IFSC 3360: System Analysis and Design

Mobile Shopping Application Verification System

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System Description

- **Brief description of the system.**

Nowadays, how to ensure the safety of funds during the shopping process is the main problem faced by existing mobile shopping applications. Therefore, in terms of security, we need to provide proper authentication. However, it is always costly and is the main security hole in the system. So, the idea here is to verify user identity by capturing the user's mobile phone number and verifying it through the database, thereby achieving security for the mobile shopping application.

System Description

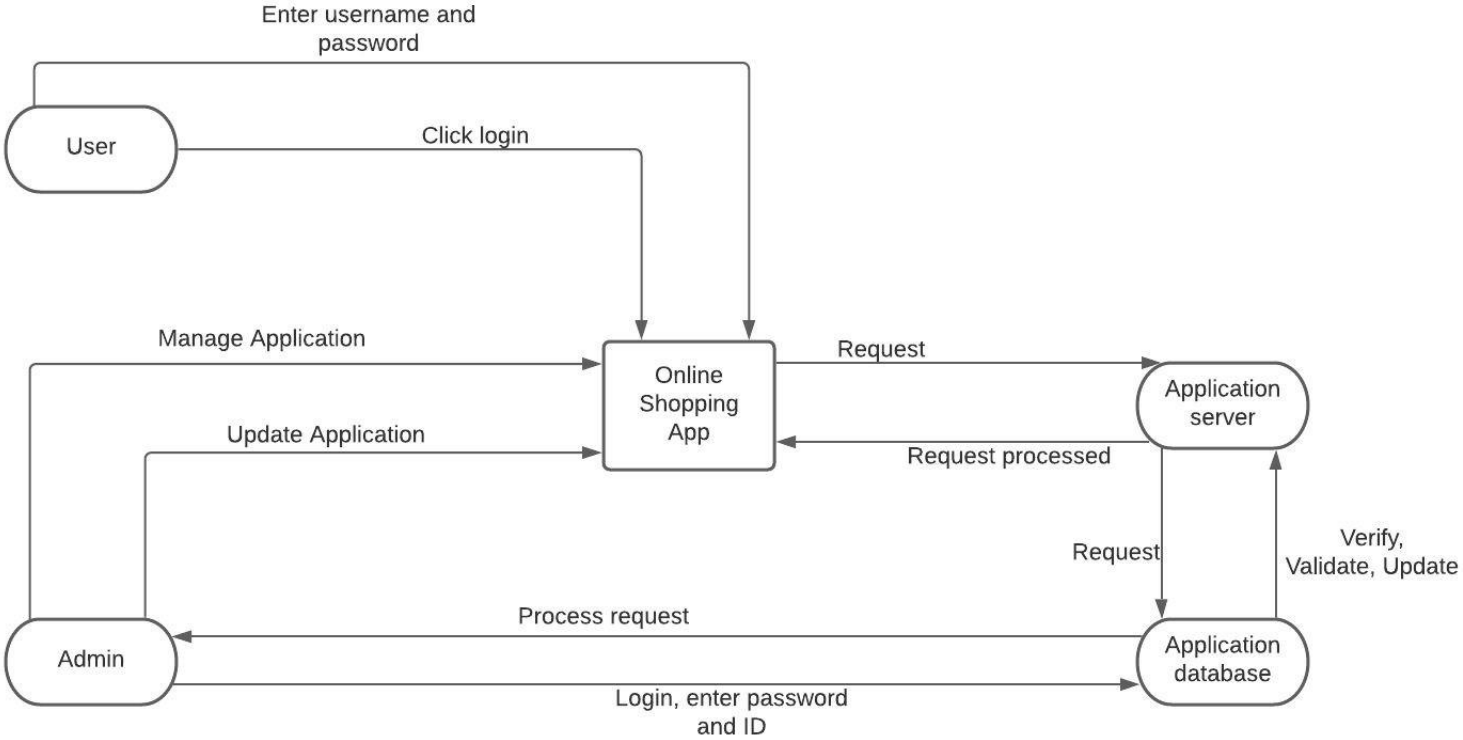
- **Are we improving an existing system or designing a brand new system?**

We are improving an existing system. At present, most of the verification methods adopted by mobile shopping applications are simple username/email and password. This method actually has a great security risk. Most users bind their credit card to their account in the mobile shopping application. If the account is stolen, the user's credit card will be directly threatened. After we improved the existing system, we added mobile phone number verification. After entering the mobile phone number, the user will receive a SMS verification code, and enter the SMS verification code to enter the account. During this period, the database will also verify the number entered by the user. This will greatly enhance the security of user accounts in mobile shopping applications.

