Software Requirements and Design Document

for

FixIt

Prepared by 21I-0503 Zian Ahmad

21I-0586 Huzaifa Tahir Rathore

LogicNest Software's

01/12/2023

Table of Contents

1. Introduction 1
   1.1 Purpose 1
   1.2 Product Scope 1
   1.3 Title 1
   1.4 Objectives 1
   1.5 Problem Statement 1
2. Overall Description 2
   2.1 Product Perspective 2
   2.2 Product Functions 3
   2.3 List of Use Cases 4
   2.4 Extended Use Cases 4
   a. Use Case Diagram 10
8. Other Nonfunctional Requirements 10
   a. Performance Requirements 10
   b. Safety Requirements 11
   c. Security Requirements 11
   d. Software Quality Attributes 12
   e. Business Rules 12
   f. Operating Environment 13
   g. User Interfaces 13
9. Domain Model 17
10. System Sequence Diagram 17
11. Sequence Diagram 26
12. Class Diagram 35
13. Package Diagram 36
14. Deployment Diagram 37

1. Introduction

1.1 Purpose

The innovative app "Fix It" responds to the constantly changing needs of people looking for trustworthy and timely handyman services. This platform facilitates the process of scheduling and interacting with service providers by offering a wide range of skilled workers, such as plumbers and electricians. It is simple for users to arrange services, bargain for prices, and provide ratings, which promotes an open and effective working environment for both employees and clients. This report explores the features of the app and emphasizes how it can modernize and streamline the process of obtaining necessary handyman services.
This condensed introduction provides a brief synopsis of the primary functionalities of the app and highlights its importance within the service-seeking domain.

1.2 Product Scope

The project focuses on delivering efficient handyman services within the major metropolitan areas of Pakistan, encompassing Islamabad, Rawalpindi, Karachi, Faisalabad, and Peshawar.

1.3 Title

Fix It

1.4 Objectives

The objectives associated with this project are:

1. **Revenue Generation:** Create a reliable revenue stream is the goal.
2. **Reliable mode of communication:** Provide a reliable mode of communication b/w users and handymen.
3. **Service Quality Assurance:** that handymen deliver high-quality services.
4. **Bridge the gap:** Bridge the gap b/w skilled labor and Users.
5. **Safety and Trust:** To safeguard both customers and handymen, trust and safety norms must be established.

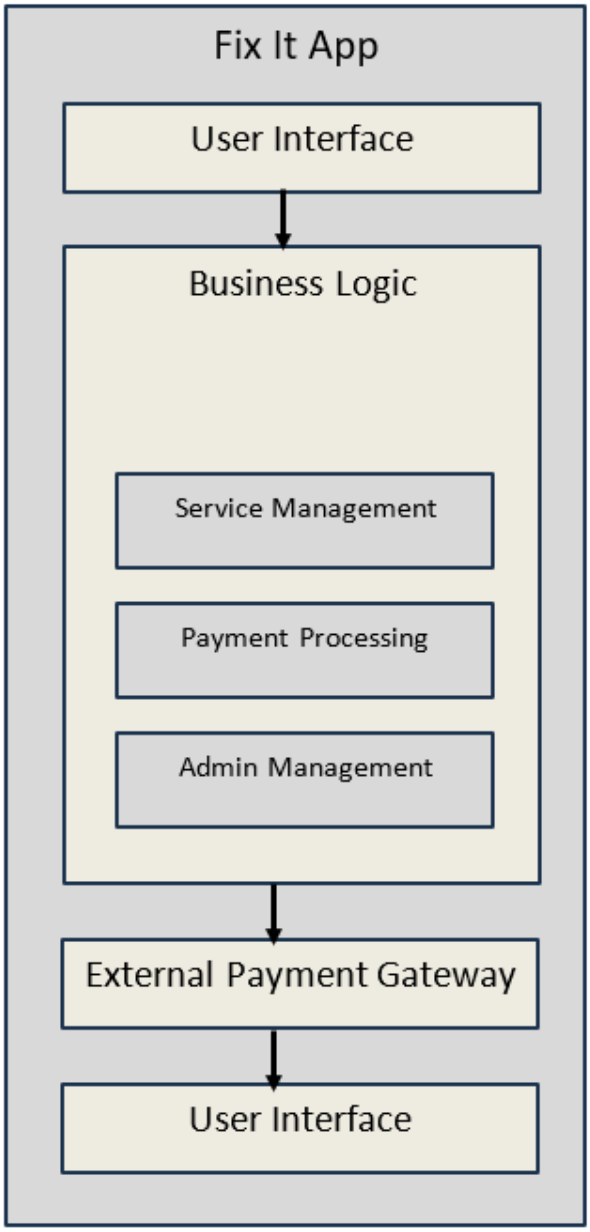
1.5 Problem Statement

"The project tackles the urgent problem of major Pakistani cities having uneven access to trustworthy handyman services. The lack of a centralized platform causes problems and delays when trying to find qualified personnel for necessary jobs. This is what the 'Fix It' app seeks to

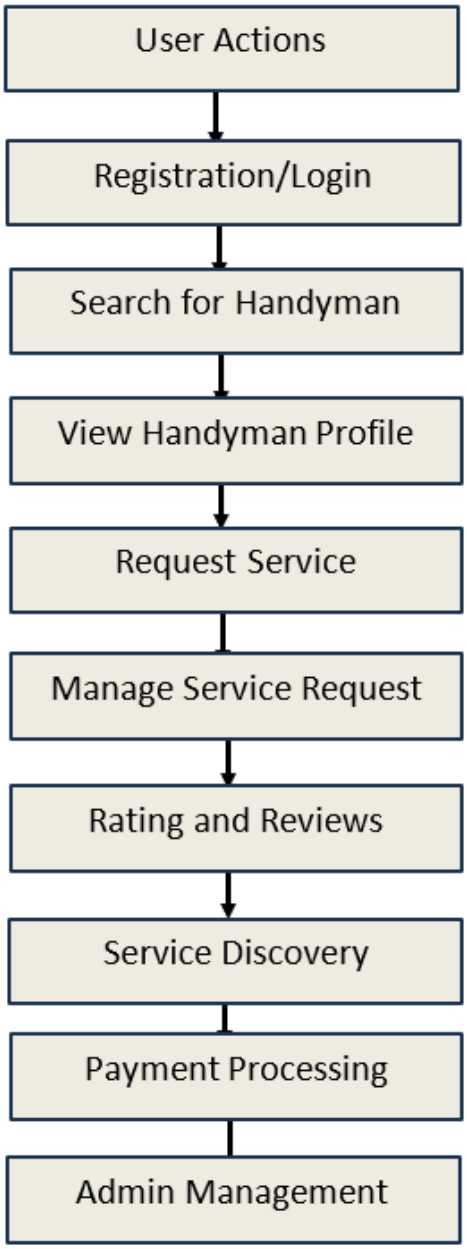
address by offering a user-friendly interface that links users to a pool of competent contractors. The fact that smartphones are widely used in these cities lends credence to the project's viability and offers a chance to improve service accessibility. Furthermore, the project's viability is strengthened by the service providers' willingness to interact digitally."

2. Overall Description

2.1 Product Perspective



2.2 Product Functions



2.3 List of Use Cases

- Request Service
- Manage Service Requests
- Search for handyman
- Rating and Reviews
- Payment
- Withdraw Amount

2.4 Extended Use Cases

Use Case 1: Request Service

Group Member: Zian Ahmed
Scope: This use case involves customers sending service requests to handymen for specific Projects.
Primary Actor: Customers
Level: Essential
Preconditions:

- Customers must be logged into the platform.
- Customers must have selected a handyman they wish to work with.

Postconditions:

- The handyman receives the service request and can choose to accept or reject it.

Stakeholders and Their Interests:

- Customers: Interested in initiating service requests to have their projects addressed.
- Handymen: Interested in receiving and responding to service requests.

Main Success Scenario:

Customer	Handyman
1. Customers click “Request Service” after checking a handyman's profile.	
2. Clients give project information, such as a description, preferred dates, and other specifications.	
3. Clients send the chosen handyman a service request.	
	4. After being notified of the service request, the handyman looks through the project's specifics.
	5. Depending on their availability and level of experience, the handyman may accept or refuse the service request.

6. The user is notified of the handyman's acceptance or denial of service through notification.

Extensions (Possible Variations):

- Implementing a system for customers to track the status of their service requests.
- Handling cases where a handyman's response time exceeds acceptable limits.

Use Case 2: Manage Service Requests

Group Member: Zian Ahmed
Scope: This use case covers how handymen manage incoming service requests from customers.
Primary Actor: Handymen
Level: Essential
Preconditions:

- The handyman must be logged into the platform.
- The handyman must have received service requests from customers.

Postconditions:

- Handymen can efficiently manage and respond to incoming service requests.

Stakeholders and Their Interests:

- Handymen: Interested in managing service requests promptly and effectively.
- Customers: Interested in timely responses to their service requests.

Main Success Scenario:

Handyman	System
1. The handyman registers on the "Fix It" website.	
2. The handyman may view a list of incoming service requests on their dashboard.	
	3. The system fetches the service requests from the backend database corresponding to the Handyman.
4. The handyman looks through each request's specifics, such as the project's specifications, due dates, and client information.	
5. Depending on their availability and level of skill, the handyman has the option of accepting or declining any service request.	

Extensions (Possible Variations):

- Establishing guidelines for response times and acceptance rates to maintain user satisfaction.
- Implementing a system for customers to receive timely notifications about handyman Responses.

Use Case 3: Search for Handyman

Group Member: Huzaifa Tahir Rathore
Scope: This use case covers the process of customers searching for handymen based on their specific criteria.
Primary Actor: Customers
Level: Essential
Preconditions:

- Customers must be logged into the platform.
- The platform must have handyman profiles and services listed.

Postconditions:

- Customers receive a list of handymen matching their search criteria.

Stakeholders and Their Interests:

- Customers: Interested in finding suitable handymen quickly and easily.
- Handymen: Interested in being discovered by potential customers.

Main Success Scenario:

Customer	System
1. Clients access the "Fix It" website.	
2. Customers click "Search for Handyman" on the dashboard or specific search page.	
3. Clients provide search parameters such as location, services required, and recommended ratings.	
	4. After processing the search query, the system displays a list of handymen who match it.
5. Customers evaluate the list, which includes ratings and handyman profiles.	
6. Customers choose a handyman to view a thorough profile of them.	

Extensions (Possible Variations):

- Providing advanced search filters for specific service categories and additional criteria.
- Handling cases where no matching handymen are found.

Use Case 4: Rating and Review

Group Member: Huzaifa Tahir Rathore
Scope: This use case involves customers and handymen providing ratings and reviews for each other following service completion.
Primary Actors: Customers, Handymen
Level: Essential
Preconditions:

- A service must be marked as completed.
- Both customers and handymen must have the opportunity to provide feedback.

Postconditions:

- Ratings and reviews are posted on the handyman's profile, contributing to their reputation.

Stakeholders and Their Interests:

- Customers: Interested in sharing their experiences and providing feedback on the quality of services.
- Handymen: Interested in receiving positive reviews and constructive feedback to improve their services.

Main Success Scenario:

Client, Handyman	System
1. Both the client and the handyman can post ratings and reviews when a service is recognized as finished.	
2. Reviews allow for written input and may be rated normally on a number scale.	
	3. The numbers are then used to recalculate the rating of Handyman to be displayed on profile by the system.
4. The handyman's reputation is boosted by ratings and reviews that are visible to other users on their profile.	

Extensions (Possible Variations):

- Ensuring that users are encouraged to provide fair and constructive feedback.
- Handling cases where a user disputes or requests the removal of a review.

Use Case 5: Payment Processing

Group Member: Huzaifa Tahir Rathore
Scope: This use case involves the secure processing of payments between customers and handymen for completed services.
Primary Actors: Customers, Handymen
Secondary Actor: Payment Gateway
Level: Essential
Preconditions:

- A service must be marked as completed.
- Both the customer and handyman must have provided valid payment information.

Postconditions:

- The payment is processed, and both the customer and handyman receive confirmation.

Stakeholders and Their Interests:

- Customers: Interested in making secure and hassle-free payments for completed services.
- Handymen: Interested in receiving timely and accurate payments for their services.

Main Success Scenario:

Payment Gateway	Customer, Handyman
1. The platform starts the payment process when a service is declared complete.	
2. The site securely manages the handyman's payment from the client, subtracting any necessary costs.	
	3. The handyman and the client both get notification that the payment went through successfully.
	4. Both parties can see the payment information, including the transaction history, for reference.

Extensions (Possible Variations):

- Implementing a system to manage payment disputes or refund requests.
- Ensuring compliance with financial regulations and security standards.

Use Case 6: Withdraw Amount

Group Member: Zian Ahmed
Scope: This use case covers the process for workers to withdraw their earned payments from the "Fix It" platform.
Primary Actor: Handymen (Service Providers)
Level: Essential
Preconditions:

- The worker must have an active account on the "Fix It" platform.
- The worker must have successfully completed services for which payments are due from customers.
- The platform must have processed payments from customers to handymen for completed services.

Postconditions:

- The worker successfully receives the withdrawn payment into their designated account.

Stakeholders and Their Interests:

- Handymen: Interested in receiving earned payments for services rendered.
- Customers: No direct interest in this process but expect reliable payment processing for services availed.
- Platform Administrators: Ensure the secure and smooth processing of payment withdrawals.

Main Success Scenario:

User System	System
1. Handymen access the "Fix It" platform and navigate to their dashboard.	

2. Handymen locate and select the "Withdraw Payment" option.

3. Handymen enter the desired withdrawal amount or select from available options (if applicable).

4. Handymen confirm the withdrawal request and provide necessary account details for payment transfer.

5. The system verifies the withdrawal request and checks for available funds in the worker's account.

6. Upon successful verification, the system processes the withdrawal request.

7.The system updates the worker's transaction history and confirms the successful withdrawal.

