Software Requirements and Design Document

for

Home Service Provider System

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1. Introduction

1.1 Purpose

The purpose of the Home Service Provider System is to create a reliable and user-friendly platform that bridges the gap between homeowners and certified service providers. It aims to simplify the process of finding, hiring, and paying for services like plumbing, electrical work, and more, by offering a secure, efficient, and transparent solution. The system seeks to ensure quality and accountability through provider verification, a robust rating and review system, and real-time service tracking. This initiative is designed to enhance customer satisfaction while providing local service providers with opportunities to grow their business and reputation.

1.2 Product Scope

The Home Service Provider System is designed to connect homeowners with verified and trustworthy service providers, including electricians, plumbers, and other professionals. The system facilitates a seamless process for customers to post tasks, book services, and complete payments securely. Additionally, it empowers service providers by providing a platform to showcase their skills, ratings, and reviews, helping them expand their client base and improve their reputation.

1.3 Title

Home Service Provider System

1.4 Objectives

The main objectives of the Service Provider App are:

1. Streamline Service Management: Facilitate easy posting, tracking, and management of tasks, ensuring users can efficiently connect with service providers.

2. Enhance Transparency and Trust: Provide real-time updates, secure payment methods, and detailed profiles with verified skill badges and certifications to build trust among users.

3. Improve User Experience: Offer customized recommendations, flexible task scheduling, and the ability to bundle tasks for better cost management and convenience.

4. Ensure Secure Transactions: Implement robust payment gateway systems and escrow services to handle transactions securely, providing peace of mind for both users and service providers.

5. Facilitate Effective Communication: Enable seamless messaging and notifications to ensure clear communication and timely updates between users and service providers.

6. Support Dispute Resolution: Establish a structured process for resolving disputes, maintaining satisfaction and trust between parties.

7. Leverage Advanced Technology: Integrate machine learning algorithms, location services, and verification systems to continuously enhance the platform's functionality and reliability.

1.5 Problem Statement

Homeowners in urban areas face significant challenges in finding reliable and qualified service providers for tasks such as electrical and plumbing work. The market is saturated with options, but many providers lack proper vetting, leading to substandard services, incomplete tasks, and disputes over payments.

This results in:

1. *Delays and additional costs for homeowners.*
2. *Dissatisfaction due to poor service quality.*
3. *Challenges for service providers in gaining trust, retaining clients, and maintaining a steady income.*

To address these issues, a comprehensive solution is required to ensure quality, trust, and accountability for both homeowners and service providers.

2. Overall Description

2.1 Product Perspective

The Home Service Provider System is a new, self-contained product developed to address the challenges faced by homeowners in finding reliable service providers for various tasks, such as plumbing, electrical work, and more. This product is not a part of an existing product family but represents an innovative, standalone solution tailored to enhance the quality and efficiency of service transactions in urban areas.

The system integrates several components, including user interfaces, task management, payment processing, and dispute resolution modules. These components work together to provide a seamless experience for both homeowners and service providers.

2.2 Product Functions

The Home Service Provider System provides the following major functions:

For Homeowners:

1. Task Management: Post tasks with detailed descriptions, budgets, and timelines.
2. Service Discovery: Search and browse profiles of verified service providers.
3. Communication: Engage with service providers via a built-in messaging system.
4. Real-Time Tracking: Monitor the progress of tasks in real-time.
5. Payment Processing: Make secure payments through integrated payment gateways.

For Service Providers:
1. Profile Management: Create and manage profiles showcasing expertise and certifications.
2. Task Bidding: Submit offers for tasks based on user requirements.
3. Feedback System: Receive ratings and reviews to build credibility and trust.

2.3 <Summarize the major functions the product must perform or must let the user perform. Details will be provided in Section 3, so only a high-level summary (such as a bullet list) is needed here. Organize the functions to make them understandable to any reader of the SRS. A picture of the major groups of related requirements and how they relate, such as a top-level data flow diagram or object class diagram, is often effective.>

The Home Service Provider System is a new, self-contained product developed to address the challenges faced by homeowners in finding reliable service providers for various tasks, such as plumbing, electrical work, and more. This product is not a part of an existing product family but represents an innovative, standalone solution tailored to enhance the quality and efficiency of service transactions in urban areas.

The system integrates several components, including user interfaces, task management, payment processing, and dispute resolution modules. These components work together to provide a seamless experience for both homeowners and service providers.

2.4 List of Use Cases

The following use cases summarize the key functionalities of the Home Service Provider System:

1- Task Management

   Post Task

- Allows homeowners to post detailed tasks, including descriptions, budgets, and timelines.

2- Match Task

- Matches posted tasks with suitable service providers based on location, expertise, and availability.

3- Schedule Task

- Enables users to set future dates and times for task execution.

4- Bundle Task and Package Deals

- Facilitates combining related tasks into a single project to optimize costs.

5- Manage Profiles

- Lets service providers create and update profiles showcasing skills, experience, and certifications.

6- View Skill Badges and Certifications

- Allows users to verify service providers' expertise through displayed certifications.

7- Send Message

- Provides a messaging system for communication between homeowners and service providers.

8- Secure Payments

- Processes secure transactions through integrated payment gateways.

9- Use Escrow Services

- Ensures secure fund handling until task completion.

10- Track in Real-Time

- Offers real-time updates on task progress.

11- Submit Reviews and Ratings

- Enables users to provide feedback and ratings for service providers.

12- Generate Customized Recommendations

- Delivers personalized service suggestions based on user behavior and feedback.

13- Enable Geo-location

- Allows location-based filtering to discover nearby service providers.

14- Resolve Dispute

- Facilitates conflict resolution between homeowners and service providers via a structured process.

15- Provide Multi-Service Support

- Expands the platform to accommodate a variety of services, from home maintenance to tutoring and pet care.

These use cases collectively define the system's functionality, focusing on enhancing user experience, ensuring security, and maintaining operational efficiency.

2.5 Extended Use Cases

Below is the list of extended use cases for the **Home Service Provider System**, detailing additional functionalities that enhance the platform's usability and reliability:

1. **Post Task**
   - Users can attach multimedia files (e.g., images, videos) to task descriptions for better clarity.
   - Tasks can include location data for more precise provider matching.

2. **Match Task**
   - Uses advanced algorithms (e.g., content-based filtering, collaborative filtering) to improve task-provider matching accuracy.
   - Continuously updates recommendations based on changes in user preferences or service provider availability.

3. **Schedule Task**
   - Integrates with third-party calendar apps for task scheduling and reminders.

4. **Bundle Task and Package Deals**
   - Enables users to view available package deals offered by service providers for bundled tasks.

5. **Manage Profiles**
   - Service providers can upload certifications and skill badges for verification.
   - Users can set privacy controls to manage visibility of personal information.

6. **View Skill Badges and Certifications**
   - Skill badges are verified through integration with external certification databases.

7. **Send Message**

   o   Supports attachments (e.g., documents, photos) to enhance communication between users and service providers.

   o   Integrates notification systems to alert users of new messages or responses.

8. **Secure Payments**

   o   Ensures encryption and secure processing for all transactions.

   o   Supports multiple payment methods (credit cards, PayPal, bank transfers).

9. **Use Escrow Services**

   o   Holds funds securely until both parties confirm task completion.

   o   Facilitates dispute resolution in case of payment conflicts

Use Case ID: UC-012

Use Case Name: Real-Time Tracking

Scope: Service provider.