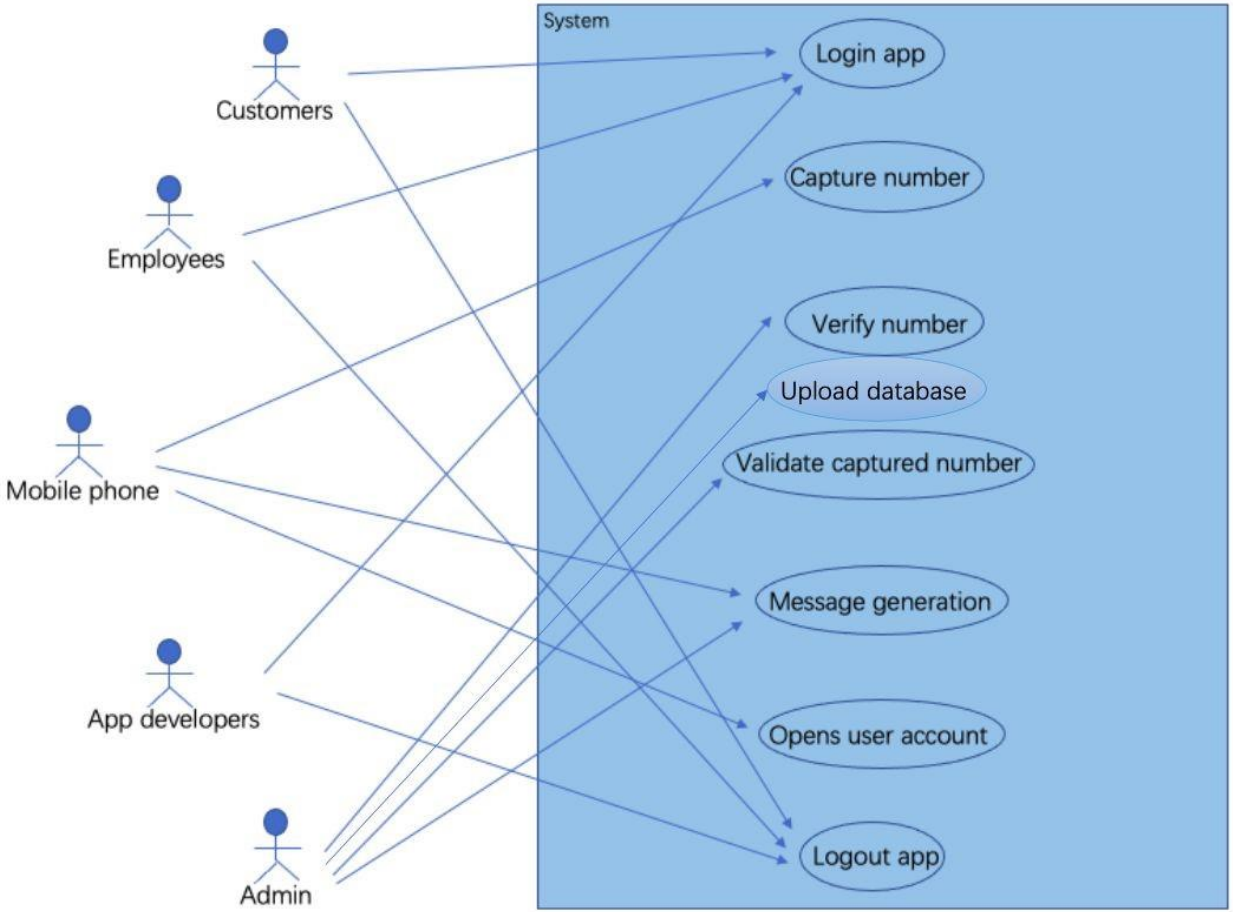
System Requirements

- **The system shall:**
  - Ensure the safety of funds during the shopping process.
  - Provide proper authentication through mobile phone number verification.
  - Enhance the security of user’s account.