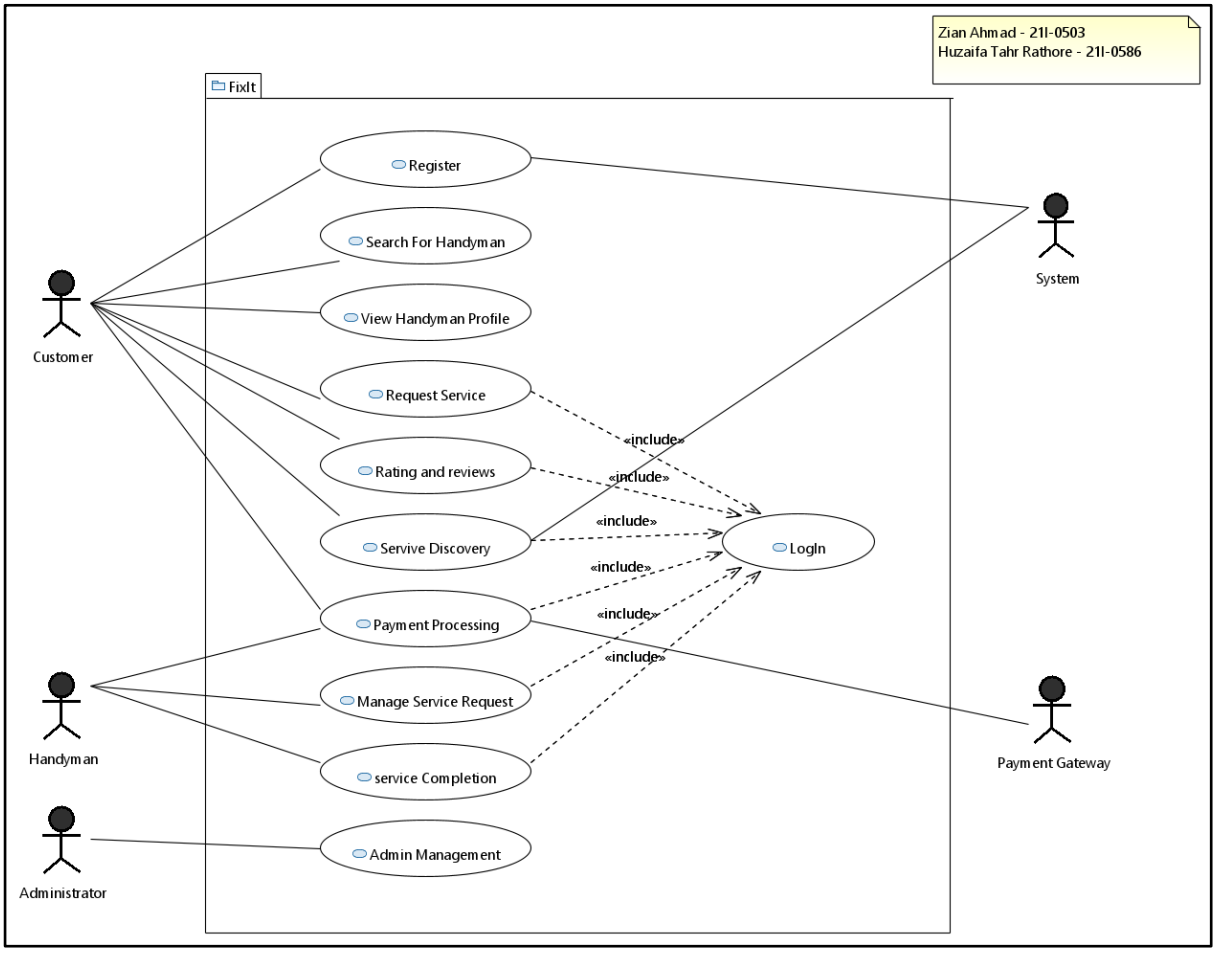
8. The withdrawn amount is transferred to the designated account of the worker within the specified processing time.

Extensions (Possible Variations):

- Handling cases where the withdrawal request fails due to insufficient funds or technical errors.
- Implementing additional security measures for authenticating withdrawal requests.
- Providing notification or confirmation to the worker upon successful withdrawal of funds.

Remember, the security of financial transactions and the reliability of the payment system are crucial aspects to consider while implementing the "Withdraw Payment" functionality in the platform.

a. Use Case Diagram



8. Other Nonfunctional Requirements

a. Performance Requirements

Response Time: When the application opens, it should load in two to three seconds, providing a quick and easy user experience. In order to maintain user satisfaction and engagement, this fast response time is essential.
Booking Confirmation: Ten seconds after a user submits a request, a service booking should be confirmed. Users are reassured that their request has been received and acknowledged by this prompt response.
Search Speed: Users should be able to locate and choose the needed service provider fast thanks to the app's search feature, which should return results in one to two seconds.

Rating Submission: Within a day, user-submitted reviews and ratings ought to appear on the service provider's profile. The ratings system's credibility is preserved, and timely feedback is ensured by this timely update.
Scalability: Without sacrificing functionality, the application must be able to accommodate an expanding user base and service provider network. During peak hours, it should be able to accommodate at least 10,000 concurrent users without experiencing a noticeable loss of speed or functionality.
Reliability: To guarantee constant accessibility for users looking for services or service providers offering their skills, the app should maintain at least 99% uptime.

In order to ensure that the 'Fix It' app operates smoothly and effectively, certain performance requirements must be met. By giving developers precise standards and expectations in terms of speed, dependability, and scalability, they hope to make sure that design decisions support achieving these goals

b. Safety Requirements

User Information Security: Protect user information by putting strong encryption techniques and safe data storage procedures in place that abide by applicable data protection laws (like Pakistan's Data Protection Act). Stop illegal access to private user data, such as payment information and personal information.
Verify Service Providers: To guarantee the legitimacy and dependability of service providers listed on the platform, establish a stringent verification procedure. Background checks, skill verification, and identity authentication might all be part of this.
Secure Transactions: To avoid financial fraud or data breaches, make sure the app has secure payment gateways and transactions. To handle payment information securely, adhere to the Payment Card Industry Data Security Standard (PCI DSS) guidelines.
Compliance with Regulations: Make sure that local safety laws, such as those pertaining to consumer protection for users and occupational safety guidelines for service providers, are followed.

c. Security Requirements

User identity verification: To ensure user identities are securely verified, use strong password policies, and think about implementing two-factor authentication (2FA).
Data encryption: Make sure that, to prevent unwanted access, all sensitive data, including user credentials and transaction details, is encrypted both while it is in transit and at rest.
Data privacy: Obtain user consent for data collection and processing, and ensure compliance with data protection regulations, including data minimization.
Error Handling: Use secure error handling to stop sensitive data from leaking and give users generic error messages to prevent disclosing system specifics.

d. Software Quality Attributes

Usability: Based on user satisfaction ratings for ease of use, clarity of interface, and intuitive design, the app should receive at least a 4 out of 5.
Reliability: Aim for a minimum 99.9% uptime to guarantee that users can access the app with little interruption or downtime.
Maintainability: To make updates, bug fixes, and enhancements easier, a codebase's maintainability index should be good.
Performance: The application should be able to support a minimum of 10,000 concurrent users during peak hours without experiencing appreciable performance degradation. The load time should not be longer than three seconds.
Scalability: Demonstrate the ability to scale up to accommodate a 50% increase in user base within a year without compromising performance or user experience.

e. Business Rules

User Registration: Users of the platform may only register if they have a working email address and mobile number. This guarantees the authenticity of every user.
Service Provider Verification: Before being listed on the app, service providers must go through a verification process that verifies their identity and set of skills. This validation guarantees the dependability of the labourers who are available for reservations.
Booking restrictions: To avoid overscheduling or scheduling conflicts, users are only able to reserve one service at a time.
Rating and Review Requirements: Only after a service is completed can users' rate and review service providers. This guarantees that the feedback is grounded in real-world encounters.
Payment Confirmation: To start processing payments, service providers must attest to the completion of the job. This guarantees that money is paid for work that is finished only.
Cancellation Policy: Customers should not be charged if they cancel a reservation within a certain window of time (for example, 24 hours prior to the scheduled appointment). On the other hand, there might be a cost associated with late cancellations to cover the service provider's time.
Service Area Restrictions: In order to guarantee effective service delivery and prevent long travel times, service providers are only permitted to accept reservations within the boundaries of their assigned service area.

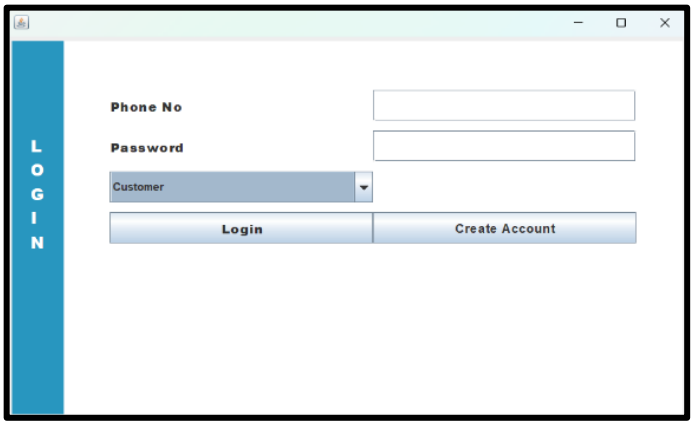
f. Operating Environment

Hardware Platform: A variety of smartphones and tablets that are frequently used in Pakistan should be able to run the app. This covers a range of models from producers like Apple (iPhone series) and gadgets running Android from companies like Samsung, Huawei, Xiaomi, and so forth.
Operating Systems: Both iOS and Android should be able to use the app. Compatibility for iOS should be up to iOS 12 and above, which will cover a large percentage of users of Apple devices. To support a large user base, compatibility for Android should extend to versions from Android 7.0 (Nougat) and upwards.
Applications and Software Components: For web-based features, the application should work in unison with common software components like web browsers (Firefox, Safari, and Chrome). To allow precise location identification of service providers and users, it should also be integrated with location services. Secure transactions should also be enabled by compatible payment gateway APIs or services.
Network connectivity: For users to access the features and functionalities of the app, they must have a reliable internet connection (3G, 4G, LTE, or Wi-Fi).

g. User Interfaces

Login Interface:

1. First enter your valid phone no and password.
2. Select account type i.e., worker or customer.
3. Then press log in, if don't have an account. Press create account.



Customer Create Account Interface:

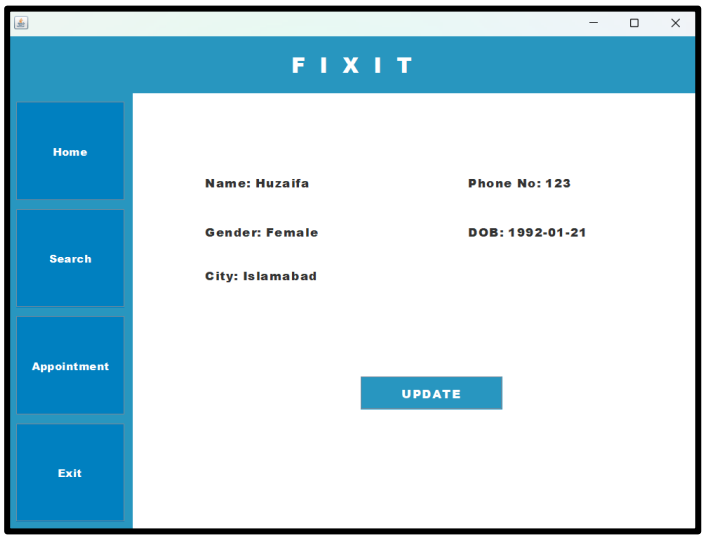
1. Enter the name, password, and your phone no.
2. Then select the gender DOB, your city.
3. Then select type as Customer.
4. Press Submit Button.
5. Congratulations, your Account is Created.

Worker Create Account Interface:

1. Enter the name, password, and your phone no.
2. Then select the gender DOB, your city.
3. Then select type as Worker.
4. Press Submit Button.
5. Congratulations, your Account is Created.

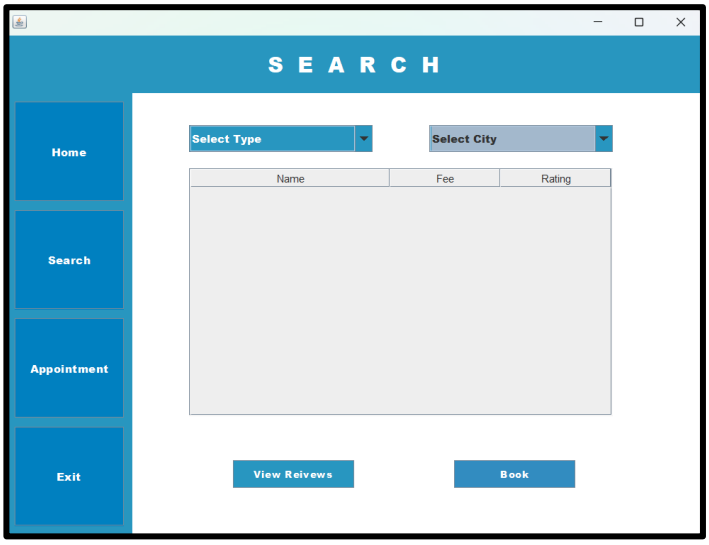
Customer Main Interface:

1. At main page, your information is displayed.
2. One Update Button to update the Account Information
3. Left panel includes the function button you can perform.
4. First you have Home Button to Go to Home Page.
5. Second search button to search the Handyman.
6. Third is Appointment Button, from which you check the upcoming appointments.
7. And at last, the Exit Button.



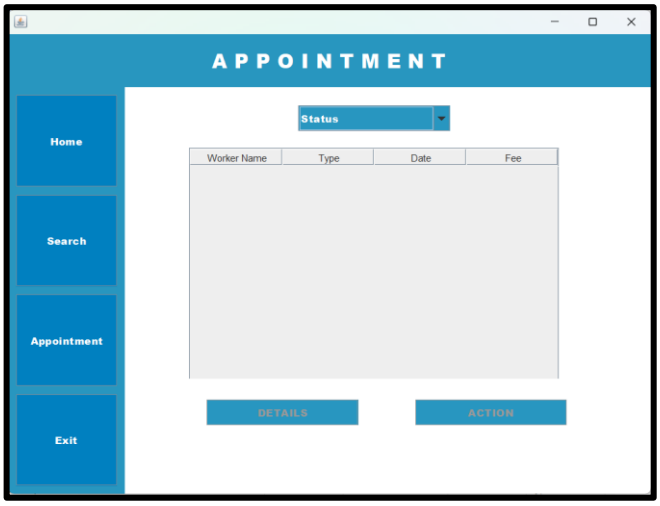
Search Interface:

1. First you have to enter the type of worker i.e., Electrician, Plumber, Carpenter etc.
2. Then select the desired city name.
3. The available workers will be displayed.
4. You check book according to your availability from the Book Button.
5. And check the reviews from the review button.



