stories

3.1 Actors

1. End-User
2. Admin
3. Mobile Operator

3.2 Use Cases

3.2.1 User

- Sign In/Login
- Sign Up/Register
- Recharge
- Select Operator
- View Profile
- View Plans
- View Offers
- Make Payment
- Give Feedback
- View Transaction History
- View Contact Us
- View About Us

3.2.2 Admin

- Sign In/Login
- Add/Remove Operator
- Add/Remove Plans
- Add/Remove Offers
- View Operators
- View Feedback
- View Users

3.3 Use Case Descriptions

3.3.1 Initiate Recharge

<u>Actor:</u> End User

<u>Precondition:</u> The user has an account and is logged in to the portal.

<u>Flow:</u>

1. The user selects the mobile operator they want to recharge from a list of available operators.
2. The user enters the mobile number they want to recharge.
3. The system validates the mobile number to ensure it is a valid number for the selected operator.
4. The system displays a list of available recharge plans for the selected operator.
5. The user selects the recharge plan they want to use.
6. The system displays a confirmation message summarizing the recharge details, including the recharge amount, plan benefits, and total cost.
7. The user confirms the recharge transaction.

<u>Postcondition:</u> The recharge transaction is initiated and the user proceeds to the payment step.

3.3.2 Payment Method

<u>Actor:</u> End User

<u>Precondition:</u> The user has initiated a recharge transaction.

<u>Flow:</u>

1. The system displays a list of available payment methods, such as credit cards, debit cards, net banking, and mobile wallets.
2. The user selects the payment method they want to use.
3. The system redirects the user to the payment gateway for the selected payment method.

<u>Postcondition:</u> The user is redirected to the payment gateway to complete the payment process.

3.3.3 Complete Payment

Actor: End User

Precondition: The user has been redirected to the payment gateway.

Flow:
1. The user securely enters their payment information in the payment gateway.
2. The payment gateway processes the transaction and sends a confirmation to the portal.
3. The portal updates the user's account balance and sends a confirmation message to the user.

Postcondition: The recharge transaction is completed and the user's mobile account is credited with the recharge amount.

3.3.4 View Recharge Confirmation

Actor: End User

Precondition: The user has successfully completed a recharge transaction.

Flow:
1. The user accesses the recharge history section of their account.
2. The system displays the recharge confirmation details, including the recharge amount, transaction ID, operator, plan, and transaction time.

Postcondition: The user verifies the successful completion of their recharge transaction.

3.3.5 Check Transaction History

Actor: End User

Precondition: The user is logged in to their account.

Flow:
1. The user accesses the transaction history section of their account.

2. The system displays a list of all completed recharge transactions, including the date, time, amount, status, and operator for each transaction.
3. The user can search or filter transactions based on specific criteria, such as date range, operator, or transaction amount.

Postcondition: The user reviews their past recharge transactions and tracks account balance changes.

3.3.6 Manage Account Information

Actor: End User

Precondition: The user is logged in to their account.

Flow:
1. The user accesses the account settings section of their account.
2. The user can view and update their personal information, such as name, email address, and phone number.
3. The user can add, edit, or remove payment methods associated with their account.
4. The user can manage their notification preferences for recharge confirmations and other account-related events.

Postcondition: The user maintains accurate and up-to-date account information and preferences.

3.3.7 Add Mobile Operator

Actor: Admin

Precondition: The admin is logged in to the admin portal.

Flow:
1. The admin accesses the operator management section of the admin portal.
2. The admin enters the details of the new mobile operator, including the operator's name, logo, and supported recharge plans.
3. The admin submits the new operator information.

Postcondition: The new mobile operator is added to the portal and becomes available for user selection during recharge transactions.

3.3.8 Create Recharge Offer

Actor: Admin

Precondition: The admin is logged in to the admin portal.

Flow:

1. The admin accesses the offer management section of the admin portal.
2. The admin selects the operator for which the offer will be created.
3. The admin enters the details of the new offer, including the offer name, validity period, discount percentage, and minimum recharge amount.
4. The admin submits the new offer information.

Postcondition: The new recharge offer is created and becomes available to users during recharge transactions.

3.3.9 Create Recharge Plan

Actor: Admin

Precondition: The admin is logged in to the admin portal.

Flow:

1. The admin accesses the plan management section of the admin portal.
2. The admin selects the operator for which the plan will be created.
3. The admin enters the details of the new plan, including the plan name, recharge amount, and corresponding benefits.
4. The admin submits the new plan information.

Postcondition: The new recharge plan is created and becomes available to users during recharge transactions.

3.3.10 Respond to User Feedback

Actor: Admin

Precondition: The admin is logged in to the admin portal.

<u>Flow:</u>

1. The admin accesses the feedback management section of the admin portal.
2. The system displays a list of submitted user feedback, including suggestions, complaints, and bug reports.
3. The admin reviews each feedback item and prioritizes them based on severity or impact.
4. The admin provides a response to each feedback item, addressing the concerns or providing explanations.
5. The admin updates the feedback status to indicate the progress or resolution.

<u>Postcondition:</u> The admin addresses user concerns promptly, fosters better communication, and improves the overall user experience.

