Software Requirements Specification

Project: 2710

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1 Introduction

[SRS-1] The purpose of this Software Requirements Specification (SRS) document is to provide a comprehensive description of the Mobile Banking System. This document outlines the functional and non-functional requirements, system features, and user interactions necessary for the development of a secure, user-friendly mobile banking application. It serves as a foundational reference for stakeholders, including developers, project managers, and users, ensuring that all parties have a clear understanding of the system's capabilities and constraints. By establishing these requirements, the SRS aims to facilitate effective communication and guide the successful implementation of the mobile banking solution.

Type: Section

1.1 Product scope

[SRS-2] The mobile banking system aims to provide users with convenient access to banking services through their mobile devices. This includes functionalities such as:

- **Account Management**: Users can view account balances, transaction history, and manage personal information.
- **Fund Transfers**: The ability to transfer funds between accounts or to other banks seamlessly.
- **Bill Payments**: Users can pay bills directly from their mobile devices.
- **Mobile Deposits**: Users can deposit checks by taking a photo of them.
- **Customer Support**: Access to customer service through chat or support tickets.

Type: Section

1.2 Product value

[SRS-3] The Mobile Banking System offers several key benefits and value propositions:

1. **Convenience**: Customers can access their accounts and perform transactions anytime, anywhere, using their mobile devices, eliminating the need to visit a physical bank branch or use a desktop computer.
2. **Time Savings**: The system allows customers to manage their finances quickly and efficiently, reducing the time spent on banking tasks and enabling them to focus on other aspects of their lives.
3. **Cost Savings**: The bank can offer mobile banking services at a lower cost, which can be passed on to customers in the form of reduced fees or better interest rates.
4. **Increased Customer Satisfaction**: By providing a user-friendly and convenient banking experience, the system can help improve customer satisfaction, leading to increased customer retention and referrals.
5. **Competitive Advantage**: Offering a robust mobile banking system can give the bank a competitive edge in the market, attracting new customers and retaining existing ones who value the benefits of mobile banking.

Type: Section

1.3 Intended audience ⊞

[SRS-4]

1. **End Users**:
   - **Customers**: Individuals who will use the mobile banking app for personal banking tasks such as checking balances, transferring funds, paying bills, and managing accounts.
   - **Business Users**: Small business owners who may need to manage business accounts, make payments, and access financial reports.
2. **Banking Staff**:
   - **Customer Support Representatives**: Staff who will assist users with inquiries and issues related to the mobile banking application.
   - **IT and Development Teams**: Technical teams responsible for maintaining and updating the application based on user feedback and technological advancements.
3. **Management and Stakeholders**:
   - **Project Managers**: Individuals overseeing the development process to ensure that the project meets its goals and deadlines.

- **Executives**: Senior management who require insights into user engagement and financial performance metrics from the mobile banking system.

Type: Section

1.4 Intended use

[SRS-14]

- **Functional Interaction**: Users will interact with the application primarily through mobile devices to perform banking transactions securely and efficiently like accessing account information, conducting transactions, setting up alerts for account activity etc.
- **Feedback Mechanism**: End users will provide feedback through in-app surveys or customer support channels, which will be analyzed by the development team to improve user experience.
- **Training and Support**: Banking staff will utilize internal training materials to understand system functionalities better and assist users effectively. They may also rely on support documentation for troubleshooting common issues.
- **Data Analysis**: Management will use analytics tools integrated within the mobile banking system to track user behavior, transaction patterns, and overall system performance, aiding in strategic decision-making.

Type: Section

1.5 General description

[SRS-15] Some important functions and features are:

- **User Authentication**: Secure login methods (e.g., biometrics, passwords).
- **Account Management**: Features for viewing account balances, transaction history, etc.
- **Funds Transfer**: Functionality to transfer money between accounts or to other banks.
- **Bill Payments**: Ability to pay bills directly through the app.
- **Notifications**: Alerts for transactions, promotions, or security issues.
- **User Interfaces**: Describe how users will interact with the application (e.g., mobile app design principles).
- **APIs**: Specify any external APIs that will be used for services like payment gateways or third-party integrations.

Type: Section

~~1.6 Limitations~~

~~[SRS-16]~~

Type: Section

~~1.7 Assumptions and dependencies~~

~~[SRS-17]~~

Type: Section

~~1.8 Definitions~~

~~[SRS-18]~~

Type: Section

~~1.9 Acronyms and abbreviations~~

~~[SRS-19]~~

Type: Section

Type: Section

2.1 Design requirements

[SRS-21] Design requirements are limitations that affect how the system is built:

- **Technology Stack**: Specify required programming languages, frameworks (e.g., React Native), and databases (e.g., PostgreSQL).
- **Regulatory Compliance**: Adherence to financial regulations such as GDPR or PCI DSS.
- **Device Compatibility**: Ensure compatibility with major mobile operating systems (iOS and Android) and various screen sizes.