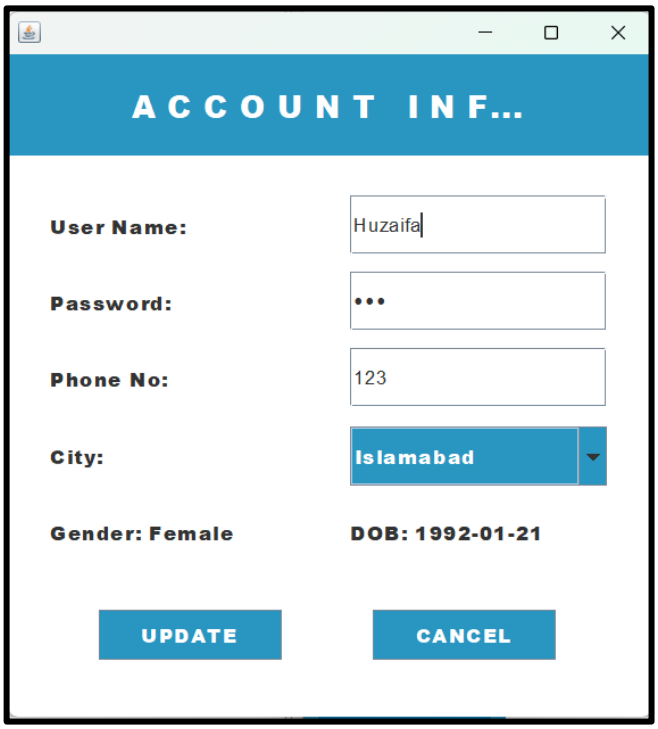
Appointment Interface:

1. At Appointment Interface you must select the status. i.e., Completed, currently booked and the upcoming.
2. From Details you can check the booking details.
3. Take actions for the booking.



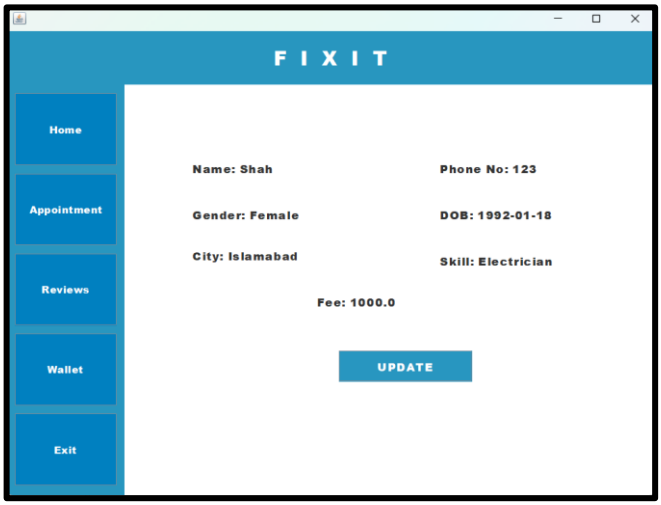
Information Update Interface:

1. In Account Information Update page, Enter the updated Name, Password, Phone no and City.
2. Then select update to update the changes.
3. Or cancel to discard it.



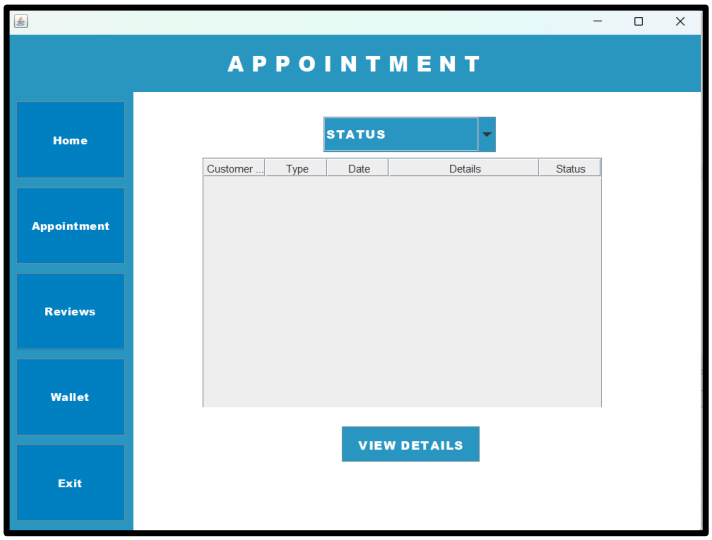
Worker Main Interface:

1. At main page, your information is displayed.
2. One Update Button to update the Account Information
3. Left panel includes the function button you can perform.
4. First you have Home Button to Go to Home Page.
5. Second Appointment button to check the appointments.
6. Third is review Button, from which you check the reviews that the customer gave to you.
7. And finally, the Exit Button.



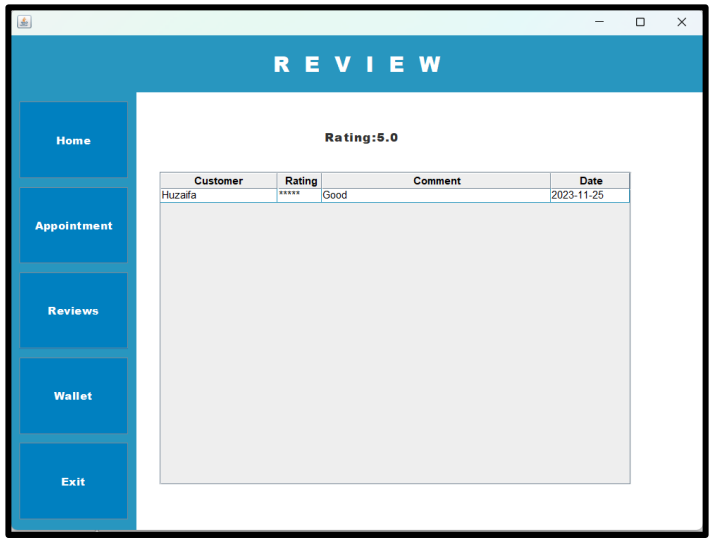
Worker Appointment Interface:

1. At the Appointment Interface you must select the status. i.e., Completed, currently booked and the upcoming.
2. From Details you can check the booking details.



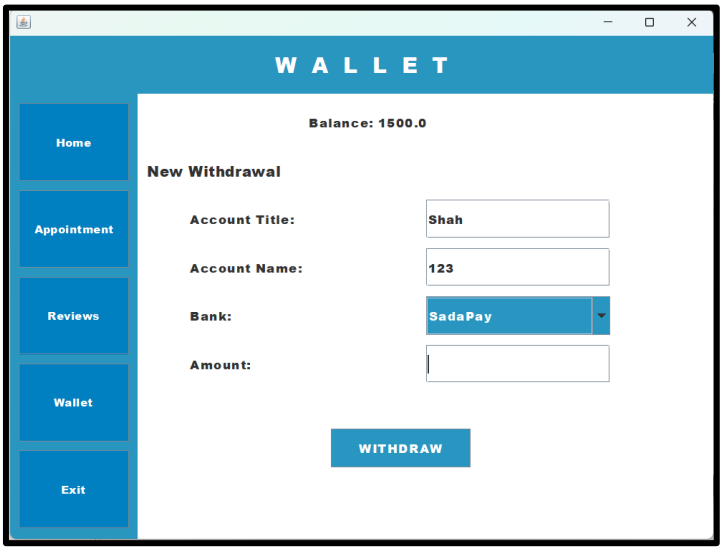
Worker Review Interface:

1. From this page, you can check the average rating that customers gave you.
2. All the Customer Names with the rating stars, comments, and the date.

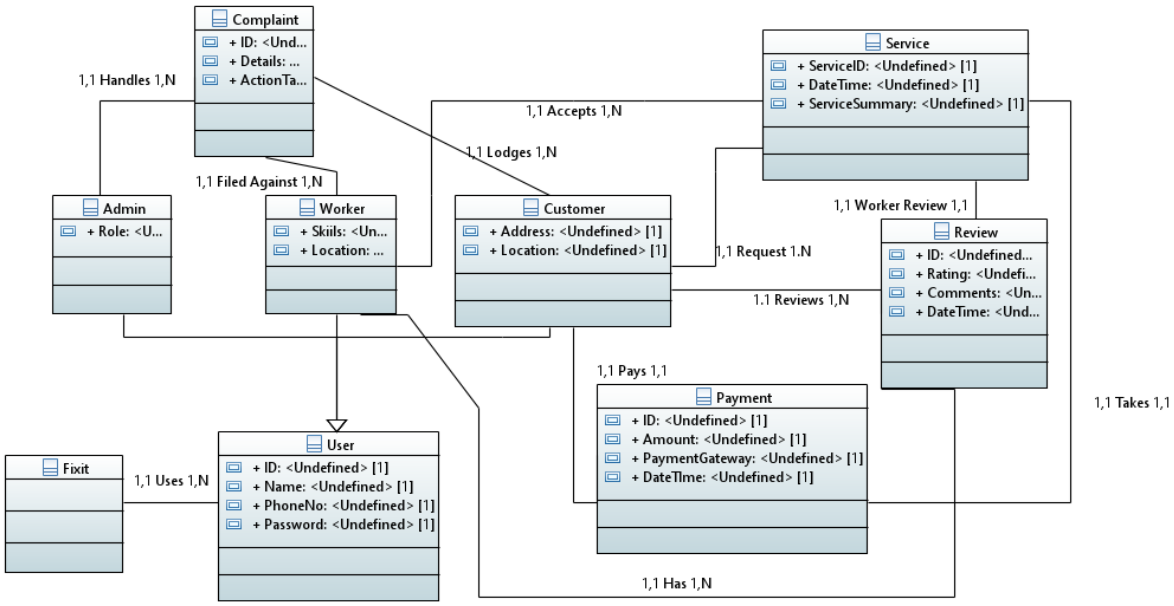


Worker Wallet Interface:

1. First your Account Balance is shown.
2. Then the Account Information with Phone No.
3. Then you must select your account, Sadapay, Easypaisa, Jazzcash.
4. Then enter the amount to withdraw.
5. And at last press withdraw.