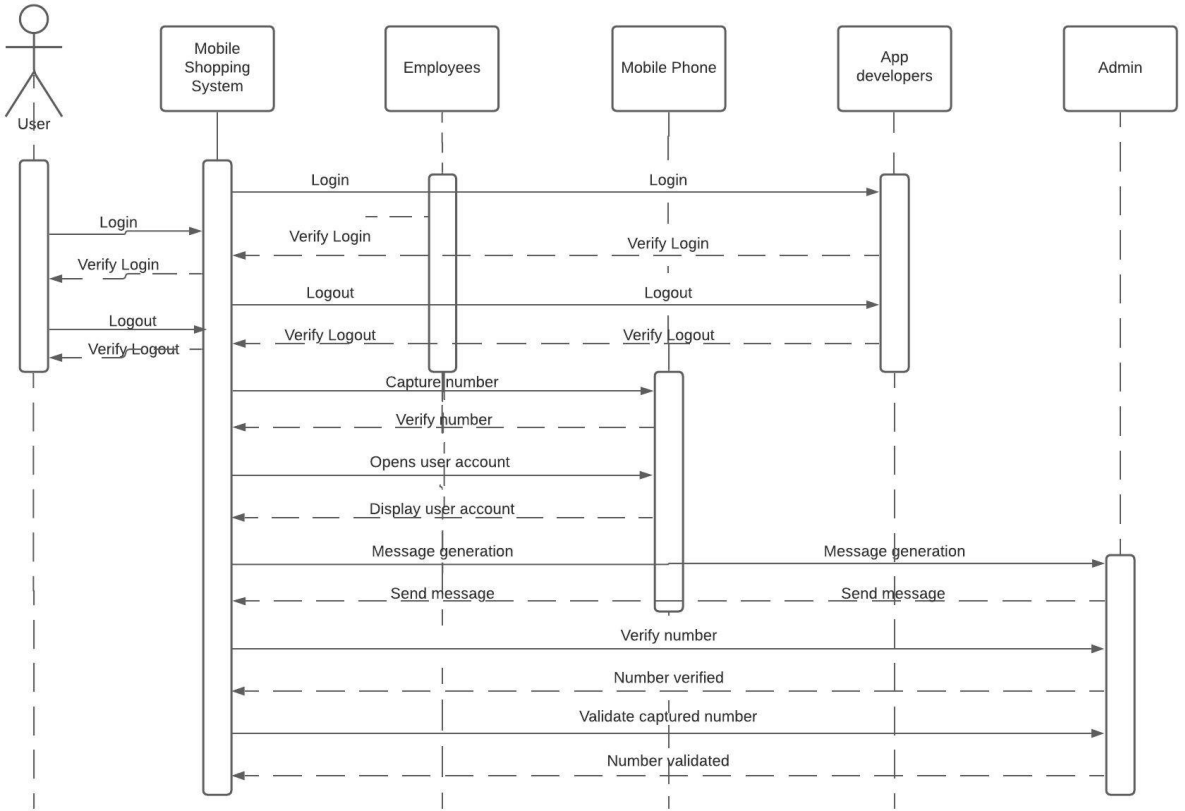
DFD Diagrams



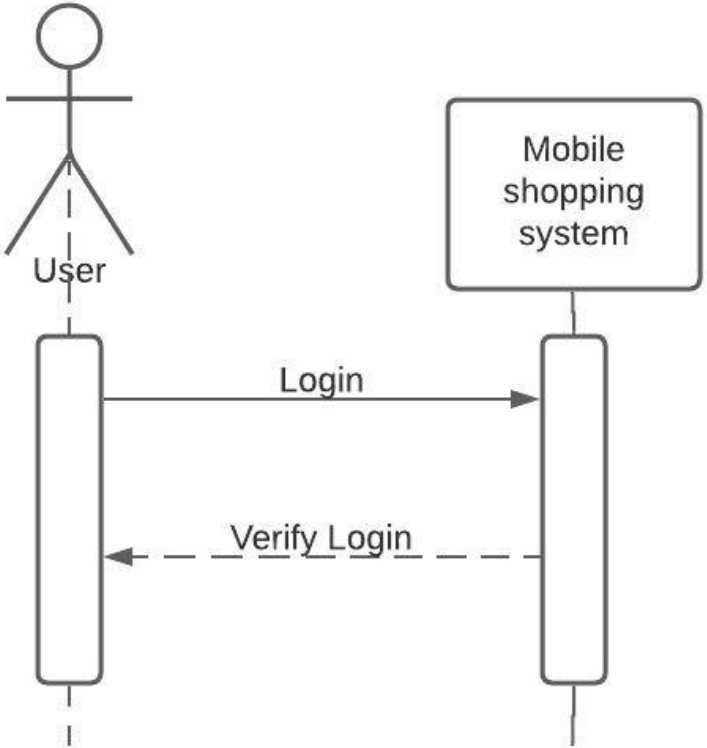
Use Case Diagram



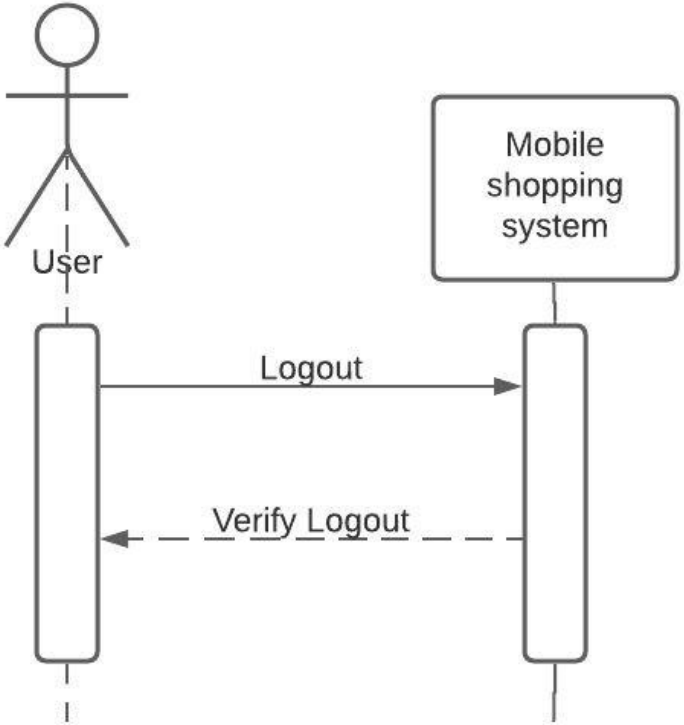
System Sequence Diagram