Type: Section

2.2 Graphics requirements

[SRS-22]

- **Layout Consistency**: All screens should maintain a consistent layout, including navigation elements and button placements.
- **Responsive Design**: Graphics must adapt to various screen sizes and orientations, ensuring usability on different devices (smartphones and tablets).
- **Icons and Images**: Use recognizable icons for actions like transfer, deposit, and settings. Images should be optimized for quick loading without compromising quality.
- **Color Scheme**: Define a color palette that aligns with the brand identity while ensuring readability and accessibility (e.g., contrast between text and background).
- **Text Hierarchy**: Establish a clear hierarchy using different font weights and sizes to guide users through the content.
- **Loading Times**: Set requirements for maximum loading times for graphics to ensure a seamless experience.

Type: Section

2.3 Operating System requirements

[SRS-23]

1. **Mobile Platforms**:
    - **iOS**:
        - Minimum version: iOS 12 or later.
        - Supported devices: iPhone models from iPhone 6s and newer.
    - **Android**:
        - Minimum version: Android 8.0 or later.
        - Supported devices: Devices with ARMv7 or higher architecture.
2. **Server-Side Operating Systems**:
    - **Windows Server**:
        - Versions: Windows Server 2016 or later.
    - **Linux Distributions**:
        - Recommended: Ubuntu 20.04 LTS or CentOS 7 and above.
    - **Database Servers**:
        - Compatibility with databases such as MySQL, PostgreSQL, or Oracle.
3. **Web Server Requirements**:
    - **Apache HTTP Server**: Version 2.4 or later.
    - **Nginx**: Version 1.14 or later.
4. **Development Environment**:
    - Integrated Development Environments (IDEs) compatible with mobile development, such as Android Studio for Android and Xcode for iOS.

Type: Section

2.4 Constraints of the product

[SRS-24] **1. Performance Constraints**

- **Response Time**: The system must meet specific performance benchmarks, such as response times for transactions and data retrieval (e.g., under 2 seconds).
- **Load Handling**: The ability to handle a certain number of concurrent users without degradation in performance, which is critical for peak transaction times.
- **Data Transfer Limits**: Restrictions on the amount of data that can be transmitted in a single transaction to optimize performance and minimize latency.

3. Usability Constraints

- **Accessibility Standards**: Compliance with accessibility guidelines (e.g., WCAG) to ensure that the application is usable by individuals with disabilities.
- **User Training Requirements**: Constraints regarding the level of training required for users to effectively use the mobile banking application.

4. Environmental Constraints

- **Operating Environment**: Limitations based on the platforms (iOS, Android) and devices (smartphones, tablets) that the application must support.
- **Network Dependencies**: Considerations for varying network conditions (e.g., 3G, 4G, Wi-Fi) that may affect application performance and availability.

5. Resource Constraints

- **Budget Limitations**: Financial constraints that dictate the scope of features and functionalities that can be implemented within the project.
- **Time Constraints**: Deadlines for project milestones and final delivery that may impact development processes and resource allocation.

Type: Section

~~2.5 Logical database requirements~~

~~[SRS-25]~~

Type: Section

~~2.6 Design constraints~~

~~[SRS-26]~~

Type: Section

~~2.7 Standards compliance~~

~~[SRS-27]~~

Type: Section

~~2.8 Software system attributes~~

~~[SRS-28]~~

Type: Section

3 External Interface requirements

[SRS-29] The external interface requirements section of a Software Requirements Specification (SRS) document for a mobile banking application outlines how the application will interact with external systems, users, and hardware. This section is critical for ensuring that all stakeholders have a clear understanding of the interfaces that will be used.

Type: Section

[SRS-47]

- **Screen Layouts**: Define the design and layout of each screen within the application, including navigation elements, buttons, and icons.
- **User Interaction**: Describe how users will interact with the application, including touch gestures, voice commands, and other input methods.
- **Accessibility Features**: Specify features to support users with disabilities, such as screen readers and alternative navigation options.

3.2 Hardware interface requirements

[SRS-46]

- **Device Compatibility**: List the types of devices (e.g., smartphones, tablets) and operating systems (iOS, Android) the application must support.
- **Peripheral Interfaces**: Specify any hardware interfaces required for functionalities like biometric scanners (fingerprint or facial recognition), card readers, or NFC capabilities.

3.3 Software interface requirements

[SRS-45]

- **APIs**: Detail the external APIs the application will interact with, including payment gateways, banking systems, and third-party services (e.g., credit score providers).
  - **Data Formats**: Specify expected data formats (e.g., JSON, XML) for communication.
  - **Authentication Methods**: Describe how the application will authenticate with these APIs (e.g., OAuth tokens).

3.4 Communication interface requirements

[SRS-43]

- **Network Protocols**: Outline the protocols used for data transmission (e.g., HTTPS for secure communication).
- **Error Handling**: Define how errors in communication will be managed, including error codes and messages.
- **Input/Output Specifications**: Clearly specify what data will be sent to and received from each interface.
  - Include details on data validation rules and transformation requirements.