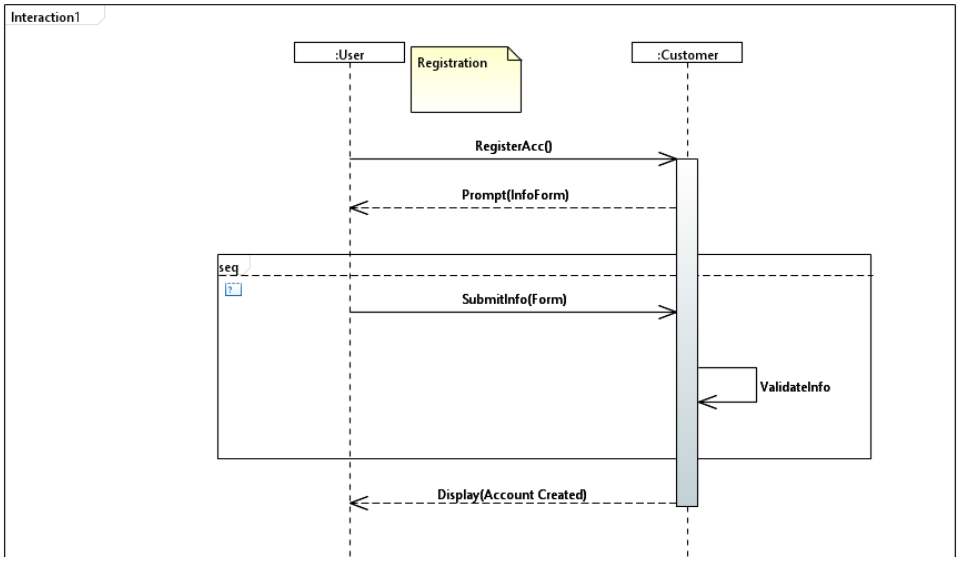


9. Domain Model

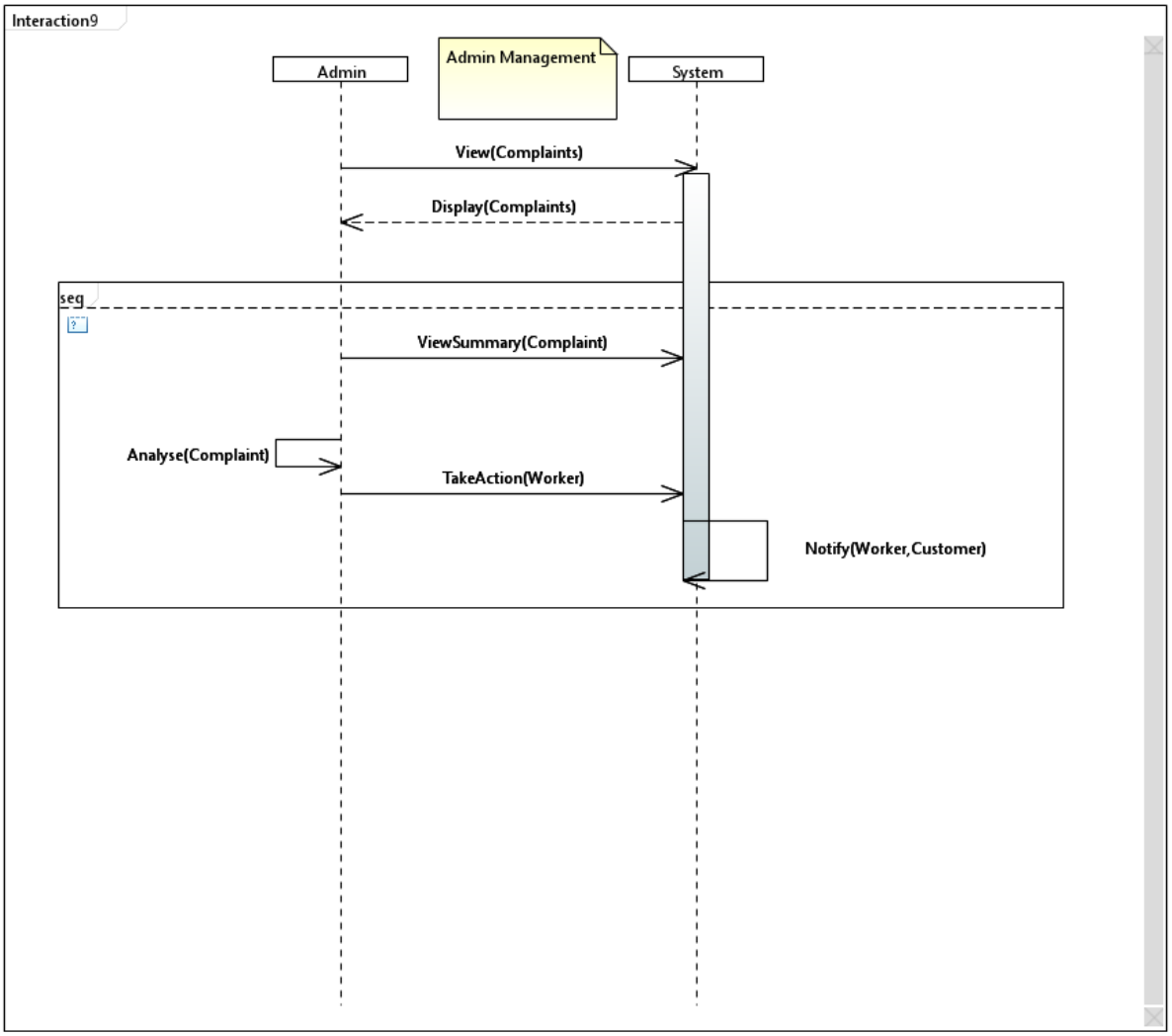


10. System Sequence Diagram

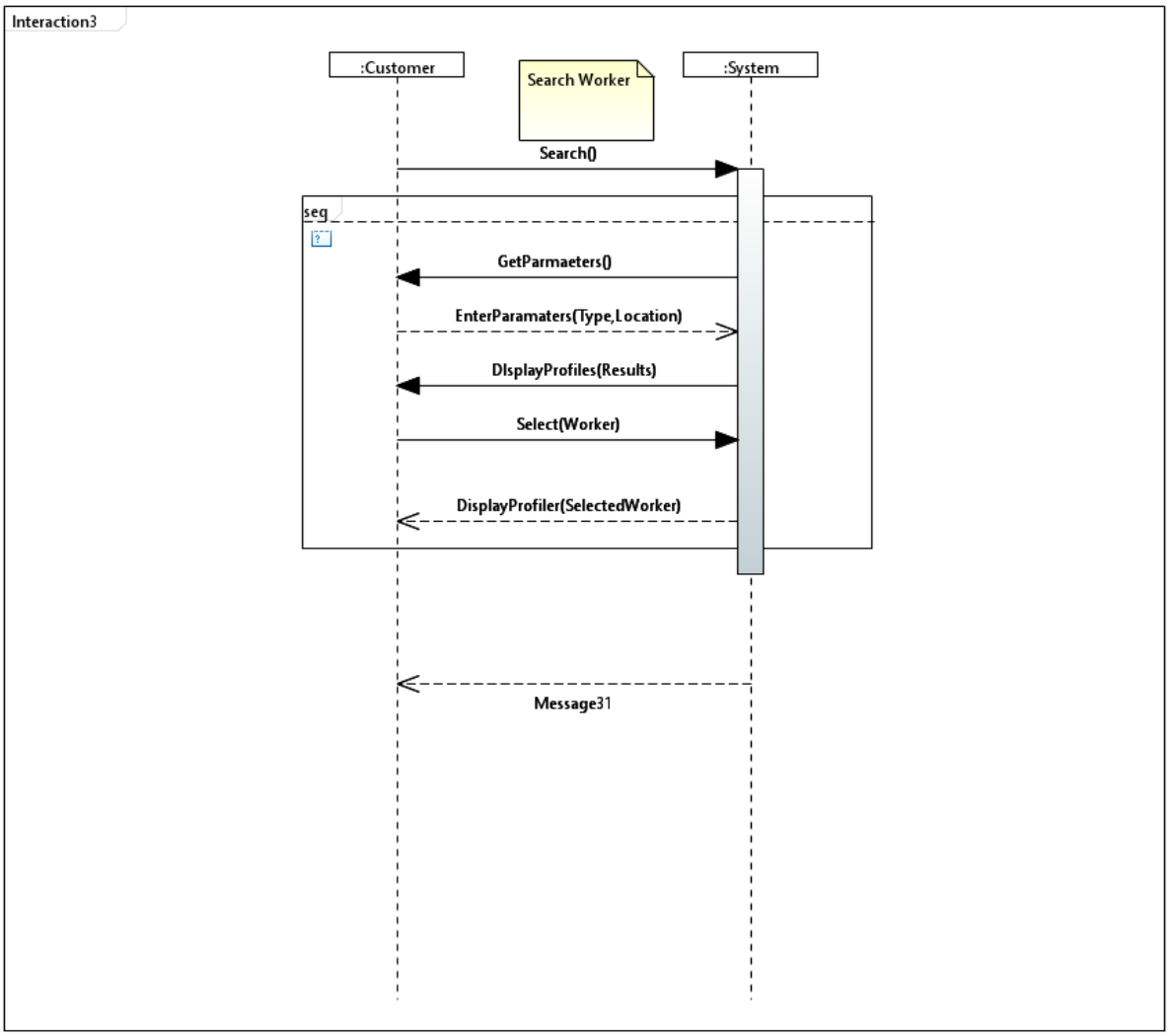
Group Member: Huzaifa Tahir Rathore – 21I-0586



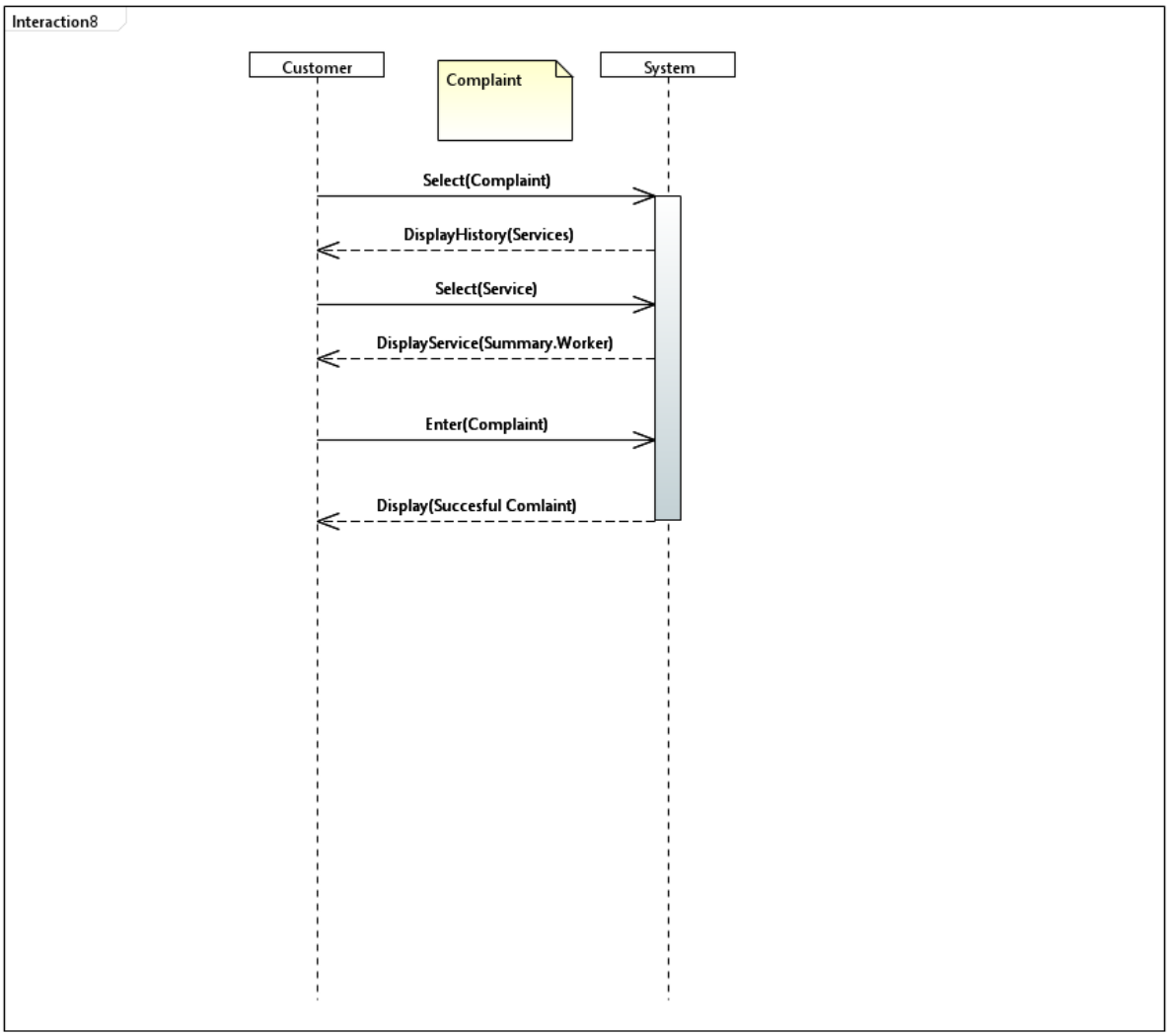
Group Member: Huzaifa Tahir Rathore – 21I-0586



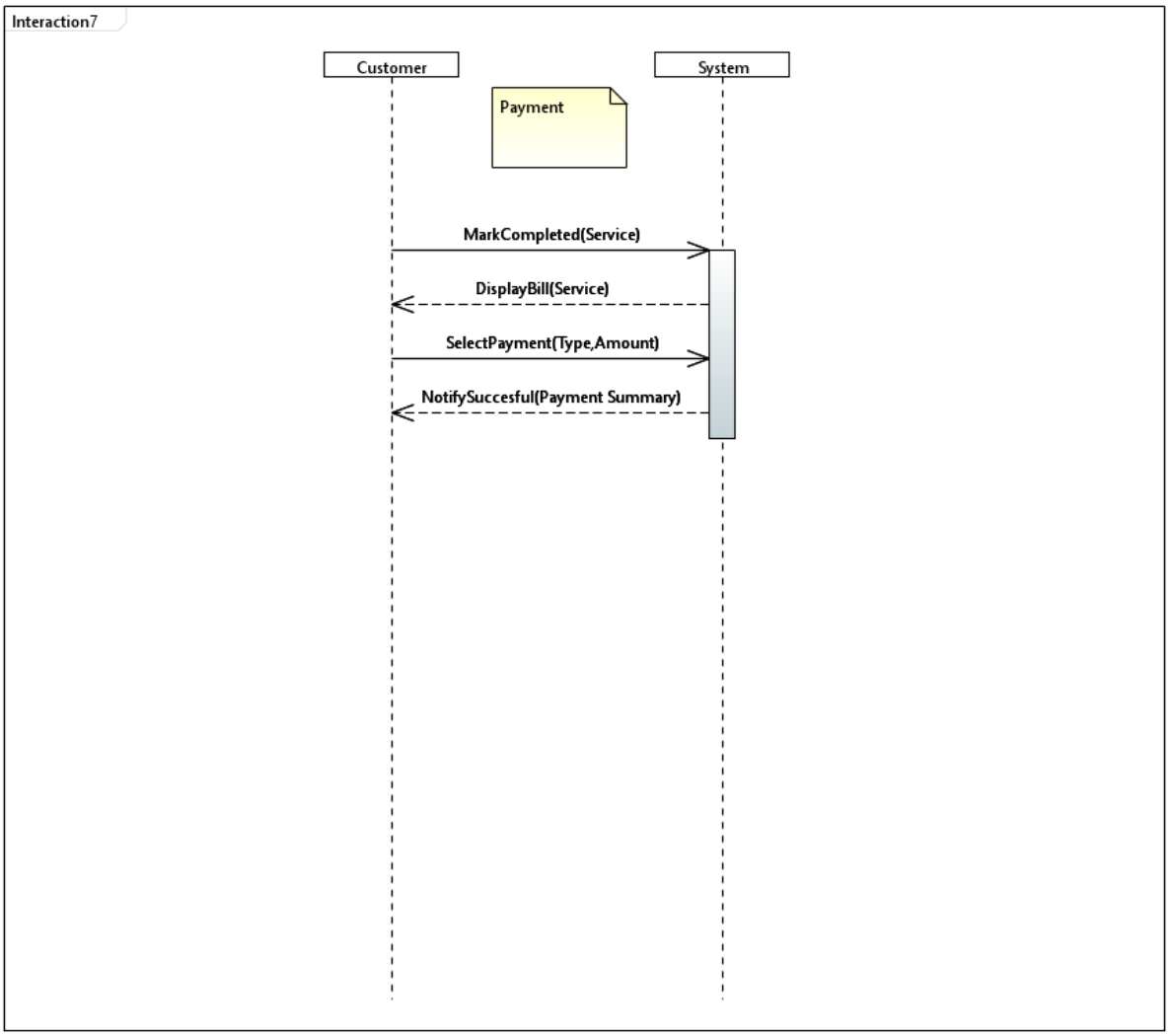
Group Member: Huzaifa Tahir Rathore – 21I-0586