Level: System

Primary Actor: User

Stakeholders and Interests:

Seekers: Aims to track the progress of their tasks in real-time for transparency and peace of mind.

Service Providers: Expect to provide updates on task progress to maintain client satisfaction.
Preconditions: User has assigned tasks to service providers.

Success Guarantee (Post Conditions): User successfully tracks the progress of assigned tasks in real-time.

Main Success Scenario:

Actor Action	System Response
User accesses the task tracking section of the platform.	
3User selects the task they wish to track	
	System retrieves real-time updates on the status and progress of the selected task from the assigned service provider.
User views the updates and any relevant notifications or milestones reached.	
User receives notifications for completed tasks or any issues encountered during the task execution	

Extensions:

1. If the provider is not updating the task progress then the system will keep notifying the provider

to update task progress

2. If the provider is facing connectivity issues and not able to update task progress then the system will notify the seeker about the issue.

Special Requirements:

1. Integration with notification systems to alert users of significant task updates or milestones.

2. Option for users to provide feedback or communicate with service providers directly through the tracking interface.

Technology and Data Variations List:

Platform should support various types of task updates (text, images, status changes) for real-time tracking.

Frequency of Occurrence: High

Open Issues:

Clarification needed on the accuracy of the provider updating the task progress .

Use Case ID: UC-003

Use Case Name: Profiles

Scope: Service provider.
Level: System
Primary Actor: User
Stakeholders and Interests:
User (Service Providers): Aims to create and manage a comprehensive profile showcasing expertise, experience, ratings, and reviews. Expect clear and informative profiles to attract potential clients.
Preconditions: User is registered on the platform.
Success Guarantee (Post Conditions): User profile is successfully created or updated on the platform.
Main Success Scenario:

Actor Action	System Response

User navigates to the profile management section of the platform.	
User fills in profile details including expertise, experience, and contact information.	
User uploads relevant documents or certifications to validate expertise.	
User adds ratings and reviews from previous clients if available	
User reviews and confirms the profile.	
	System validates the profile details.
User profile is successfully created or updated on the platform	

Extensions:
1. If profile details are incomplete or invalid (Step 6a), system prompts the user to correct the errors.
2. If there are technical issues preventing profile creation or update (Step 7a), system notifies the user and suggests alternative actions.
Special Requirements:
1. Integration with verification services to validate user credentials and certifications. 2. Privacy settings to allow users to control the visibility of certain profile information.
Technology and Data Variations List:
1. Platform should support various file formats for document uploads (PDF, JPG, etc.). **Frequency of Occurrence:** High
Open Issues:
Clarification needed on the maximum file size for document uploads.

Use Case ID: UC-09

Use Case Name: Dispute Resolution

Scope: Service provider

Level: System

Primary Actor: Dispute Resolution Mediator

Stakeholders and Interests:

Dispute Resolution Mediator: Aims to facilitate fair and timely resolution of conflicts or disagreements between users and service providers.

Users and Service Providers: Expect a structured process to address disputes and maintain trust and satisfaction.

Preconditions: A dispute is raised by either the seeker or the service provider. **Success Guarantee (Post Conditions):** Dispute is resolved satisfactorily, and trust and satisfaction are maintained between parties.

Main Success Scenario:

1. Dispute resolution mediator receives notification of the dispute.

Actor Action	System Response
Dispute resolution mediator receives notification of the dispute.	
	System verifies the details of the dispute and gathers relevant information from both parties
Mediator facilitates communication between the parties to understand their perspectives and reach a mutually agreeable solution.	
If necessary, mediator may request additional information or evidence from both parties to support their claims.	
Mediator proposes a resolution based on the information gathered and the platform's policies and guidelines.	
Both parties review the proposed resolution and provide feedback. If both parties agree to the	

proposed resolution, the dispute is considered resolved.	
If parties cannot reach an agreement, mediator may escalate the dispute to higher	

Extensions:

1. If one or both parties refuse to cooperate in the dispute resolution process (Step 3a), mediator may enforce platform policies or take appropriate actions to ensure compliance. 2. If there are technical issues with communication or information gathering (Step 2a), mediator notifies the parties and suggests alternative methods.

Special Requirements:

1. Confidentiality and impartiality must be maintained throughout the dispute resolution process.

2. Option for parties to request arbitration or mediation by third-party organizations if unable to reach a resolution internally.

Technology and Data Variations List:

Platform should support secure communication channels for mediation discussions and document exchange.

Frequency of Occurrence: Moderate

Open Issues:

Clarification needed on the intentions of provider or seeker who reports the issue because the reported person can be completely innocent

Use Case ID: UC-001

Use Case Name: Task Posting

Scope: Service provider.

Level: System

Primary Actor: User

Stakeholders and Interests:

User: Aims to post tasks with descriptions, requirements, and budget constraints. *Service Providers:* Expect clear task descriptions and requirements to effectively bid on tasks. **Preconditions:** User is logged into the platform.

Success Guarantee (Post Conditions): Task details are successfully posted on the platform.

Main Success Scenario:

Actor Action	System Response
User navigates to the task posting section of the platform.	
User fills in task details including description, requirements, and budget constraints.	
User specifies the urgency and any unique opportunities associated with the task.	
User reviews and confirms the task posting.	
	System validates the task details.
	Task details are successfully posted on the platform.

Extensions:

1. If task details are incomplete or invalid (Step 5a), system prompts the user to correct the errors.

2. If there are technical issues preventing task posting (Step 6a), system notifies the user and suggests alternative actions.

Special Requirements:

1. Integration with location services to optionally include geo-location data in task postings. 2. Verification of user identity to maintain trust and credibility in the community. **Technology and Data Variations List:**

Platform should support various formats for task descriptions and requirements (text, images, attachments, etc.).

Frequency of Occurrence: High

Open Issues:

Clarification needed on the maximum character limit for task descriptions and requirements.

Use Case ID: UC-002

Use Case Name: Task Matching

Scope: Service provider

Level: System

Primary Actor: Algorithm

Stakeholders and Interests:

Algorithm: Aims to efficiently match tasks to the most appropriate service providers based on various factors.

Users: Expect timely and relevant suggestions for potential task matches.

Preconditions: Tasks are posted on the platform.

Success Guarantee (Post Conditions): Users receive recommendations for potential task matches.

Main Success Scenario:

Actor Action	System Response
Algorithm analyzes task details, user preferences, and service provider profiles.	
	System generates a list of potential task matches based on skills, availability, and location
Users receive recommendations for potential task matches.	

Extensions:

1. If there are no suitable service providers for a particular task (Step 2a), system notifies the user and suggests alternative actions.

2. If there are technical issues preventing task matching (Step 3a), system notifies the user and suggests alternative actions.

Special Requirements:

 1. Integration with user feedback and rating data to improve the accuracy of task matching over time.

2. Real-time updating of task recommendations based on changes in user preferences or service provider availability.

Technology and Data Variations List:

 Platform should support various algorithms for task matching (collaborative filtering, content-based filtering, etc.).

Frequency of Occurrence: High

Open Issues:

Clarification needed on the maximum number of task matches to be recommended to users.

2. If payment confirmation is not received within the specified time (Step 6a), system notifies the merchant about the delay.

Use Case ID: UC-007

Use Case Name: Reviews and Ratings

Scope: Service provider.