~~3.4.1 Hardware interface requirements~~

~~[SRS-44]~~

4 Non functional requirements

[SRS-30] Non-functional requirements (NFRs) for a Software Requirements Specification (SRS) document of a mobile banking application define how the system should perform rather than what it should do. These requirements are crucial for ensuring the quality and usability of the application. Here are key categories of non-functional requirements relevant to a mobile banking system:

Type: Section

4.1 Security

[SRS-40]

1. **Authentication Mechanisms**
   - The system must support multiple authentication methods, including username/password, biometric verification (fingerprint or facial recognition), and multi-factor authentication (MFA) to enhance user identity verification.
2. **Authorization Levels**
   - The system should implement role-based access control (RBAC) to ensure that users can only access functionalities and data pertinent to their roles. For instance, administrative users should have

3. **Data Encryption**
    - All sensitive data, both at rest and in transit, must be encrypted using industry-standard encryption protocols (e.g., AES-256 for data at rest and TLS 1.2 or higher for data in transit) to protect against unauthorized access and data breaches.
4. **Data Privacy Compliance**
    - The system must adhere to relevant data protection regulations (e.g., GDPR, CCPA) to ensure user privacy and data handling practices meet legal standards.
5. **Audit Logging**
    - The system should maintain comprehensive logs of user activities, including login attempts, transactions, and changes to sensitive information, which can be reviewed for security audits and incident investigations.
6. **User Education and Awareness**
    - The application should include features or prompts that educate users about secure practices, such as recognizing phishing attempts and using strong password.

4.2 Capacity

[SRS-39]

- **Transaction Speed**: "The system shall complete all fund transfers within 2 seconds under normal operational conditions."
- **User Load Handling**: "The application must support at least 10,000 concurrent transactions without performance degradation."
- **Availability**: "The mobile banking service must be available 99.9% of the time during business hours."
- **User Interface Performance**: "The app should load all user account information within 3 seconds."

4.3 Compatibility

[SRS-38]

- **Platform Support**: The application must function seamlessly on various mobile platforms, including iOS and Android, across multiple versions.
- **Integration**: It should integrate with existing banking systems and third-party services without requiring significant modifications.

4.4 Reliability

[SRS-37]

- The system should maintain a reliability rate of 99.9%, ensuring minimal downtime.
- Critical financial transactions must be processed with 100% accuracy and integrity.

4.5 Scalability

[SRS-36]

- The system must support up to 10,000 concurrent users without performance degradation.
- It should be capable of handling a 50% increase in transaction volume during peak hours without affecting response times.

4.6 Maintainability

[SRS-35]

- The system should allow for updates and patches to be deployed without significant downtime or user impact.
- Documentation must be maintained to facilitate easier troubleshooting and maintenance by the IT team.

4.7 Usability

[SRS-34]

- Accessibility standards (e.g., WCAG 2.1) must be met to ensure usability for all users, including those with disabilities.

4.8 Other non functional requirements

[SRS-33]

1. **Availability**
   - The mobile banking application must be available 99.98% of the time, including during scheduled maintenance.
   - Users should have access to the application 24/7, with notifications provided for any downtime.
2. **Performance**
   - The system should respond to user inputs within 2 seconds under normal load conditions.
   - Transactions must be processed within 5 seconds to ensure a smooth user experience.

~~4.9 Definitions and Acronyms~~

~~[SRS-41]~~

5 Definitions and Acronyms

[SRS-42] Definitions

- **Mobile Banking**: A service that allows customers to conduct financial transactions remotely using a mobile device, such as a smartphone or tablet.
- **User Interface (UI)**: The means by which the user interacts with the mobile banking application, including buttons, menus, and forms.
- **Authentication**: The process of verifying the identity of a user before granting access to the mobile banking system.
- **Transaction**: Any operation performed by the user within the mobile banking app, such as transferring funds, checking balances, or paying bills.
- **API (Application Programming Interface)**: A set of protocols and tools that allow different software applications to communicate with each other, facilitating integration with other systems like payment gateways or third-party services.
- **Encryption**: The process of converting information into a secure format to prevent unauthorized access during data transmission.

Acronyms

- **SRS**: Software Requirements Specification - A document that outlines the functional and non-functional requirements of the software.
- **UI**: User Interface - The visual part of the application that users interact with.
- **UX**: User Experience - The overall experience a user has when interacting with the application, encompassing usability and design.
- **KYC**: Know Your Customer - A regulatory process that requires banks to verify the identity of their clients to prevent fraud and money laundering.
- **MFA**: Multi-Factor Authentication - An additional security layer requiring more than one form of verification from users before accessing their accounts.
- **GDPR**: General Data Protection Regulation - A regulation in EU law on data protection and privacy in the European Union and the European Economic Area.
- **CCPA**: The California Consumer Privacy Act
- **PCI DSS**: Payment Card Industry Data Security Standard.
- **WCAG**: Web Content Accessibility Guidelines.

~~6 Security~~

~~[SRS-32]~~

~~7 Definitions and Acronyms~~

~~[SRS-31]~~

Type: Section