3.4 User Stories

<u>User Story 1: User Registration</u>

As a new user, I want to create an account on the online mobile recharge portal so that I can easily recharge my mobile devices.

<u>Acceptance Criteria:</u>

- When I visit the portal's registration page, I should see fields for entering my name, email address, and password.
- After submitting the registration form, I should receive a verification email.
- Clicking on the verification link in the email should confirm my account and allow me to log in.

<u>User Story 2: User Login</u>

As a registered user, I want to be able to log in to the online mobile recharge portal using my credentials.

Acceptance Criteria:

- The portal should have a login page where I can enter my registered email and password.
- Upon successful login, I should be directed to my account dashboard.
- If I enter incorrect credentials, I should receive an error message.

User Story 3: Mobile Recharge

As a user, I want to be able to recharge my mobile phone using various payment options.

Acceptance Criteria:

- I should be able to select my mobile operator from a dropdown list.
- After selecting the operator, I should enter my mobile number and choose a recharge plan.
- The portal should display plan details including validity, data limits, and talk time.
- I should be able to proceed to payment and select payment options such as credit/debit cards, net banking, and digital wallets.
- After successful payment, I should receive a confirmation of the recharge via email and SMS.

User Story 4: Browse Recharge Plans

As a user, I want to browse available mobile recharge plans based on my preferences.

Acceptance Criteria:

- I should be able to filter plans by mobile operator, plan type (data, talk time, combo), and pricing range.
- The plan details should include validity, data limits, talk time, and pricing.
- I can click on a plan to see more information before selecting it.

User Story 5: Transaction History

As a user, I want to view a history of my past recharge transactions.

Acceptance Criteria:

- In my account dashboard, there should be a section displaying a list of my past recharge transactions.
- Each transaction entry should include details like transaction date, amount, mobile number, and recharge plan.

User Story 6: Account Settings

As a user, I want to be able to update my account settings.

Acceptance Criteria:

- I should be able to change my password from my account settings.
- I should be able to update my email address.
- I can add or remove saved payment methods.

User Story 7: Recharge Reminders

As a user, I want to receive notifications about upcoming recharge plan expirations.

Acceptance Criteria:

- I should receive an email or SMS notification a day before a recharge plan is about to expire.
- The notification should include details about the expiring plan and options to renew.

User Story 8: Secure Payment Handling

As a user, I want my payment information to be handled securely.

Acceptance Criteria:

- The portal should use encryption (HTTPS) to secure the payment process.
- Payment details should not be stored on the portal after the transaction is complete.

User Story 9: Support and FAQs

As a user, I want access to customer support options and FAQs.

Acceptance Criteria:

- The portal should have a clearly visible link to FAQs and customer support.
- The FAQs should cover common user queries about registration, recharge process, and troubleshooting.

User Story 10: Promo Codes and Offers

As a user, I want to apply promo codes and avail special offers while recharging.

Acceptance Criteria:

- The portal should allow me to enter a promo code during the checkout process.
- Applying a valid promo code should reflect the discount or benefit in the final payment amount.

User Story 11: Multiple Payment Options

As a user, I want flexibility in choosing payment methods.

Acceptance Criteria:

- The portal should support credit/debit cards, net banking, digital wallets, and UPI as payment options.
- During checkout, I should be able to select my preferred payment method.

User Story 12: Multi-Language Support

As a user, I want the portal to support multiple languages.

Acceptance Criteria:

- The portal should have language options visible on the landing page.
- Changing the language should update the entire portal's content to the selected language.

User Story 13: Admin Dashboard

As an admin, I want to access the admin dashboard to view and manage user accounts, transactions, and system settings.

- Present a user list with information such as name, email, account balance, and registration date.
- Provide a secure login page for admin access.
- Display an admin dashboard with options for user management, transaction logs, and system configuration.

User Story 14: Handling Customer Support

As an admin, I want to handle customer support requests and issues reported by users effectively

- Implement a customer support dashboard to track and manage user reported issues.
- Allow admins to assign, prioritize, and resolve issues, providing communication channels with users.

User Story 15: Handling Transactions

As an admin, I want to have the ability to refund transactions and resolve disputes when necessary.

- Provide a refund process for failed or disputed transactions, with proper authorization.
- Ensure that refunds are reflected accurately in user account balances.

User Story 16: Administering Changes

As an admin, I want to configure and manage supported mobile carriers, recharge amounts, and payment gateways.

- Enable admins to add, modify, or remove supported mobile carriers.
- Allow admins to set up and adjust predefined recharge amounts based on carrier and user feedback.
- Provide options to configure and integrate payment gateways securely.

User Story 17: Notification System

As an admin, I want to receive notifications for critical system events, such as payment gateway failures or unusual activities.

- Set up email alerts or notifications to inform admins about system issues or security concerns.
- Implement alert thresholds for specific events to trigger notifications.

User Story 18: User Performance (End User)

As an end user, I expect the online mobile recharge portal to provide quick response times, ensuring that I can complete my recharge transactions without experiencing delays or slow loading.