Level: System

Primary Actor: User

Stakeholders and Interests:

User: Aims to provide feedback on service providers based on their experience. Service Providers: Expect transparent feedback to improve their services and reputation.
Preconditions: User has completed a transaction with a service provider.

Success Guarantee (Post Conditions): User successfully rates and leaves a review for the service provider.

Main Success Scenario:

Actor Action	System Response
User enables location services on their device.	
User navigates to the search section of the platform.	
User enters search criteria and selects the option to filter results by proximity.	
	System retrieves service provider listings based on the user's location.
User views the list of nearby service providers.	
User selects a service provider from the list to view more details or initiate contact.	

Extensions:

1. If the user tries to leave a review for an incomplete transaction (Step 2a), system prompts the user to complete the transaction first.

2. If there are technical issues submitting the rating and review (Step 5a), system notifies the user and suggests alternative actions.

Special Requirements:

1. Option for service providers to respond to reviews to address any concerns or feedback. 2. Moderation system to prevent abusive or inappropriate reviews.

Technology and Data Variations List:

Platform should support various rating scales (e.g., stars, numerical ratings) and review formats (text, multimedia).

Frequency of Occurrence: High

Open Issues:

Clarification needed on the process for disputing or removing reviews.

Use Case ID: UC-010

Use Case Name: Task Scheduling

Scope: Service provider.

Level: System

Primary Actor: User

Stakeholders and Interests:

User: Aims to schedule tasks for future dates and times for better planning and coordination with service providers.

Service Providers: Expect clear timelines for task execution to manage their schedules effectively.

Preconditions: User is logged into the platform and has tasks to schedule. **Success Guarantee (Post Conditions)**: Tasks are successfully scheduled for future dates and times.

Main Success Scenario:

Actor Action	System Response
User navigates to the multi-service support section of the platform.	
User browses or searches for the desired service category or specific service.	
	System retrieves a list of available service providers offering the selected service.
User selects a service provider from the list to view more details or initiate contact.	
User engages with the selected service provider to discuss service requirements or schedule appointments	

Extensions:

1. If the selected date or time is not available for scheduling (Step 3a), system suggests alternative slots or notifies the user to choose a different time.

2. If there are technical issues with the scheduling process (Step 4a), system notifies the user and suggests alternative actions.

Special Requirements:

1. Integration with calendar applications to sync scheduled tasks with user's personal calendars.

2. Option for users to set reminders or notifications for upcoming scheduled tasks.
Technology and Data Variations List:

Platform should support various date and time formats for scheduling tasks.
Frequency of Occurrence: Moderate

Open Issues:

Clarification needed on the maximum number of tasks that can be scheduled simultaneously.

Use Case ID: UC-013

Use Case Name: Customized Recommendations

Scope: Service provider.

Level: System

Primary Actor: User

Stakeholders and Interests:

User: Aims to receive personalized recommendations based on past preferences, behavior, and feedback.

Service Providers: Expect opportunities to be recommended to users based on their specific needs and preferences.

Preconditions: User is logged into the platform.

Success Guarantee (Post Conditions): User receives relevant and tailored recommendations for services or service providers.

Main Success Scenario:

Actor Action	System Response

User accesses the recommendation section of the platform.	
	System analyzes user's past interactions, preferences, and feedback data.
	System generates personalized recommendations for services or service providers based on the analysis.
User views the recommended services or service providers and their relevant details.	
User engages with the recommended items by initiating contact, scheduling appointments, or exploring further	

Extensions:

1. If there is insufficient data to generate recommendations (Step 2a), system notifies the user and suggests actions to provide more feedback or interactions.

2. If the user is not satisfied with the recommendations (Step 4a), system provides options to refine preferences or request new recommendations.

Special Requirements:

1. Integration with machine learning algorithms for continuous improvement of recommendation accuracy over time.

2. Option for users to provide feedback on recommended items to improve future recommendations.

Technology and Data Variations List:

Platform should support various recommendation algorithms (collaborative filtering, content-based filtering, etc.).

Frequency of Occurrence: High

Open Issues:

Clarification needed on the perfect analysis of the seeker's requirements

Use Case ID: UC-014

Use Case Name: Skill Badges and Certifications Viewing

Scope: Service provider.

Level: System

Primary Actor: User

Stakeholders and Interests:

User: Aims to find service providers with verified skills and certifications to ensure quality work.

Service Providers: Seek recognition for their skills and certifications to attract more clients.
Preconditions: User is logged into the platform.

Success Guarantee (Post Conditions): User successfully views detailed skill badges and certifications of service providers.

Main Success Scenario:

Actor Action	System Response
User navigates to the profile section of the platform.	
User searches for service providers based on specific skills or services required.	
	System displays a list of service providers matching the search criteria.
User selects a service provider from the list to view their profile	
	System presents the detailed profile of the selected service provider, including their skill badges and certifications
User reviews the skill badges and certifications to assess the expertise and credibility of the service provider	

Extensions:

1. If the selected service provider has not provided any skill badges or certifications (Step 5a), system notifies the user that no credentials are available.

2. If there are technical issues preventing the display of skill badges and certifications (Step 5b), system prompts the user to refresh the page or try again later.

Special Requirements:

1. Integration with verification systems to ensure the authenticity of skill badges and certifications.

2. Ability for service providers to upload and update their skill badges and certifications on their profiles.

Technology and Data Variations List:

1. Platform should support various formats for displaying skill badges and certifications (images, text, links, etc.).

2. Integration with external verification databases to fetch and display verified skill badges and certifications.

Frequency of Occurrence: High

Open Issues:

Clarification needed on the process of verifying and updating skill badges and certifications.

Use Case ID: UC-015

Use Case Name: Task Bundling and Package Deals

Scope: Service provider.

Level: System

Primary Actor: User

Stakeholders and Interests:

User: Aims to optimize task management and reduce costs by bundling related tasks into a single project.

Service Providers: Offer package deals to attract users and increase task volume.
Preconditions: User is logged into the platform.

Success Guarantee (Post Conditions): User successfully creates a bundled task with package deals offered by service providers.

Main Success Scenario:

Actor Action	System Response
User navigates to the task creation section of the platform.	
User selects the option to create a bundled task.	
. User adds multiple related tasks to the bundle, specifying descriptions, requirements, and budget constraints for each task.	
. User reviews the bundled tasks and adjusts details as needed.	
. User explores package deals offered by service providers for the bundled tasks. User selects a package deal that meets their requirements and budget	
	System validates the bundled tasks and package deal selection.
. User confirms the creation of the bundled task with the selected package deal.	System posts the bundled task on the platform with the chosen package deal.

Extensions:

1. If the bundled tasks do not have sufficient relatedness (Step 3a), system prompts the user to reconsider the task selection.

2. If no package deals are available for the selected bundled tasks (Step 5a), system notifies the user and suggests alternative options.

Special Requirements:

1. Integration with payment systems to facilitate payment for bundled tasks with package deals. 2. Display of bundled tasks and package deals in a clear and organized manner to aid user decision-making.

Technology and Data Variations List:

1. Platform should support the grouping and organization of multiple tasks within a bundled task. 2. Integration with service provider profiles to display available package deals for bundled tasks. **Frequency of Occurrence:** Moderate

Open Issues:

Clarification needed on the process of creating and managing bundled tasks, as well as the terms and conditions of package deals.