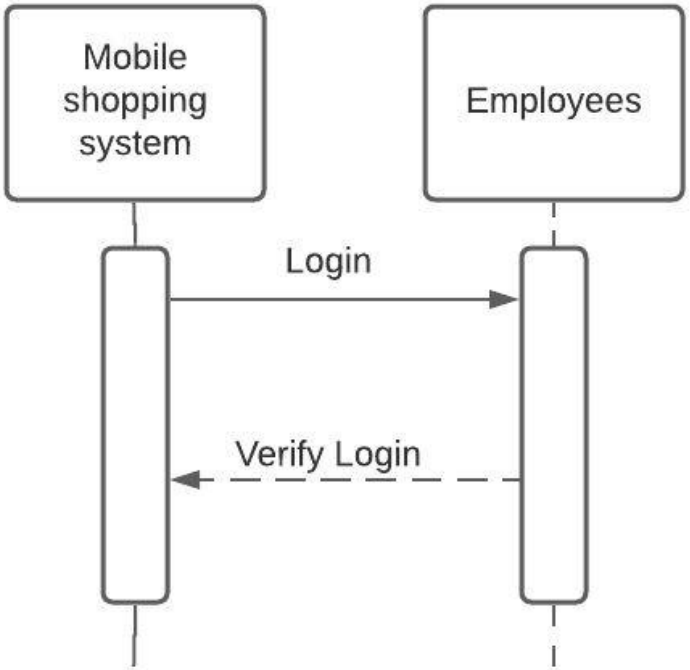
Sequence Diagram - User Login



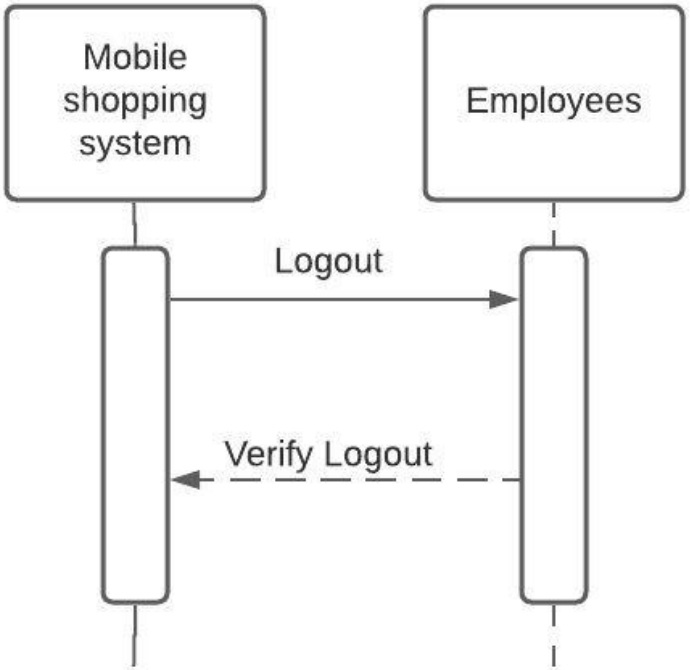
Sequence Diagram - User Logout



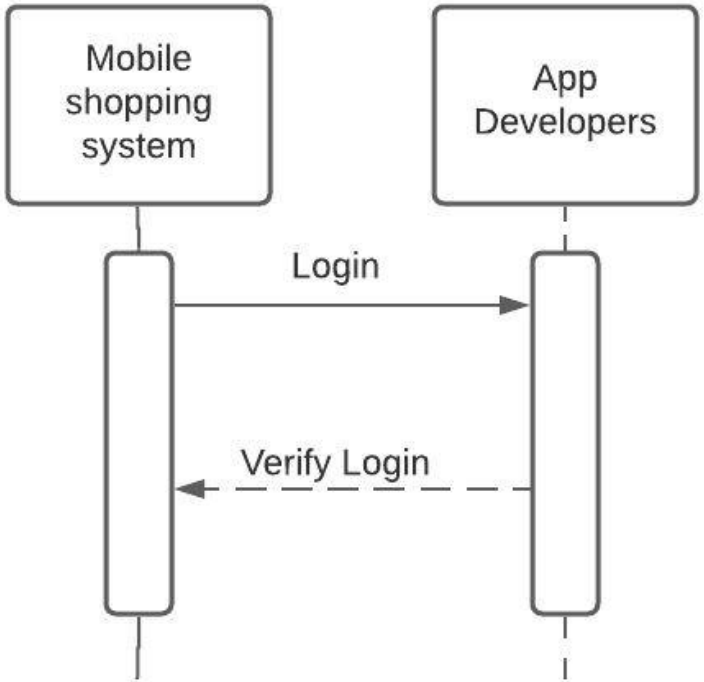