Acceptance Criteria:

- The portal's average page load time should be less than 3 seconds for end users.
- Recharge transactions should be completed within 10 seconds after payment confirmation.
- User experience should remain consistent even during peak usage times.

User Story 19: System Scalability (System Administrator)

As a system administrator, I need the online mobile recharge portal to be scalable to accommodate increased user traffic and ensure uninterrupted service during peak periods.

Acceptance Criteria:

- The system should be capable of handling at least a 50% increase in user traffic without degradation in performance.
- Autoscaling mechanisms should be in place to add resources dynamically based on traffic patterns.
- Scalability tests should be conducted periodically to verify the system's ability to handle increased loads.

User Story 20: System Availability (System Administrator)

As a system administrator, I expect the online mobile recharge portal to maintain high availability, minimizing downtime and ensuring users can access the service whenever needed.

4. Use Case Diagram

ONLINE MOBILE RECHARGE PORTAL
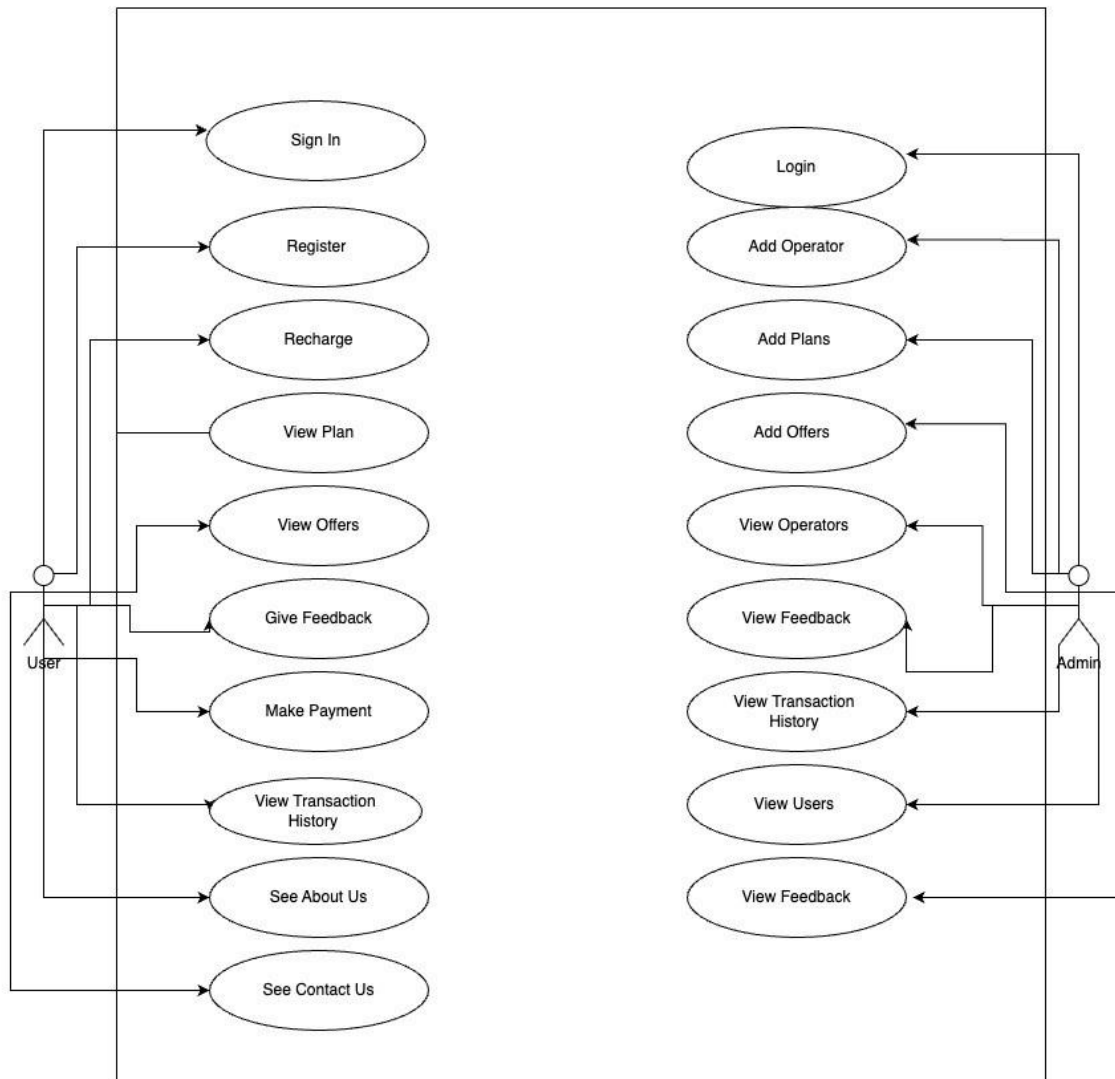
Appendix A: Issues List

Issues to be Solved

1. The mobile OTP functionality is not yet integrated into the frontend of the website, but the current version uses email authentication.

Requirements not implemented

1. The current payment gateway integration is using dummy data for payment processing. This needs to be replaced with a real payment gateway integration to enable actual transactions.

2. The portal's layout and design are not yet fully responsive, causing display inconsistencies across different devices and screen sizes.