Non ImplementedUse Cases

Use Case ID: UC-004
Use Case Name: Messaging
Scope: Service provider.
Level: System
Primary Actor: User
Stakeholders and Interests:
User: Aims to communicate with service providers to discuss project details, negotiate terms, and clarify questions.
Service Providers: Expect seamless communication with clients to understand project requirements and provide updates.
Preconditions: User is logged into the platform.
Success Guarantee (Post Conditions): User successfully communicates with service providers through the platform.
Main Success Scenario:

Actor Action	System Response
User navigates to the messaging section of the platform.	
User selects the service provider they wish to communicate with system.	
User sends a message detailing project requirements or queries	
Service provider receives the message and responds accordingly	

Both parties engage in a conversation to discuss project details, negotiate terms, and clarify any questions	
Once the conversation is complete, both parties can agree on the terms within the platform.	

Extensions:

1. If there are delays in message delivery (Step 4a), system will allow the users to have auto reply feature

2. If there are technical issues preventing message delivery or reception (Step 4b), system will notify the user.

Special Requirements:

1. Integration with notification systems to alert users of new messages or responses.

 2. Option to attach files or media to messages for better communication. **Technology and Data Variations List:**

2.   Platform should support various message formats (text, images, attachments, etc.). Frequency of Occurrence: High

3.   **Open Issues:**

4.   Users cannot contact the provider directly outside the system .

5.   **Use Case ID: UC-005**

6.   **Use Case Name**: Secure Payments

7.   **Scope:** Service provider.

8.   **Level:** System

9.   **Primary Actor:** Payment Gateway System

10.   **Stakeholders and Interests:**

11.   Payment Gateway System: Aims to securely process payments and ensure proper verification, sending, and receiving of payments.

12.   Merchants: Need assurance that payments are securely processed and verified. Customers: Expect their payments to be processed securely and efficiently. **Preconditions:** Payment details and authorization from the customer are received. **Success Guarantee (Post Conditions)**: Payment is securely verified, sent, and received. **Main Success Scenario:**

13.

Actor Action	System Response
Payment Gateway System receives payment details and authorization from the customer.	
	System verifies the payment details including card information, amount, and authorization.

	If payment details are valid, system proceeds to send the payment to the merchant.
	System securely sends the payment details to the merchant's payment processor.
Merchant's payment processor receives the payment details.	
Payment processor confirms receipt of payment.	
	System receives confirmation from the payment processor

Extensions:1. If payment details are invalid or authorization fails (Step 3a), system informs the customer and cancels the transaction.

Special Requirements:

1. Secure encryption and decryption mechanisms must be used for transmitting payment details.

Technology and Data Variations List:

Payment gateway should support various payment methods (credit card, PayPal, etc.).
Frequency of Occurrence: High

Open Issues:

1. Clarification needed on the maximum acceptable delay for payment confirmation.

Use Case ID: UC-006

Use Case Name: Geo-location

Scope: Location-based Service provider.

Primary Actor: User

Stakeholders and Interests:

User: Aims to discover nearby service providers for enhanced convenience and accessibility. Service Providers: Expect to be discovered by nearby users to increase their client base. **Preconditions:** User is accessing the platform from a device with location services enabled. **Success Guarantee (Post Conditions):** User successfully discovers nearby service providers on the platform.

Main Success Scenario:

Actor Action	System Response
User enables location services on their device.	
User navigates to the search section of the platform.	
User enters search criteria and selects the option to filter results by proximity.	
	System retrieves service provider listings based on the user's location.
User views the list of nearby service providers.	
User selects a service provider from the list to view more details or initiate contact.	

Extensions:

1. If location services are disabled or unavailable (Step 1a), system notifies the user to turn on the device's location

2. If there are technical issues retrieving location data (Step 4a), the system will notify the user and suggest alternative actions.

Special Requirements:

1. Integration with mapping services to display service provider locations on a map. 2. Option for users to manually enter their location if automatic detection fails. **Technology and Data Variations List:**

Platform should support various location formats (GPS coordinates, addresses, etc.).
Frequency of Occurrence: Moderate

Open Issues:

Clarification needed on privacy considerations for location data sharing.

Use Case ID: UC-008

Use Case Name: Escrow Services

Scope: Service provider.

Level: System

Primary Actor: Escrow Service

Stakeholders and Interests:

Escrow Service: Aims to securely hold funds until a transaction is satisfactorily completed. Users and Service Providers: Expect assurance that funds are held securely until obligations are met.

Preconditions: Agreement between parties on terms and conditions of the transaction. **Success Guarantee (Post Conditions)**: Funds are securely held in escrow until release conditions are met.

Main Success Scenario:

Actor Action	System Response
Escrow service receives instructions from both the user and the service provider to initiate the escrow process.	
	System verifies the terms and conditions of the transaction.
User deposits funds into the escrow account.	
Service provider acknowledges receipt of funds.	
	Escrow service holds the funds securely until the completion of the transaction.
Once the transaction is completed to the satisfaction of both parties, escrow service releases the funds to the service provider.	
Both parties confirm the satisfactory completion of the transaction.	

Extensions:

1. If there are disputes regarding the completion of the transaction (Step 6a), system facilitates a dispute resolution process.

2. If there are technical issues with fund transfer (Step 6b), system will notify the parties involved.

Special Requirements:

1. Secure encryption and authentication mechanisms for fund transfer. 2. Escrow service must comply with legal regulations regarding fund handling and dispute resolution.

Technology and Data Variations List:

Platform should support various payment methods for depositing funds into escrow (credit card, bank transfer, etc.).

Frequency of Occurrence: Moderate

Open Issues:

Clarification needed on the process for releasing funds in case of dispute resolution.

Use Case ID: UC-011

Use Case Name: Multi-Service Support

Scope: Service provider.

Level: System

Primary Actor: User

Stakeholders and Interests:

User: Aims to access a wide range of services beyond traditional errands, including home maintenance, tutoring, pet care, and more.

Service Providers: Expect opportunities to offer diverse services to cater to various user needs.
Preconditions: User is logged into the platform.

Success Guarantee (Post Conditions): User successfully accesses and utilizes the multi-service support feature to find relevant service providers.

Main Success Scenario:

Actor Action	System Response
. User navigates to the multi-service support section of the platform.	
5 User browses or searches for the desired service category or specific service.	

	System retrieves a list of available service providers offering the selected service.
. User selects a service provider from the list to view more details or initiate contact.	
4 User engages with the selected service provider to discuss service requirements or schedule appointments	

Extensions:

1. If the desired service category is not available (Step 2a), system suggests alternative categories or notifies the user to refine their search criteria.

2. If there are technical issues retrieving service provider listings (Step 3a), system notifies the user and suggests alternative actions.

Special Requirements:

1. Categorization and tagging system for organizing and searching services effectively. 2. Option for users to request custom or specialized services not listed on the platform. **Technology and Data Variations List:**

Platform should support various service categories and subcategories.

Frequency of Occurrence: Moderate

Open Issues:

Clarification needed on the process for adding or updating service categories based on user feedback.

2.6 Use Case Diagram

3. Other Nonfunctional Requirements

3.1 Performance Requirements

- **Response Time**:

  - o Task posting, provider search, and booking functions should respond within **2 seconds** under normal conditions.

  - o Real-time tracking updates should not exceed **1 second** in delay.