Sequence Diagram - Employee Login



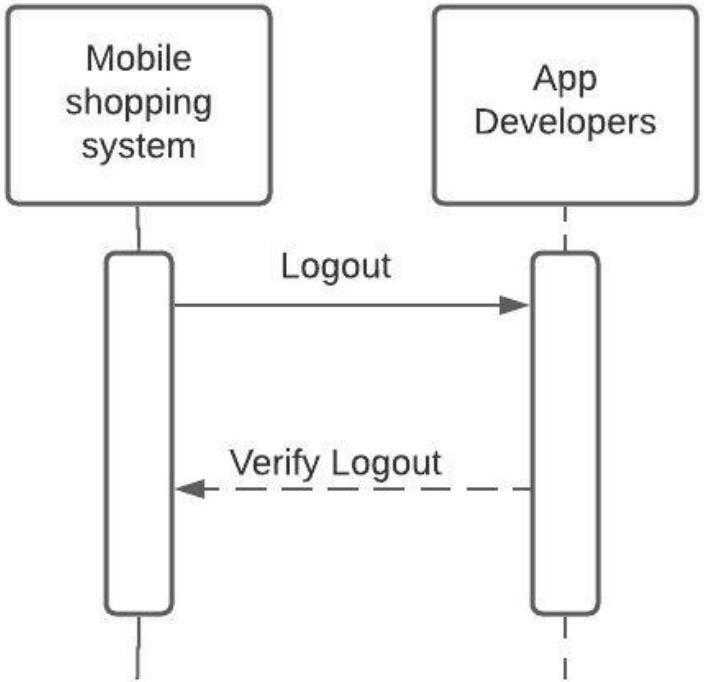
Sequence Diagram - Employee Logout



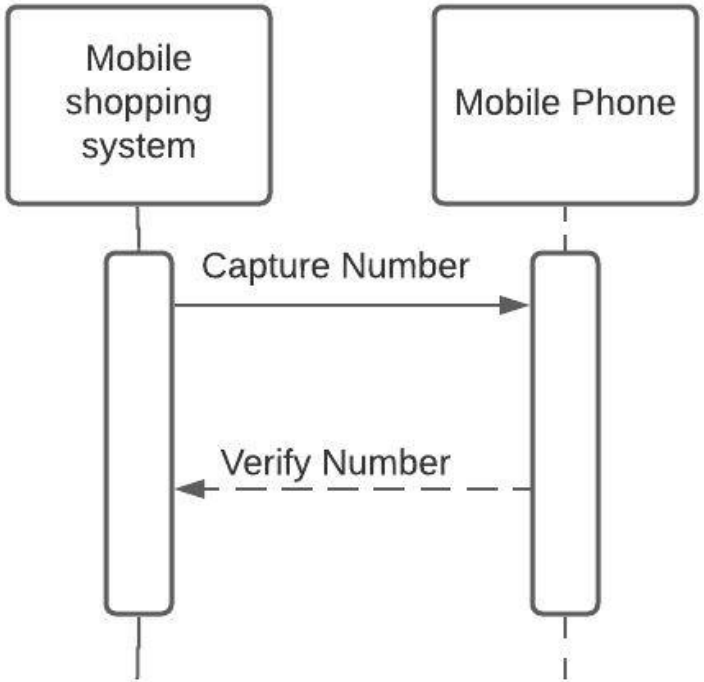
Sequence Diagram - App Developer Login