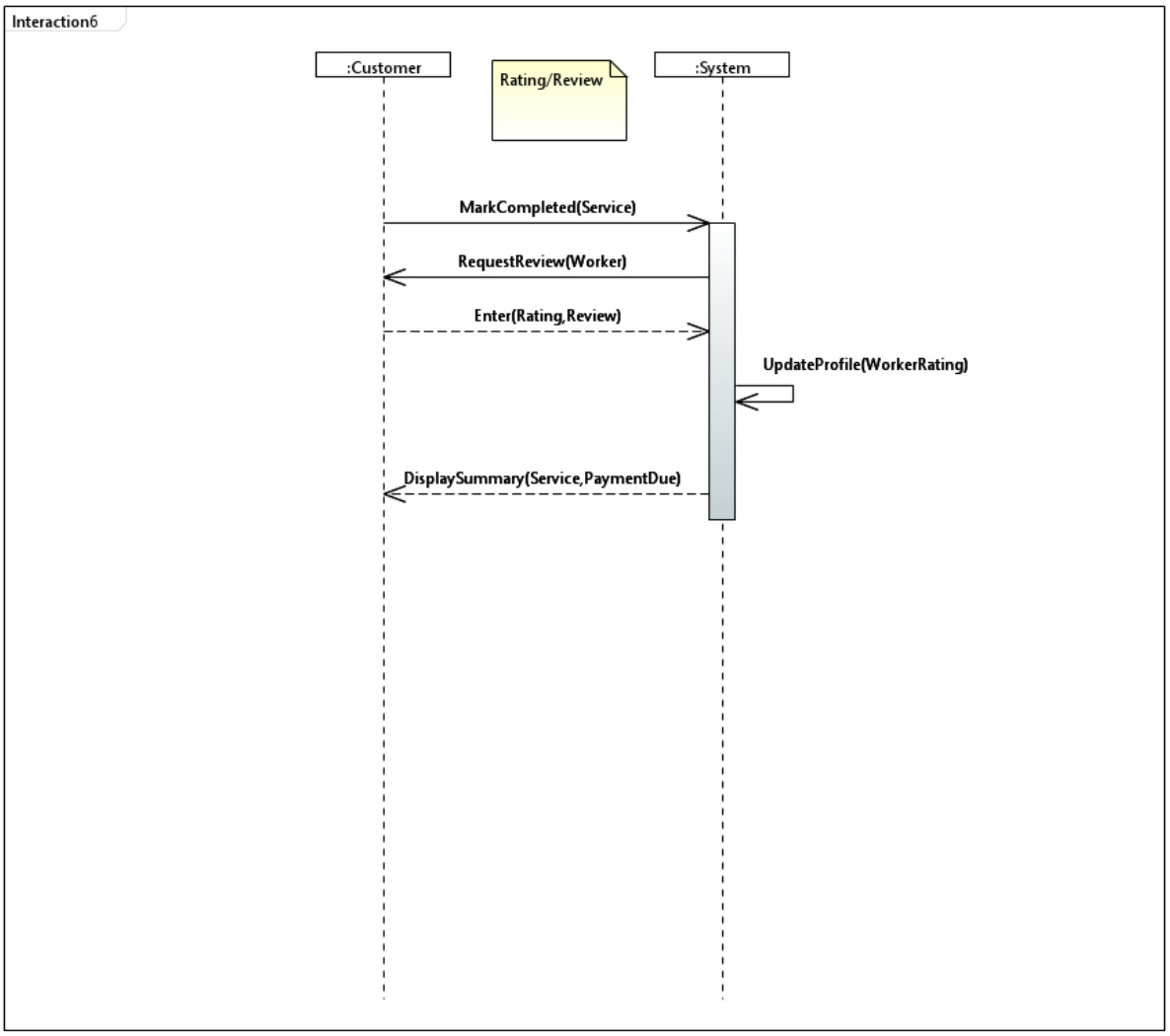
Group Member: Huzaifa Tahir Rathore – 21I-0586



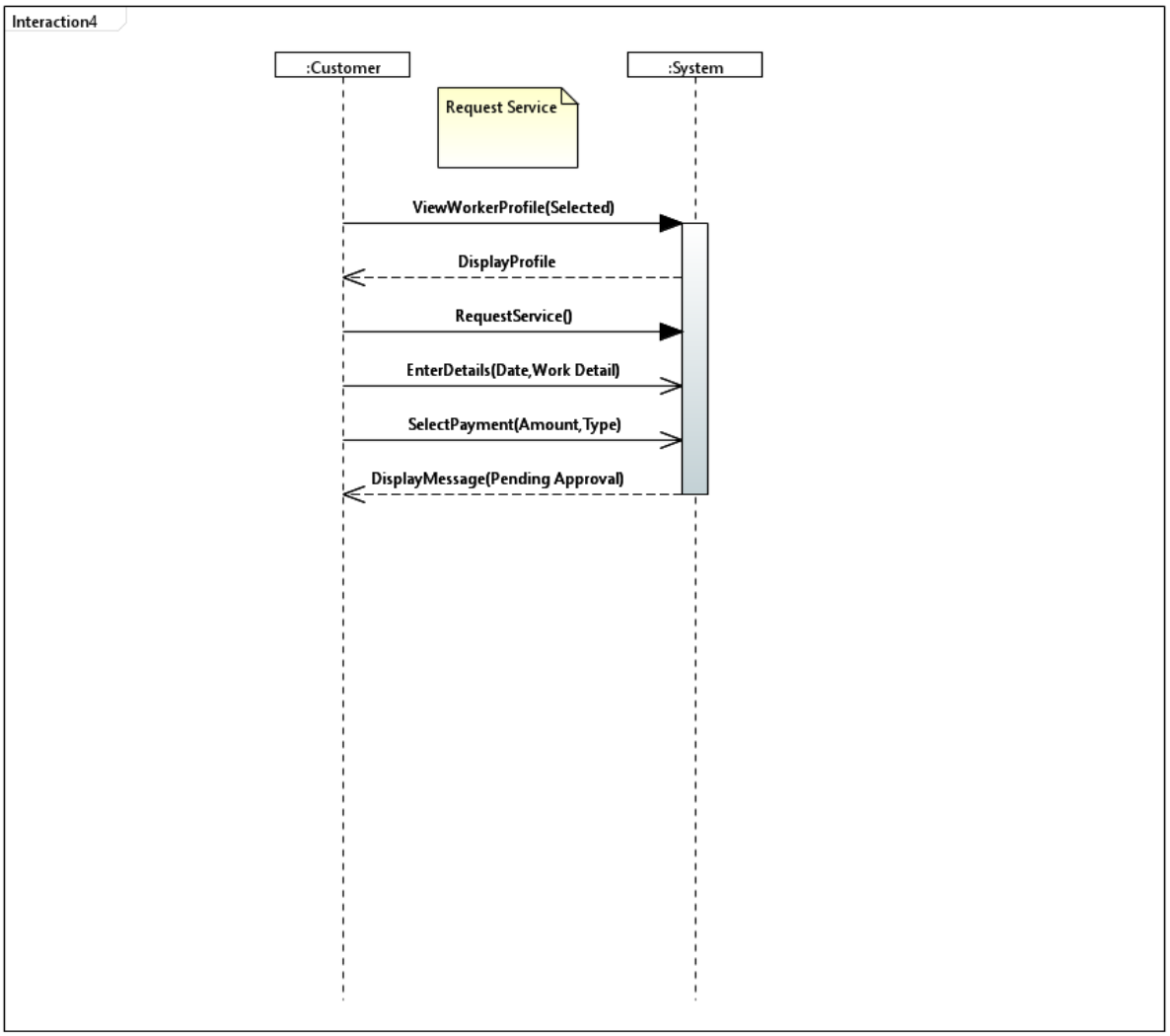
Group Member: Huzaifa Tahir Rathore – 21I-0586