- **Scalability**:

  - o The system should support up to **10,000 concurrent users** without performance degradation.

  - o Database queries should execute efficiently even with **1 million records**.

- **Availability**:

  - o The platform must maintain a **99.9% uptime**, ensuring reliability for users.

- **Load Handling**:

  - o The system should handle **peak loads** of up to **500 simultaneous task postings** and **1,000 user interactions** per minute.

3.2 Safety Requirements

- **Data Integrity**:

  - o The platform must prevent data loss during updates, ensuring task, profile, and payment records remain consistent.

- **User Protection**:

  - o The system should include safeguards against harmful activities, such as harassment through messaging.

- **Legal Compliance**:

  - o Comply with local labor laws and safety standards applicable to service provider activities.

- **Emergency Reporting**:

  - o Implement a reporting feature for users to flag inappropriate or unsafe behavior, with immediate notification to administrators.

3.3 Security Requirements

The project leverage authentication to verifies multiple user accounts and ensure the accessibility of the dashboard to the registered user.

3.4 Software Quality Attributes

The software is easy to use even for people who haven't had much technological experience. The classes have minimum coupling so that the software is reusable and maintainability is increased.

3.5 Business Rules

- **User Roles**:

  - **Homeowners** can post tasks, communicate with providers, and make payments.

  - **Service Providers** can bid on tasks, update profiles, and track earnings.

  - **Administrators** can verify users, resolve disputes, and monitor system activity.

- **Payment Terms**:

  - Payments must be processed only after task completion and user confirmation.

- **Review Guidelines**:

  - Reviews must comply with platform policies prohibiting abusive language.

- **Dispute Management**:

  - Escrowed funds cannot be released without administrator approval in case of disputes.

3.6 Operating Environment

The project is developed using Eclipse IDE, which can be used to build, test, and deploy the application. The system is designed to be compatible with various platforms, including Windows, macOS, and Linux, ensuring broad accessibility and ease of use across different environments.

3.7 User Interfaces

- **Homeowner Dashboard**:

  - Features for posting tasks, viewing service provider profiles, and tracking task progress.

- **Service Provider Dashboard**:

  - Tools for managing profiles, bidding on tasks, and tracking earnings.

- **Administrator Dashboard**:

  - Controls for user verification, dispute resolution, and system monitoring.

- **GUI Standards**:

  - Consistent color schemes and navigation layouts across all interfaces.

  - Responsive design to ensure compatibility with devices of varying screen sizes.

- **Error Handling**:

  - Display user-friendly error messages for invalid inputs or system issues.