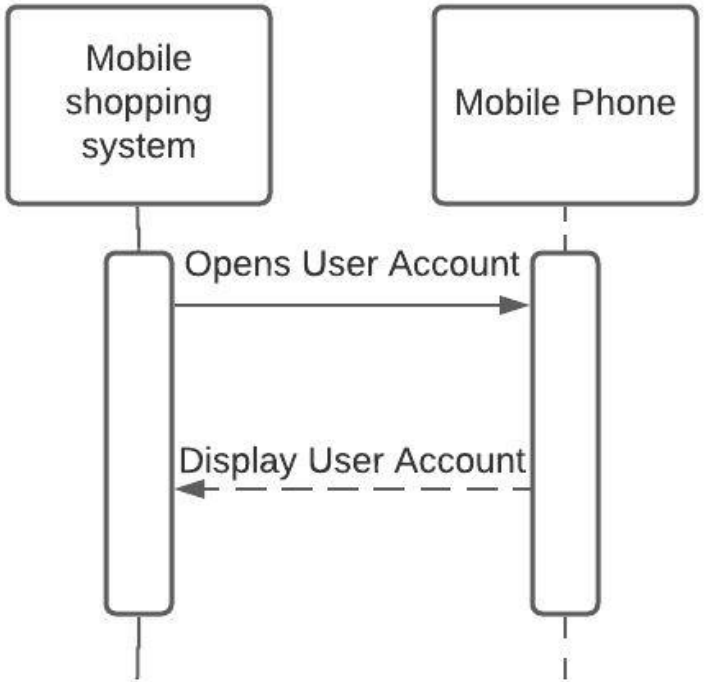
Sequence Diagram - App Developer Logout



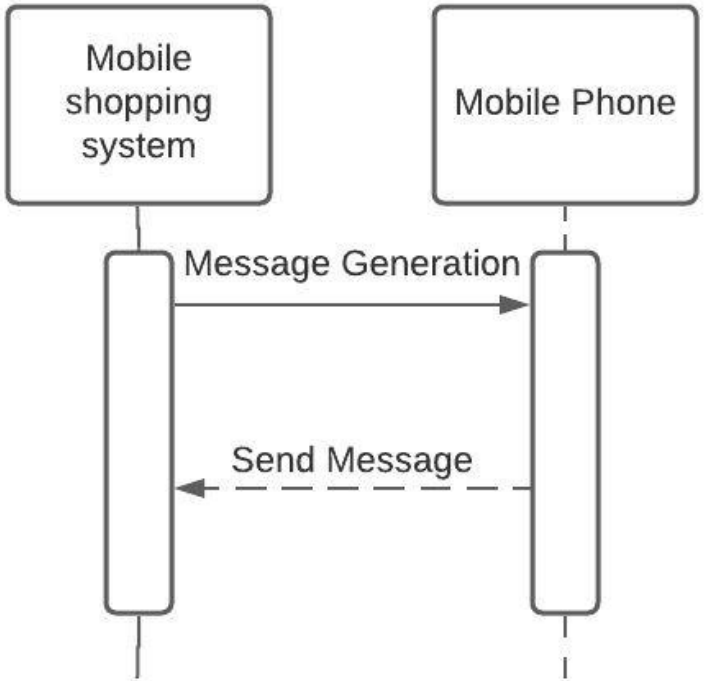
Sequence Diagram - Mobile Phone Capture Number