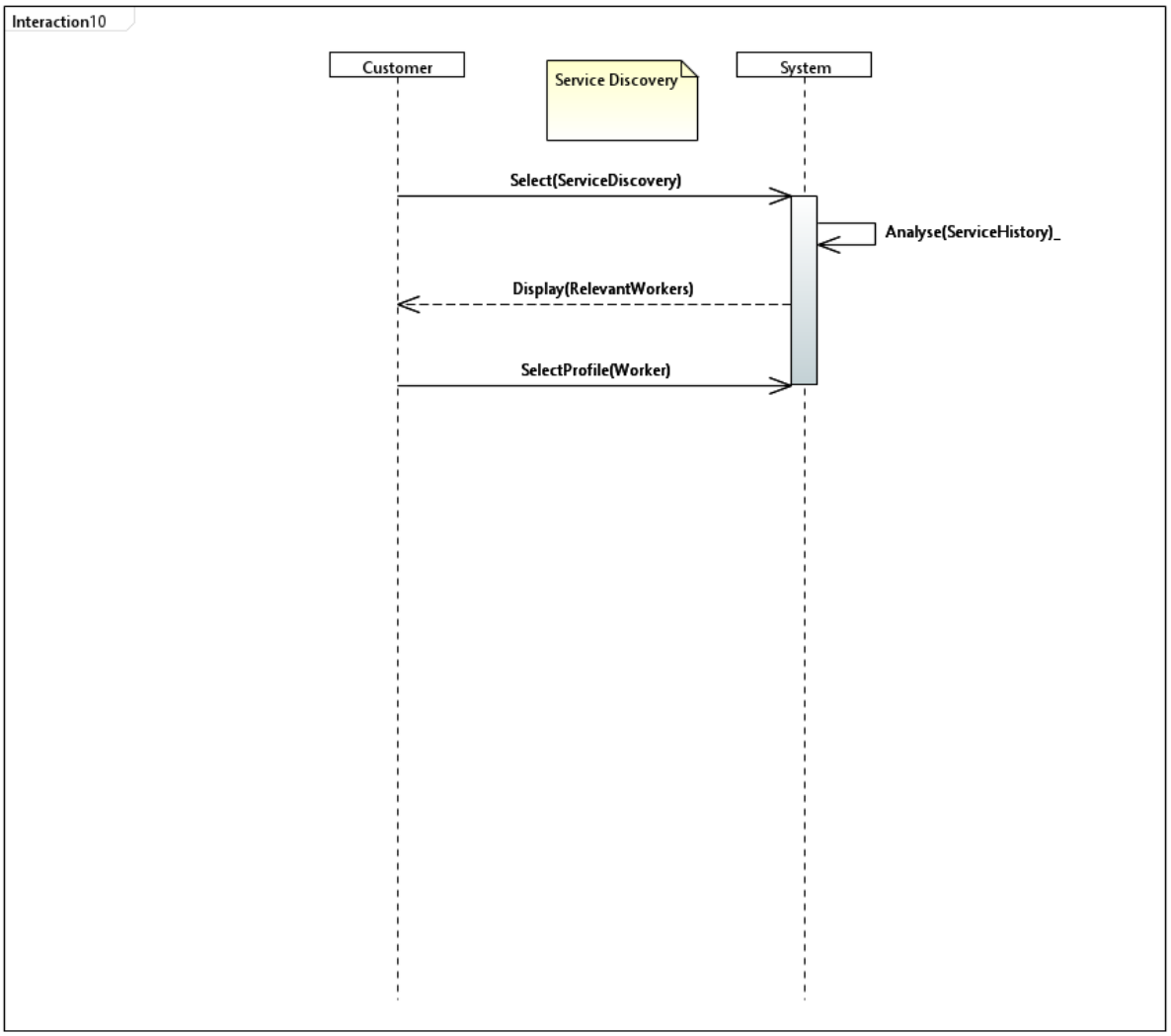
Group Member: Zian Ahmad – 21I-0503



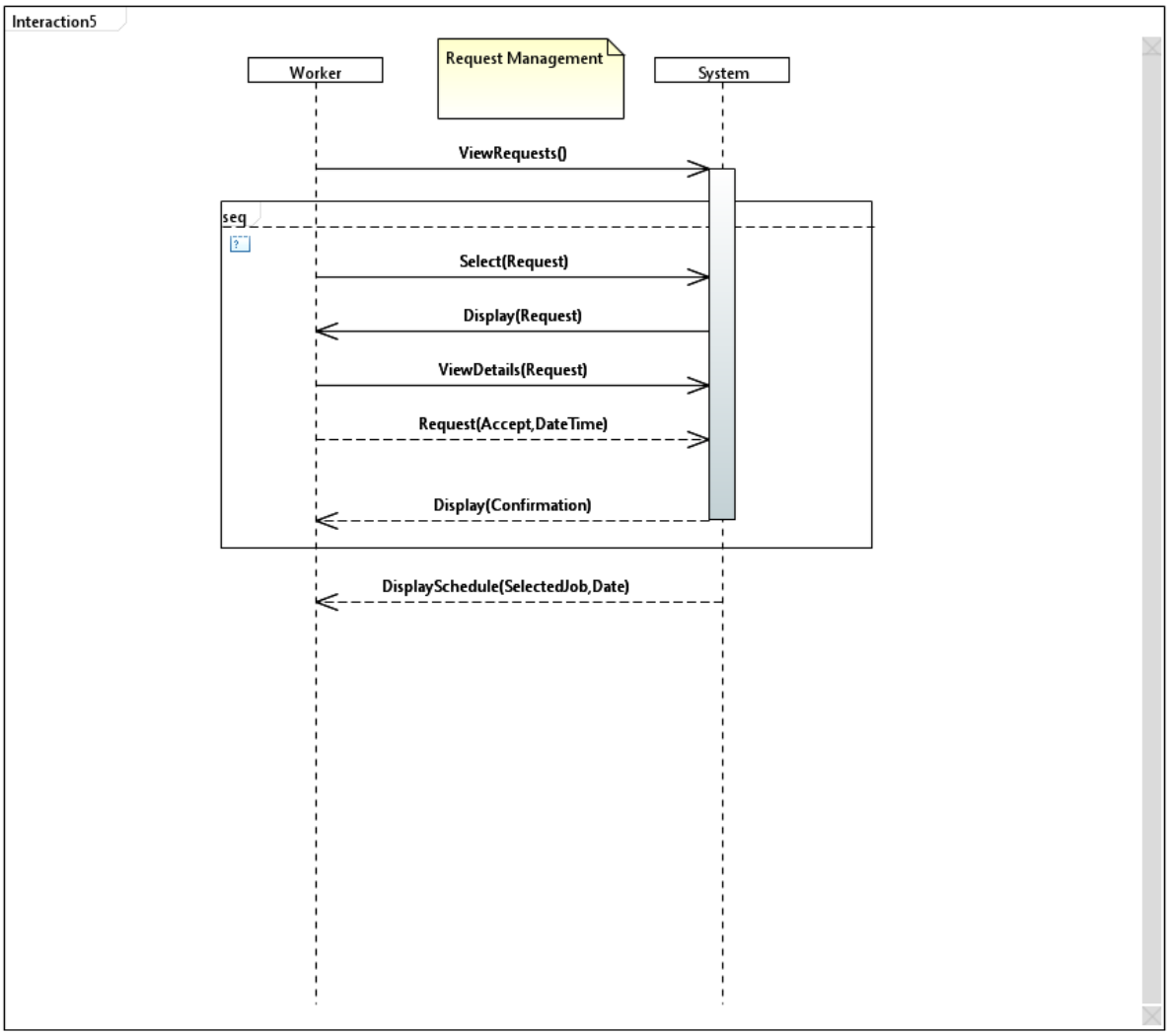
Group Member: Zian Ahmad – 21I-0503



Group Member: Zian Ahmad – 21I-0503

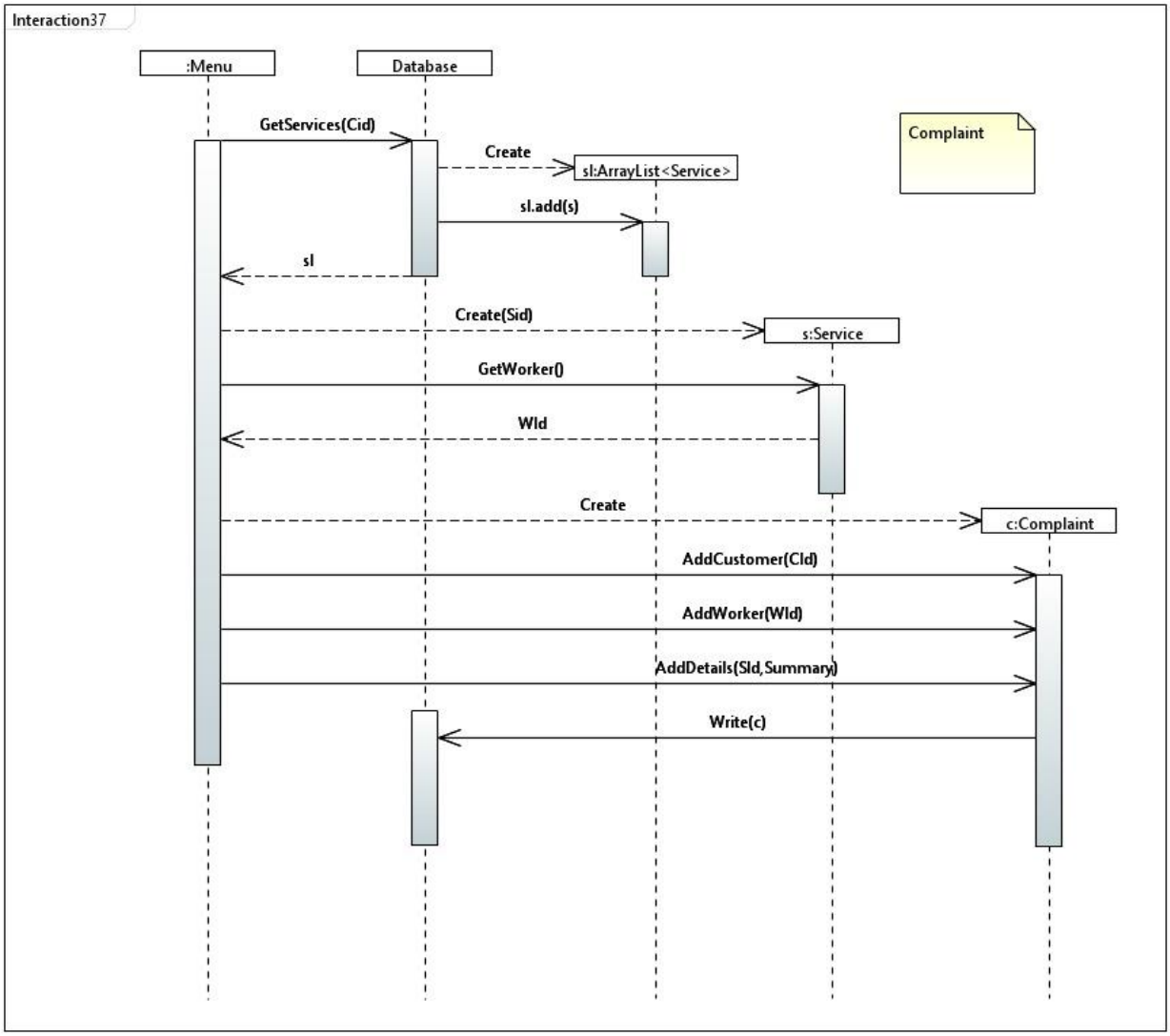


Group Member: Zian Ahmad – 21I-0503

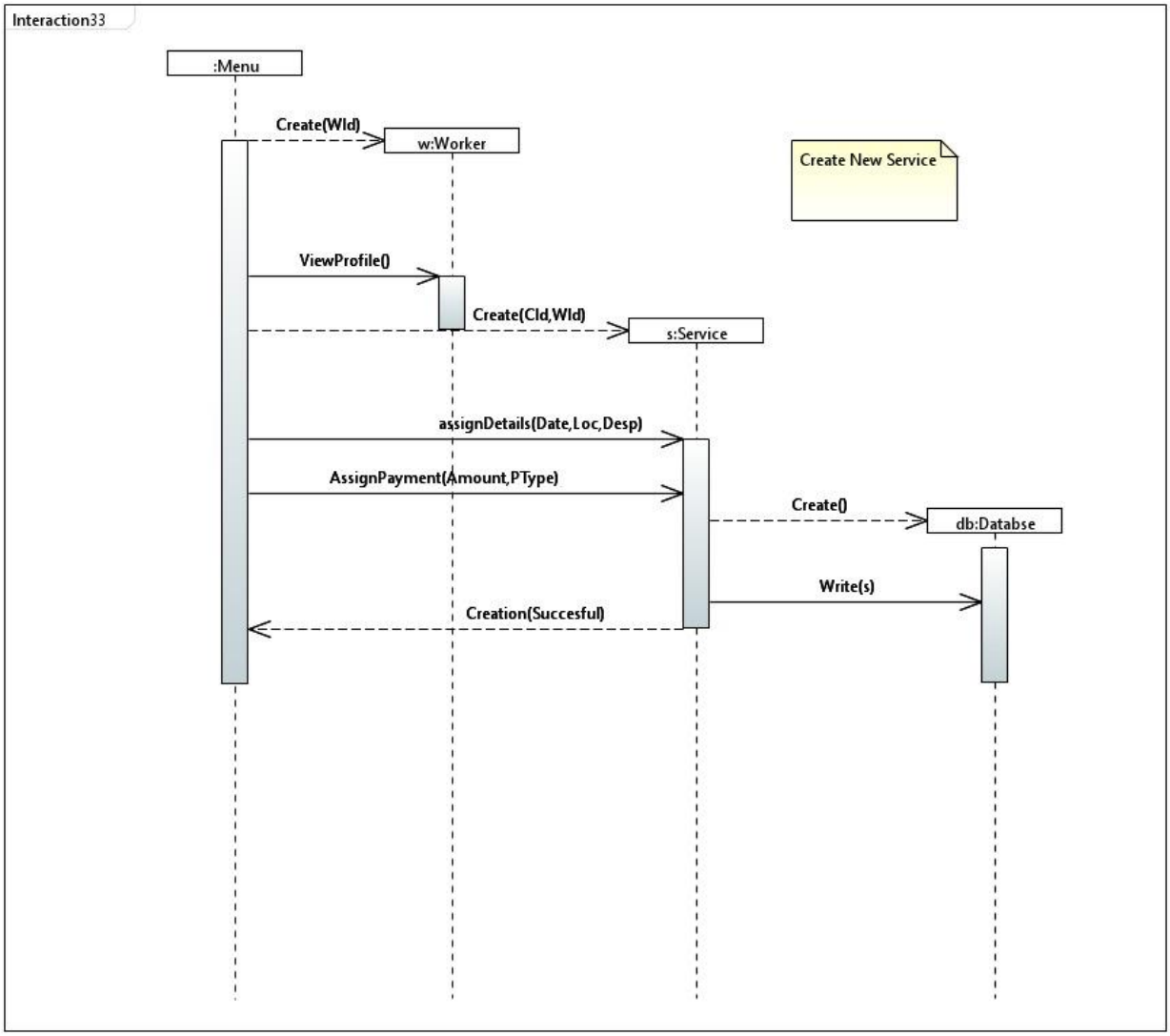


11. Sequence Diagram

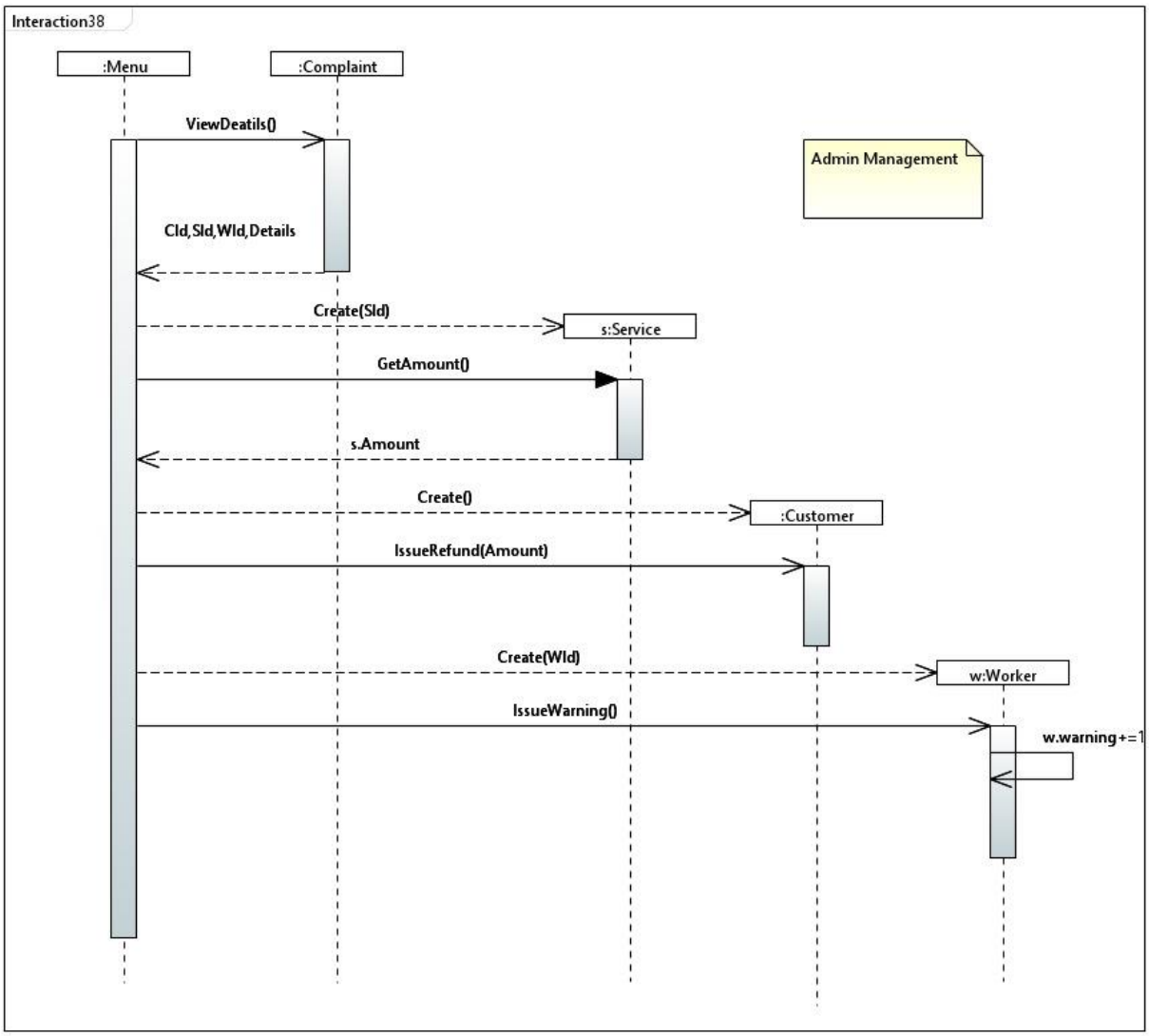
Use Case: Complaint - Huzaifa 21I-0586



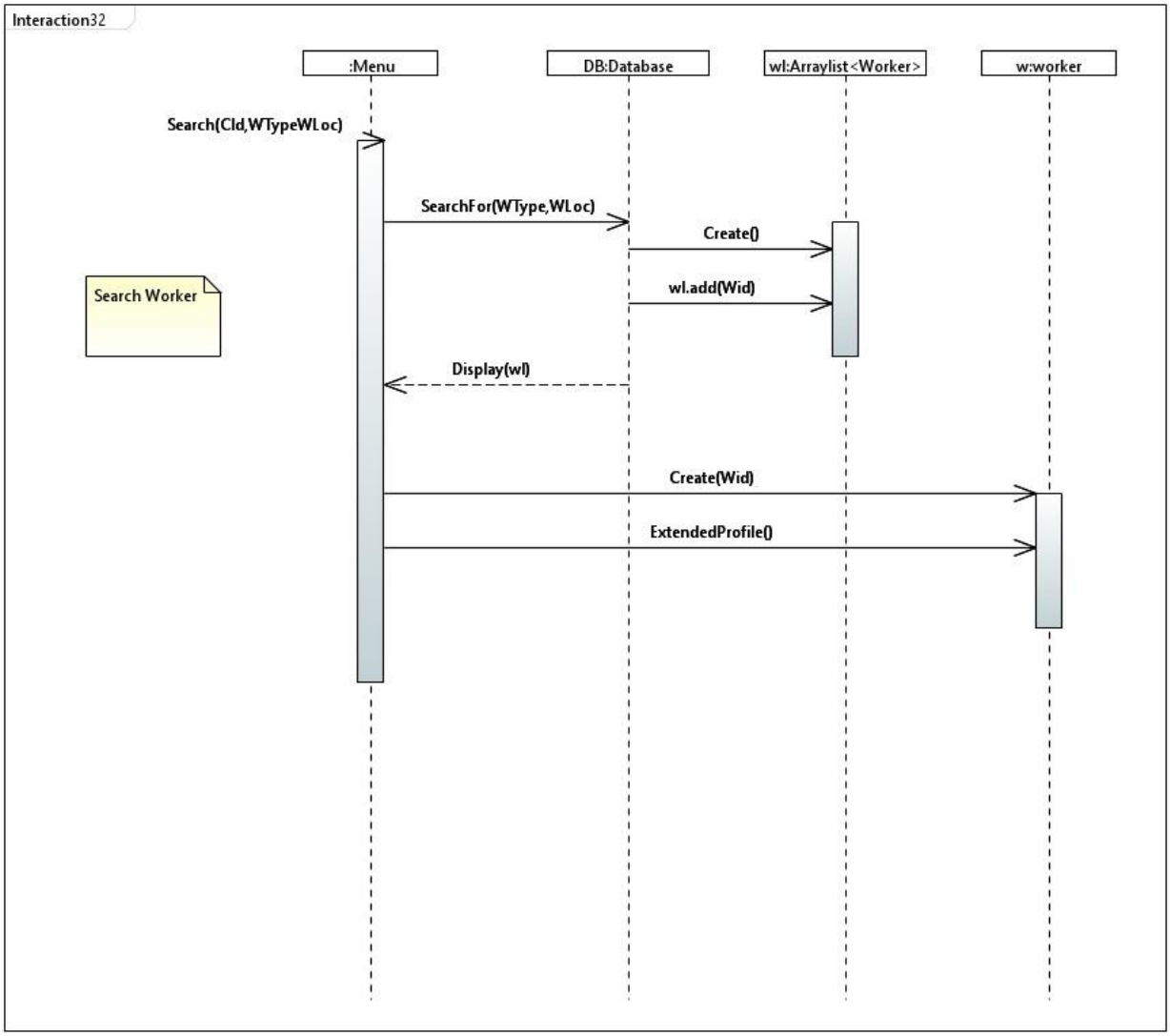
Use Case: Create New Service – Zian 21i-0503