4. Domain Model

5. Class Diagram
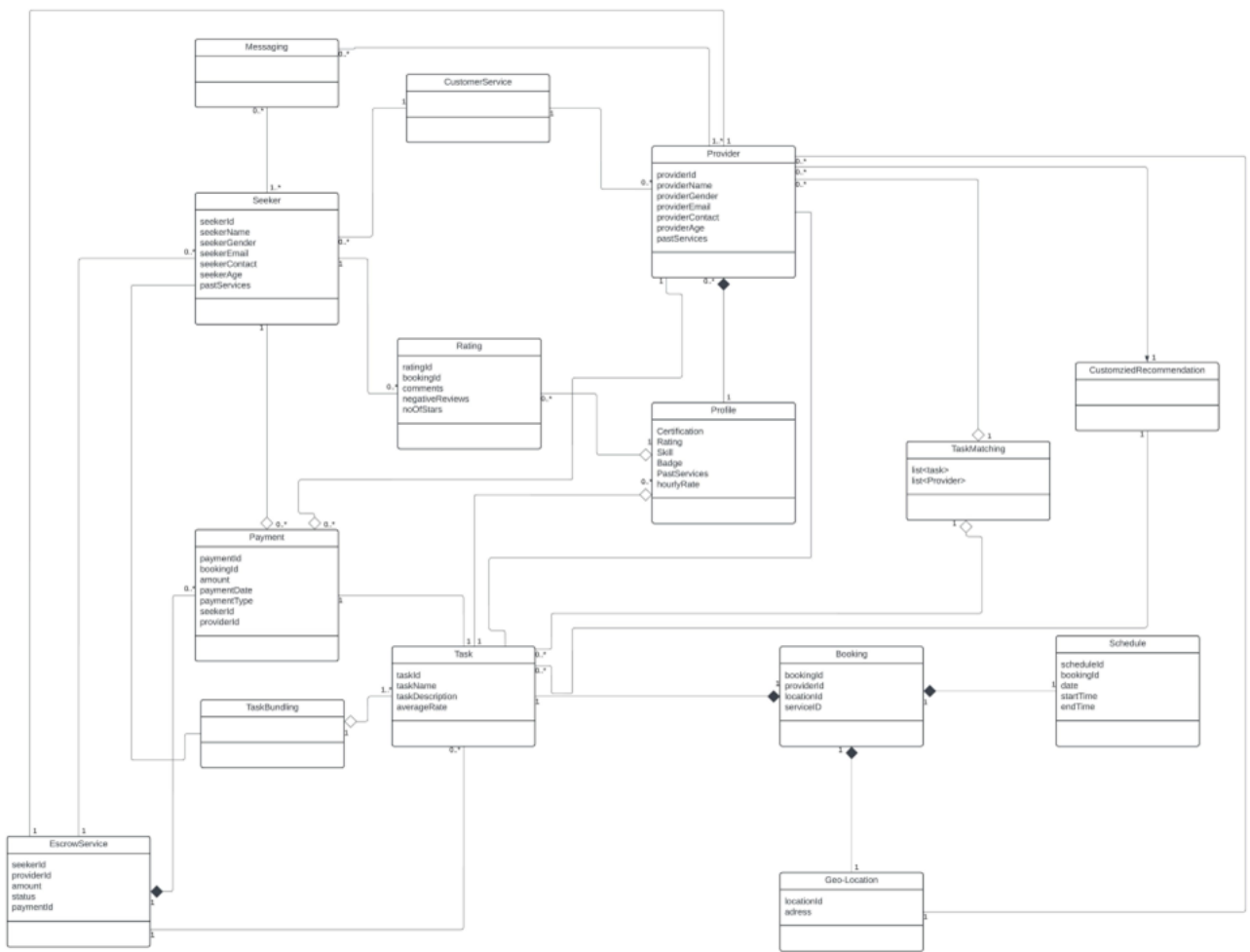
6. Component Diagram
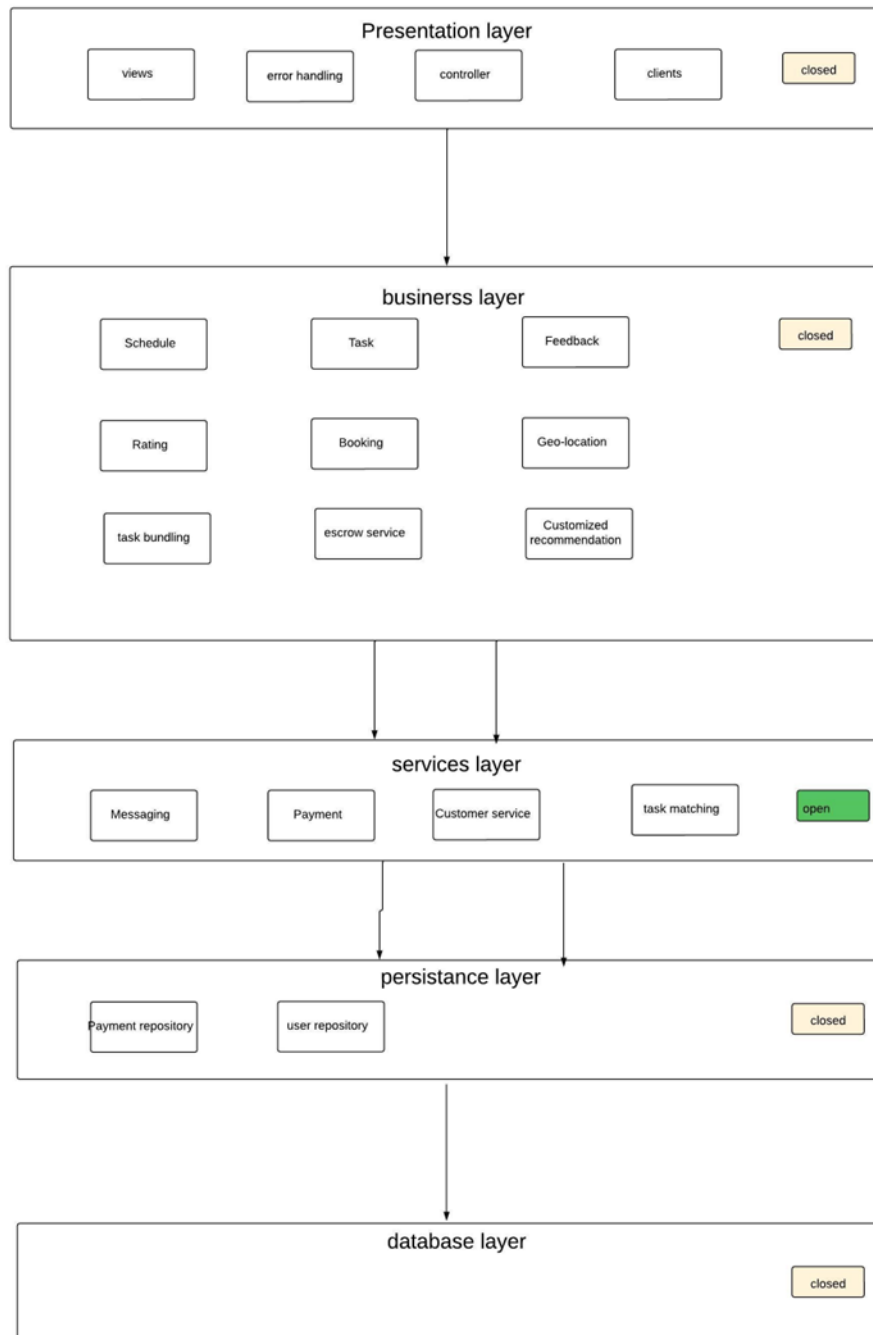
7. Package Diagram
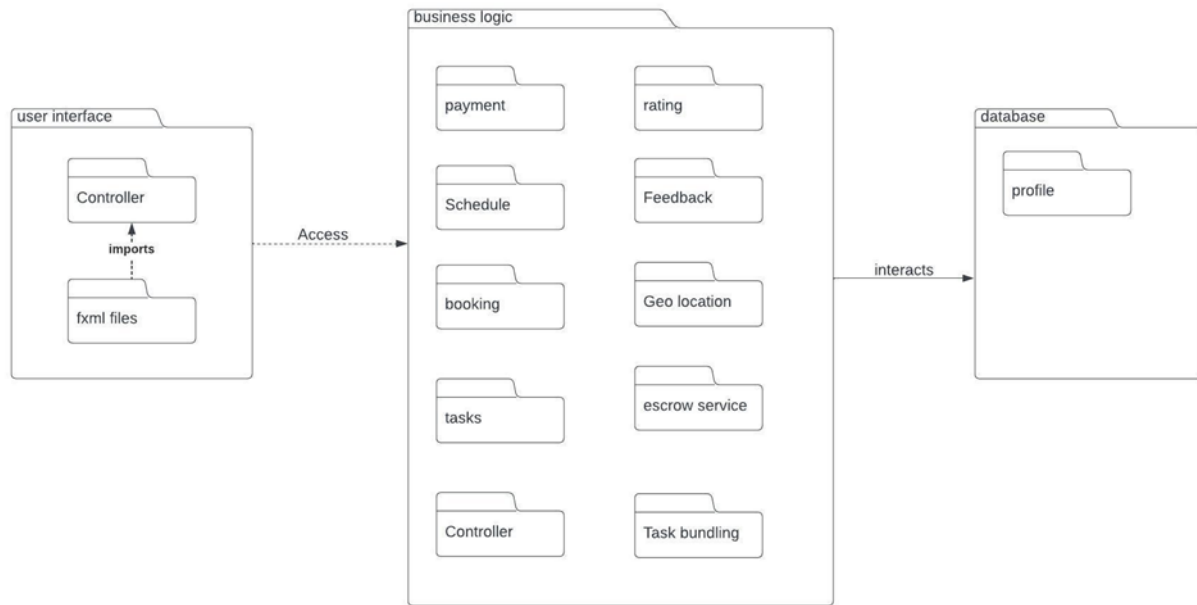
8. Deployment Diagram
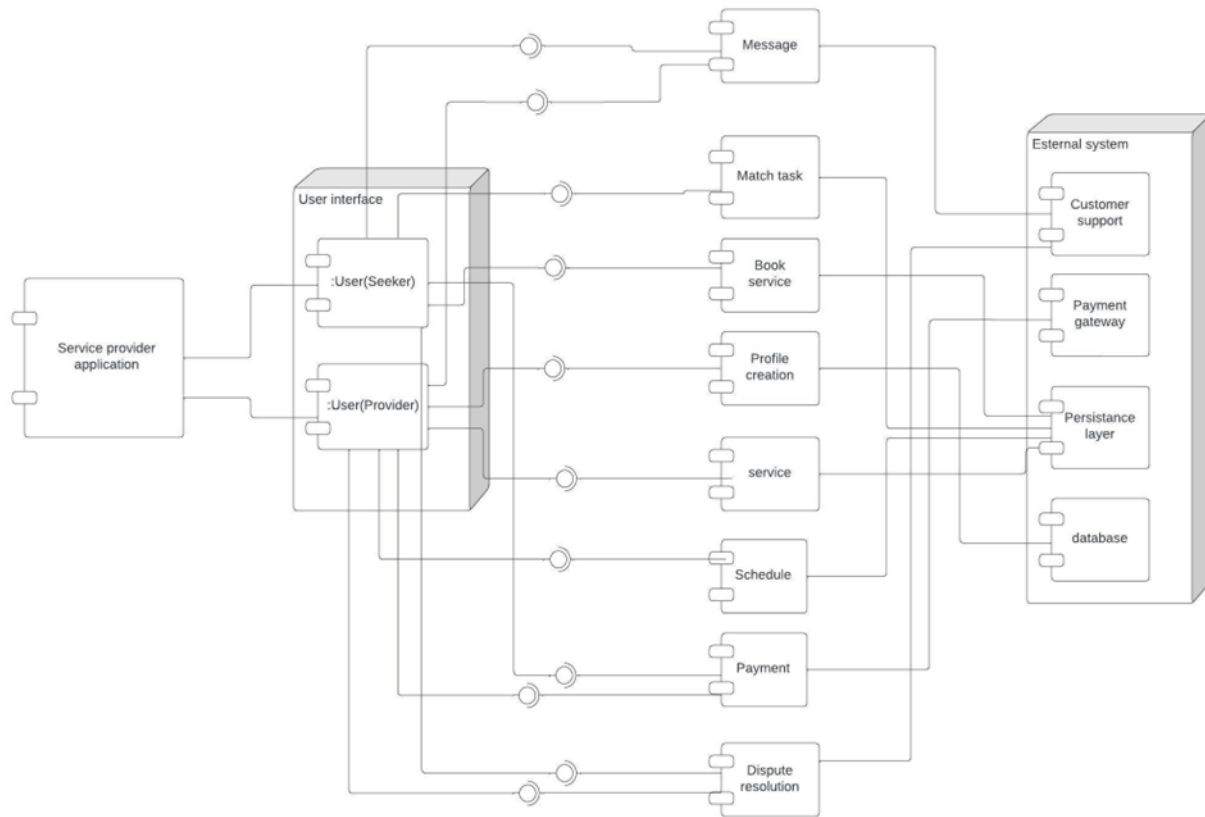
9. System Sequence Diagram & Sequence Diagram