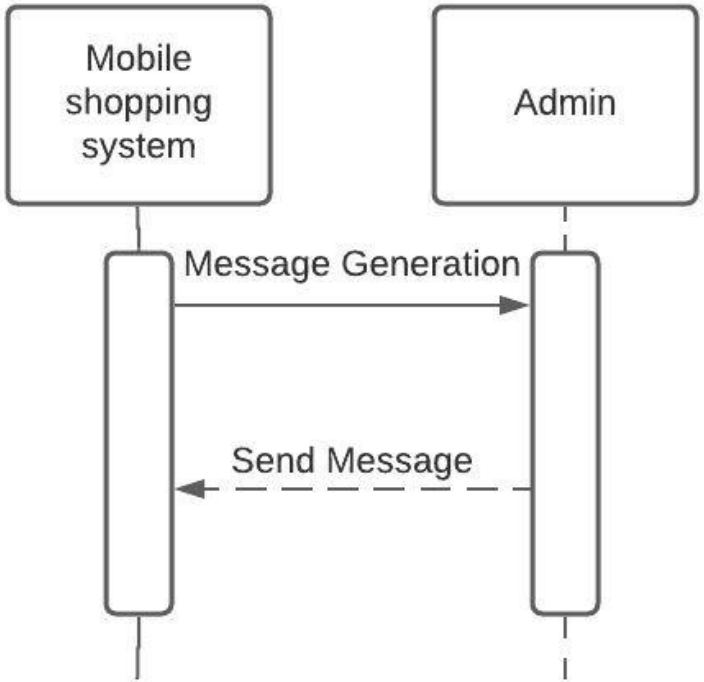
Sequence Diagram - Mobile Phone Open User Account



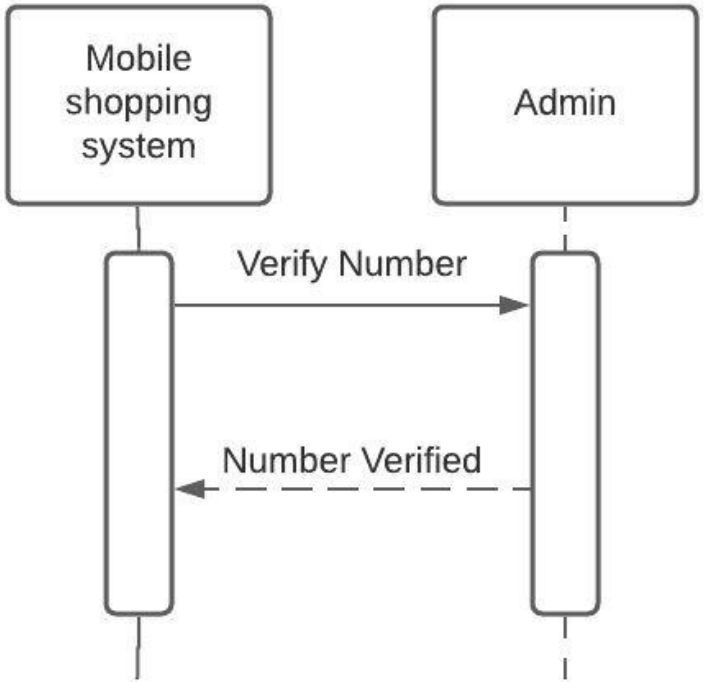
Sequence Diagram - Mobile Phone Message Generation



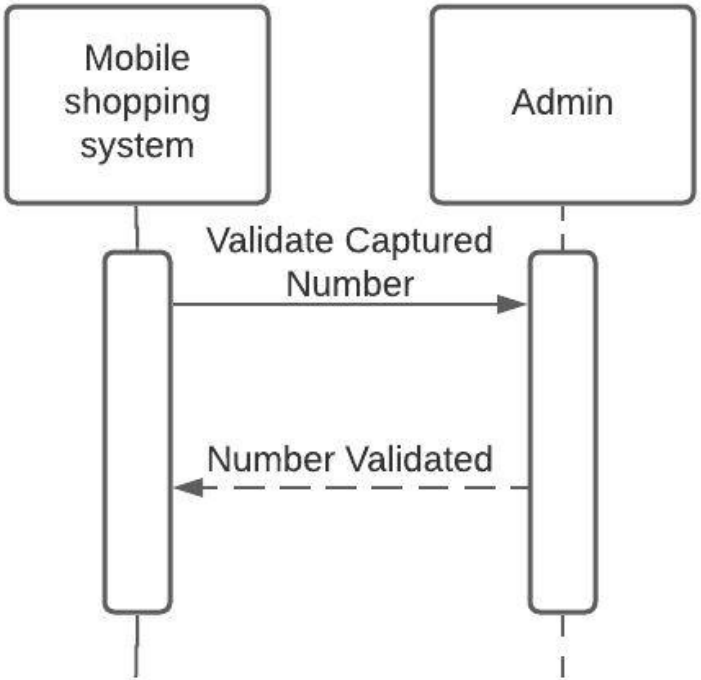
Sequence Diagram - Admin Message Generation