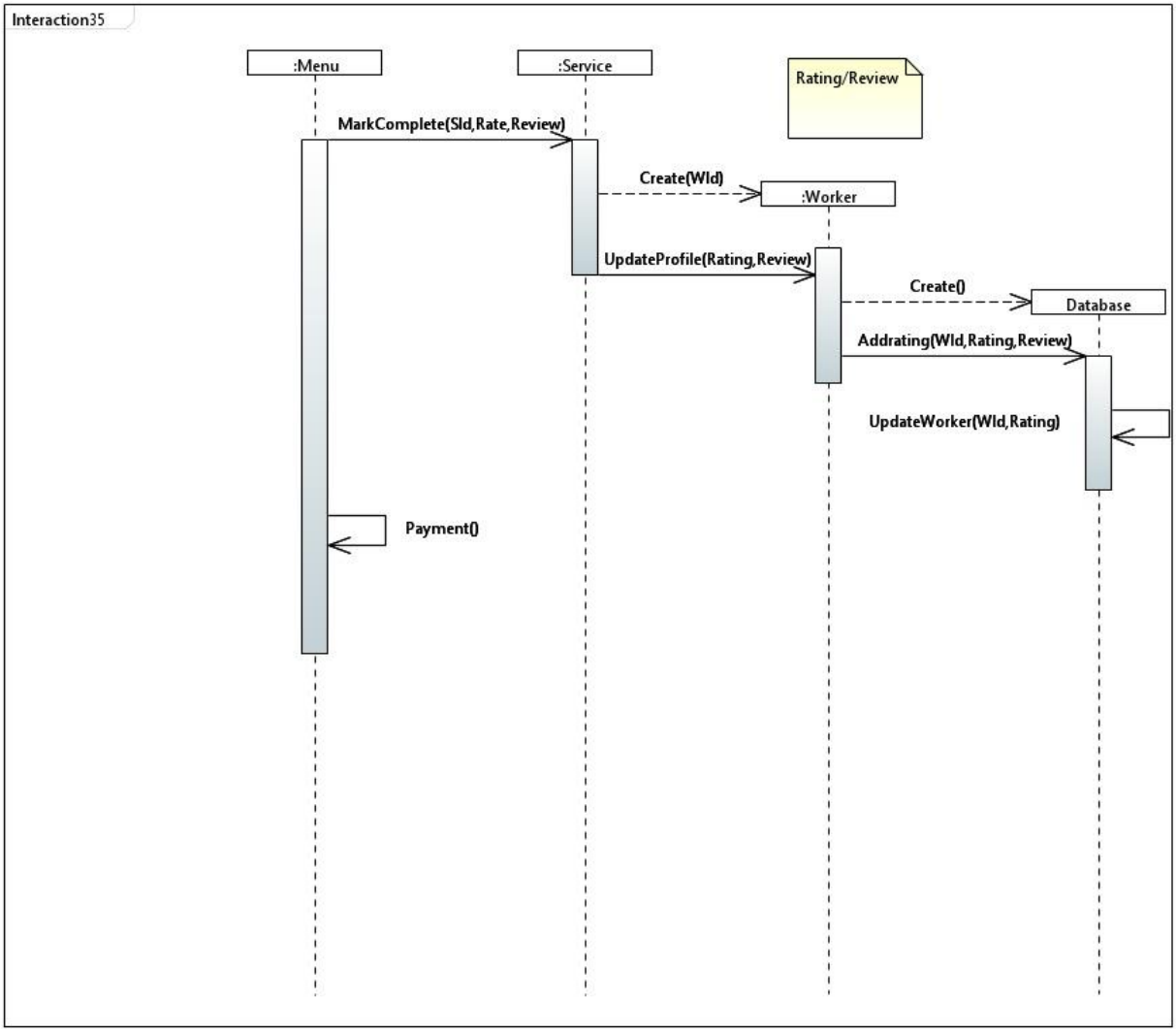
Use Case: Admin Management – Huzaifa 21I-0586



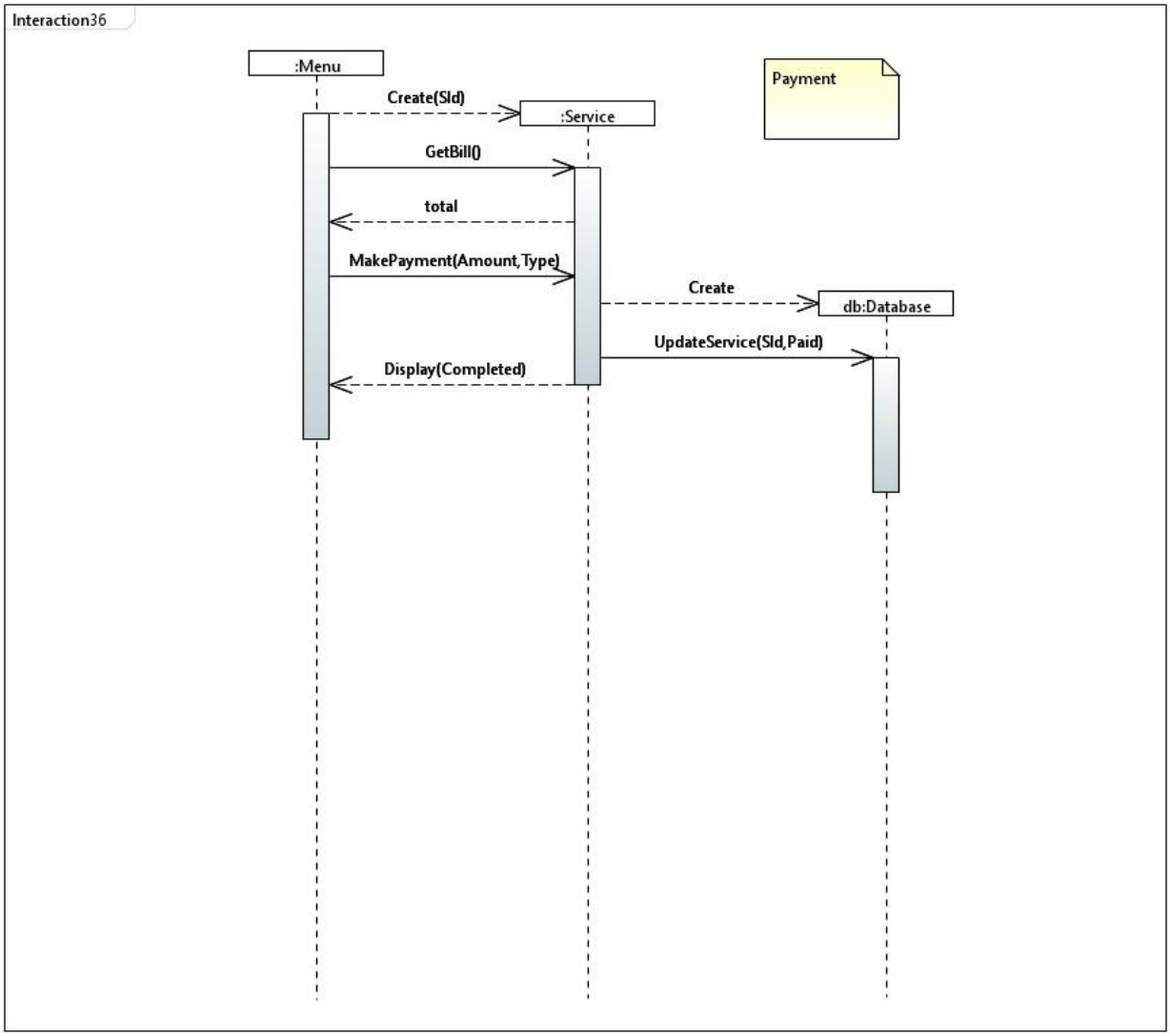
Use Case: Search Worker – Huzaifa 21I-0586