1.1. Use Case : Managing Profile

1.1.1. SSD

1.1.2. SD

1.1.3. SD
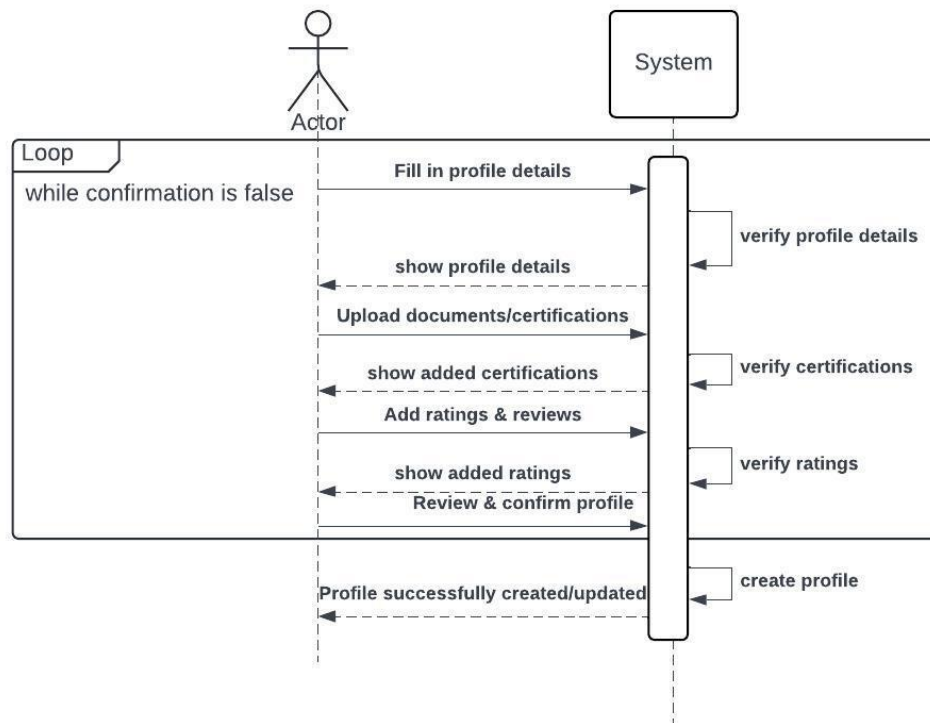
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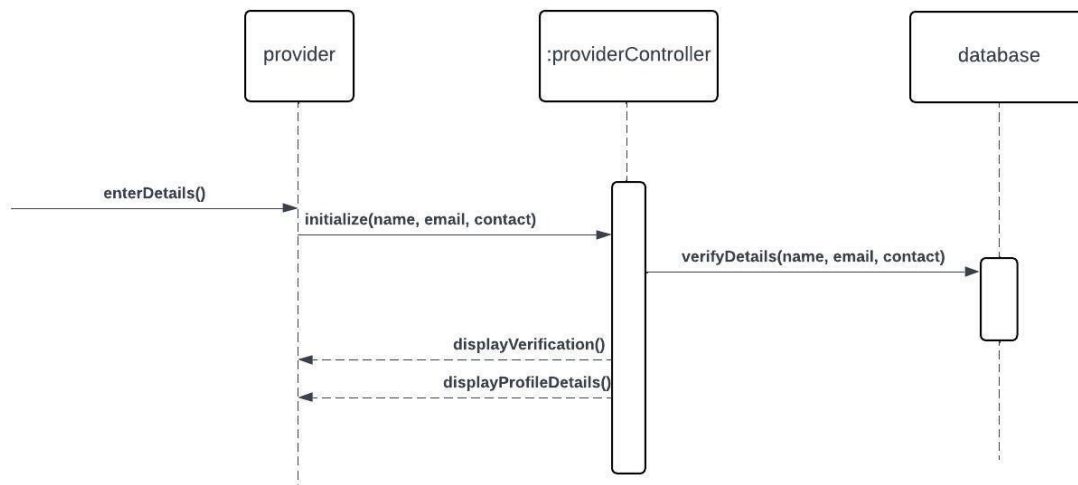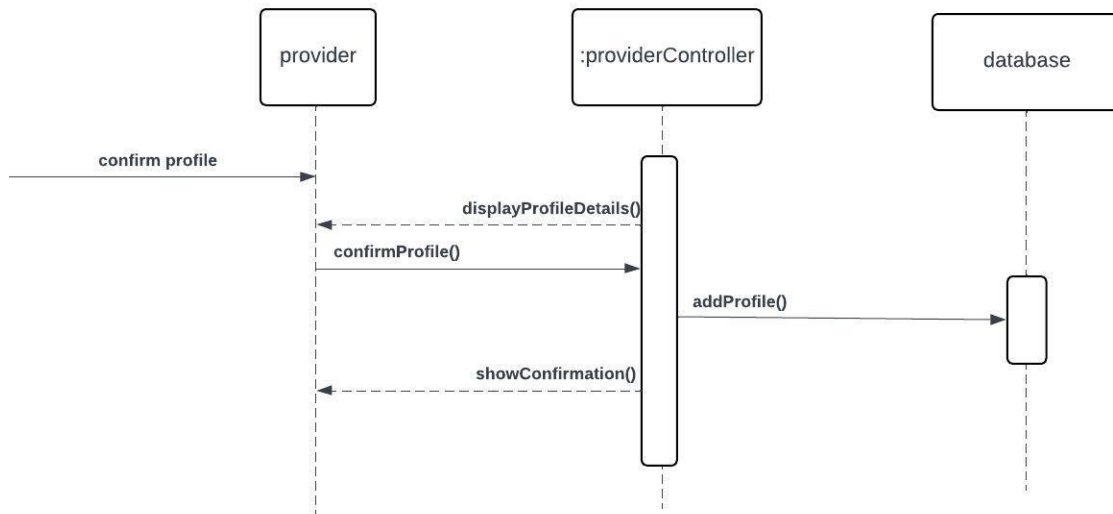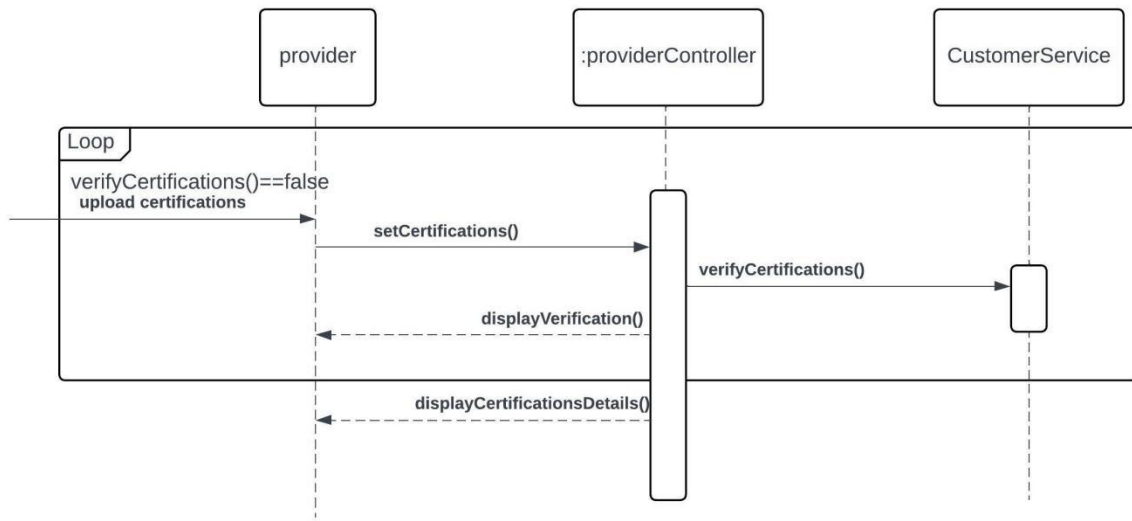
1.2. Use Case : Making secure Payments