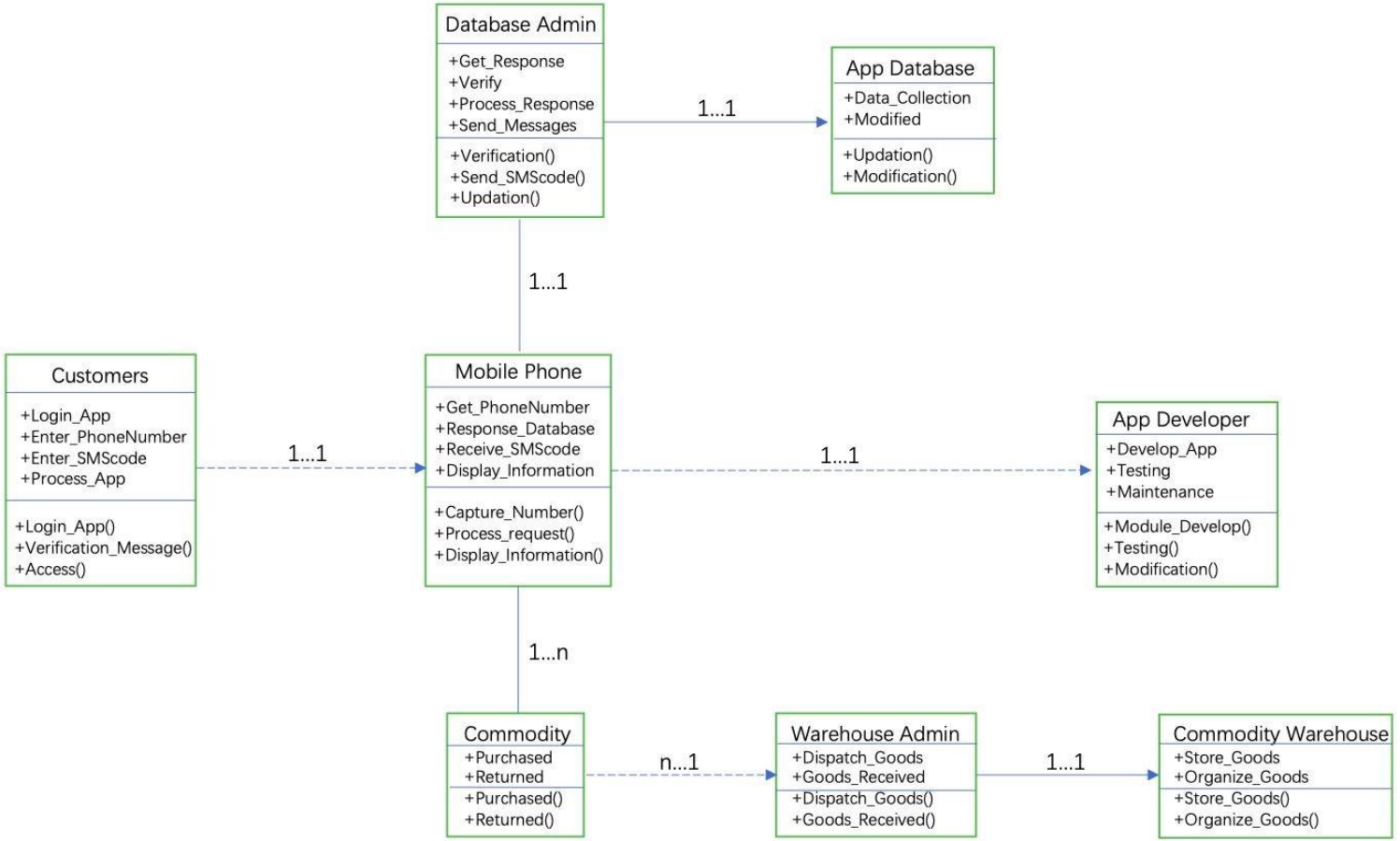
Sequence Diagram - Admin Verify Number



Sequence Diagram - Admin Validate Captured Number



Class Diagram



Lessons Learned

If another verification system can replace the work we did in this project, it can be a biometric system. The main challenge facing biometric systems on the market today is to protect user privacy. If the software company stores improperly, users' personal privacy will be threatened. In the next generation of identity verification and security systems, biometric technology does have broad prospects. After adding more specific functions based on mobile security requirements, the functions of mobile applications can be greatly enhanced by developers. Additional security features can resist security threats in mobile applications, thereby making the system more secure.