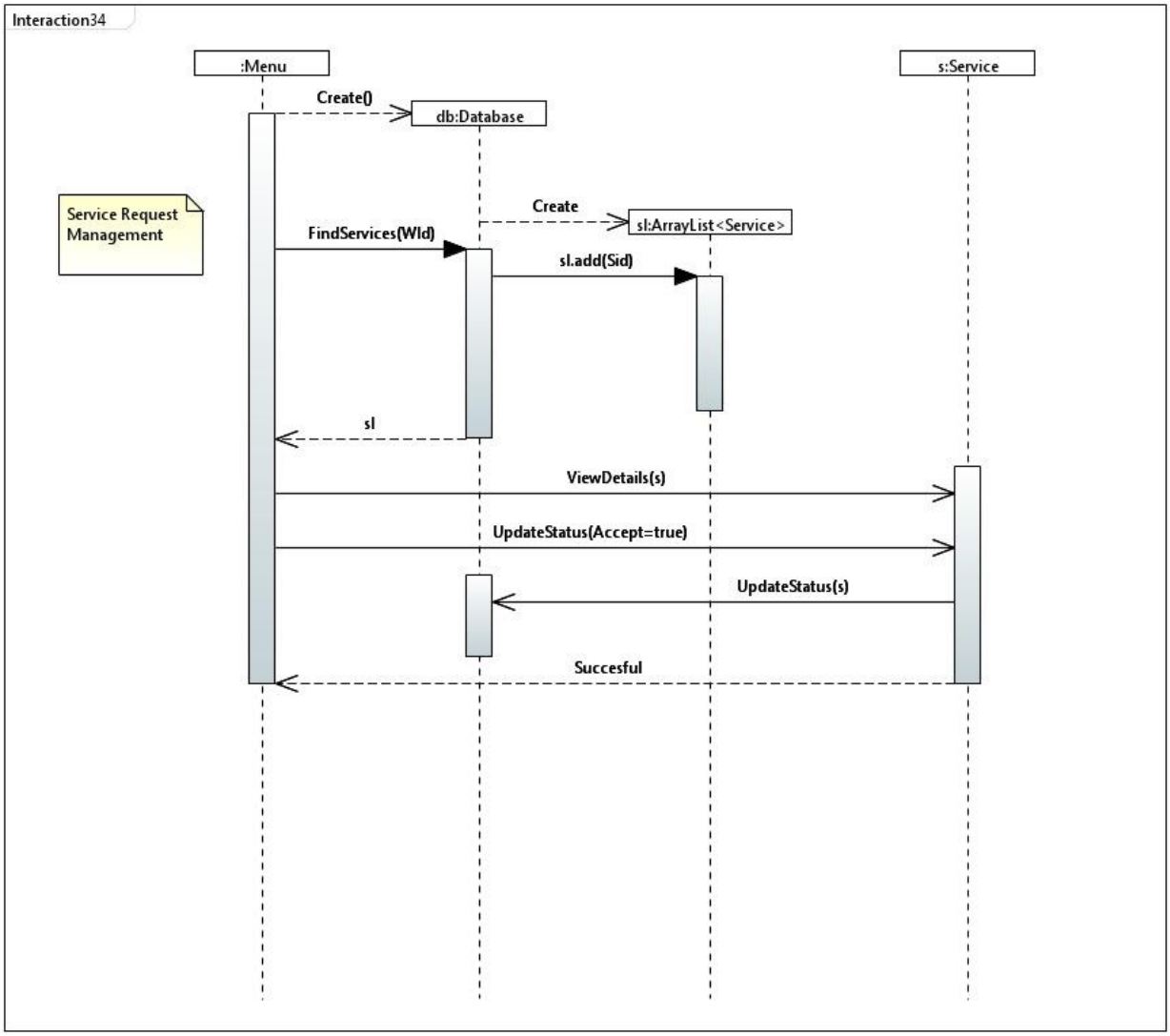
Use case: Rating – Zian 21I-0503



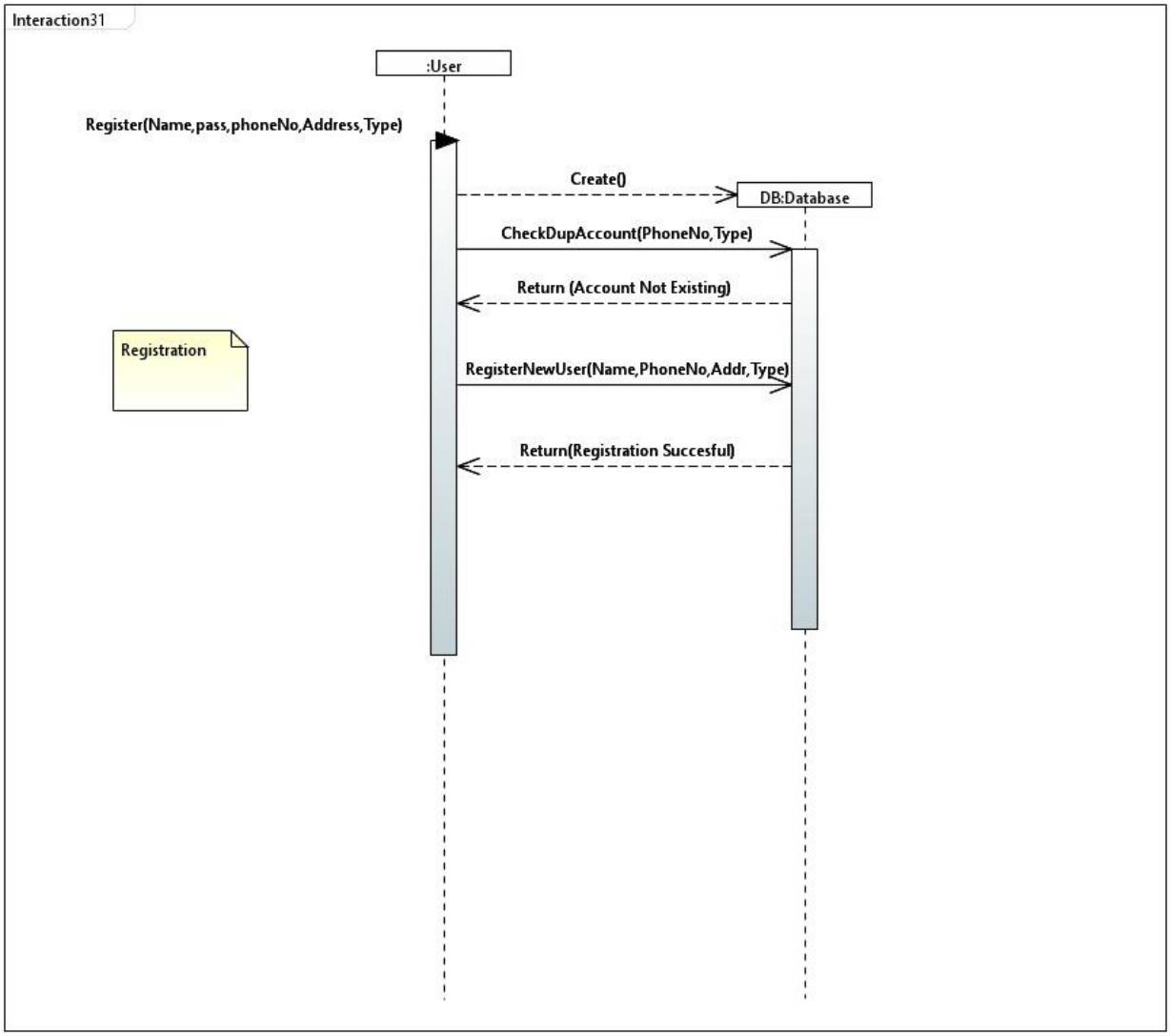
Use case: Payment – Huzaifa 21I-0586



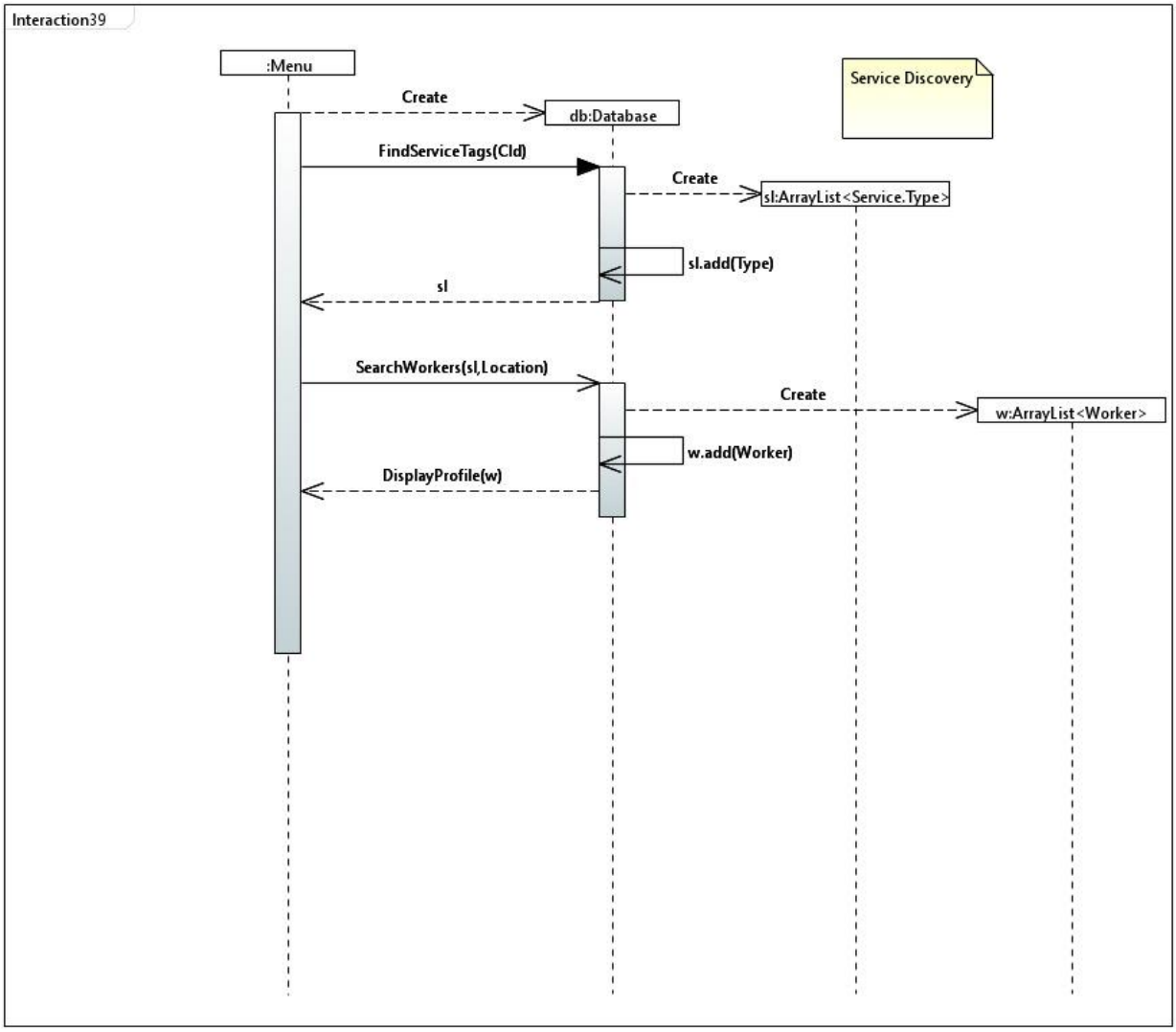
Use case: Service Request Management – Zian 21I-0503



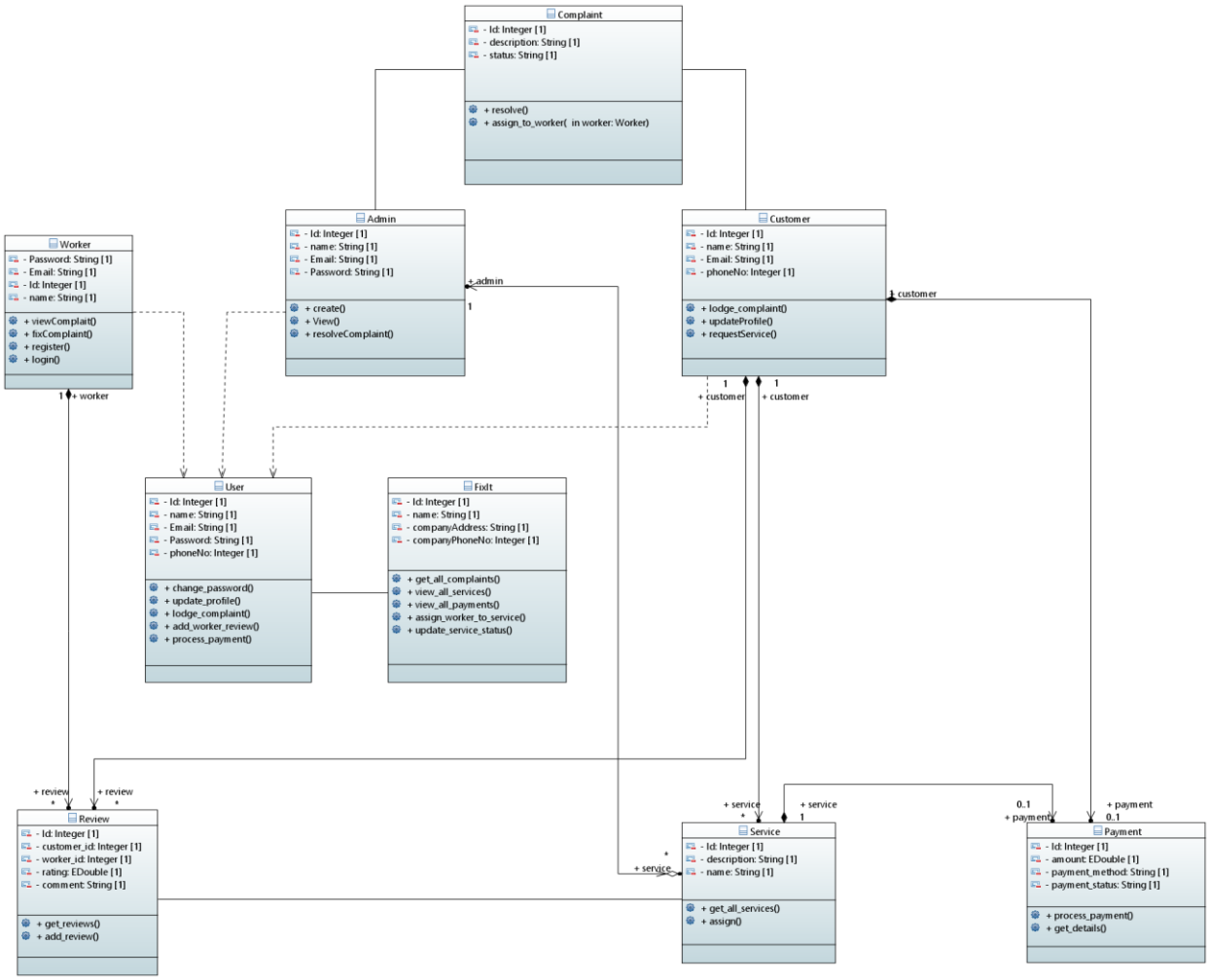
Use case: Registration – Huzaifa 21I-0586



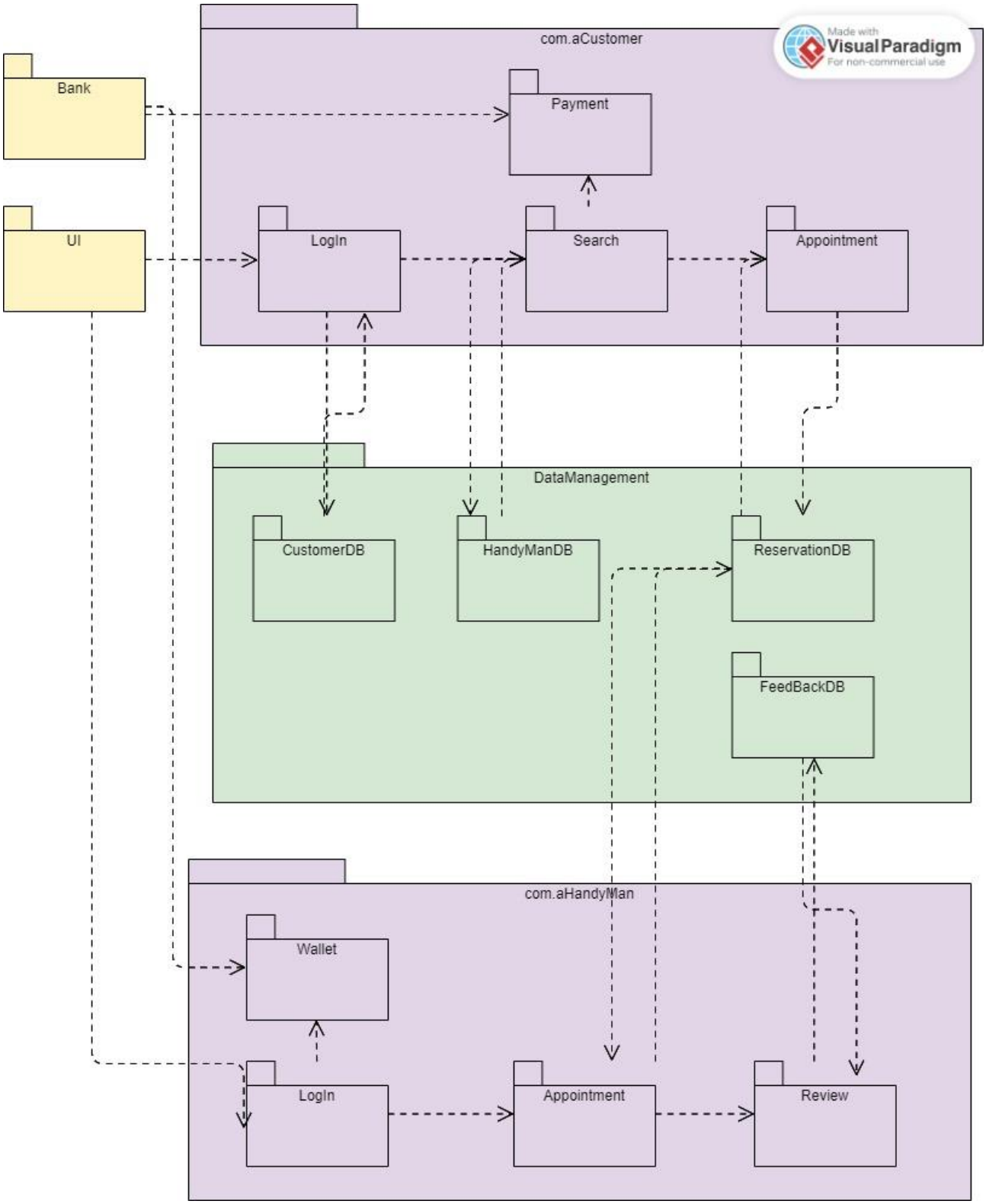
Use case: Search Discovery – Zian 21I-0503



12. Class Diagram



13. Package Diagram



14. Deployment Diagram