1.2.1. SSD
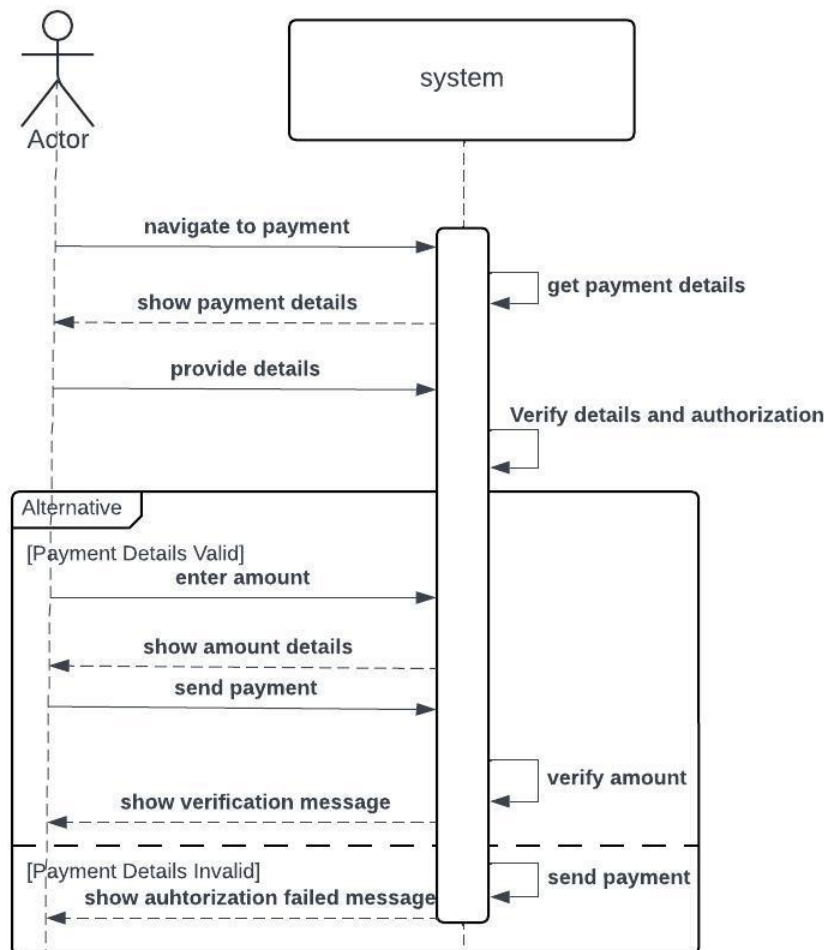
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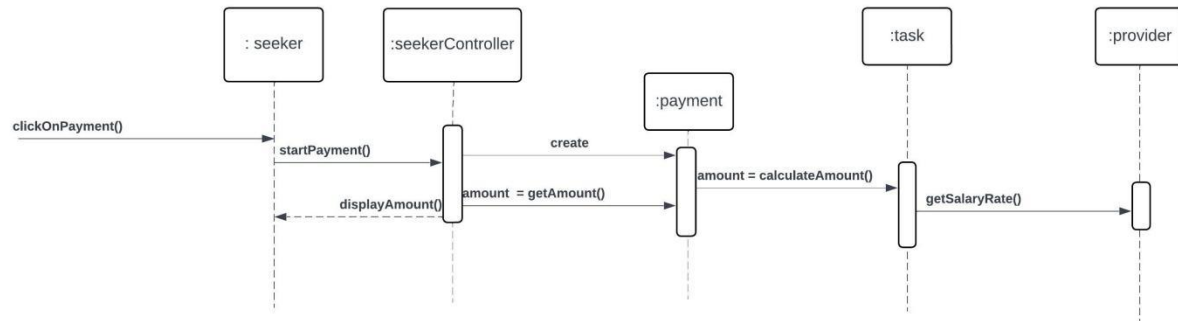
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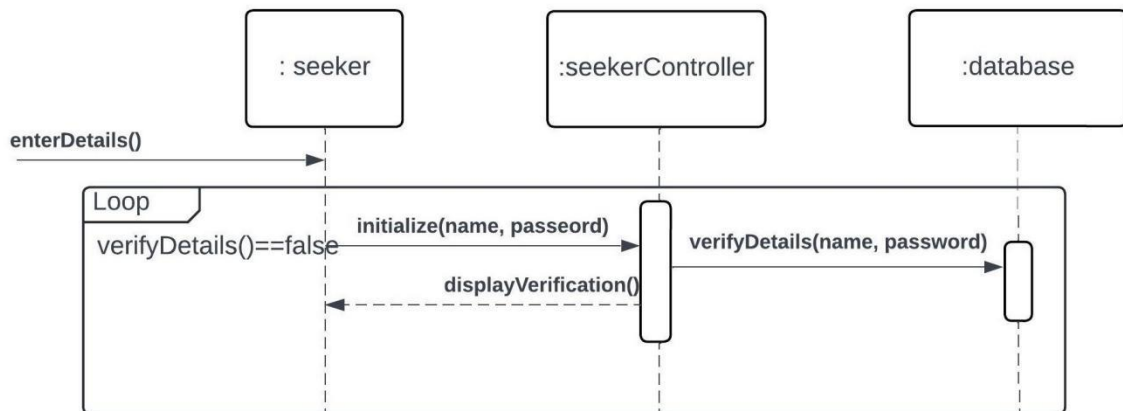
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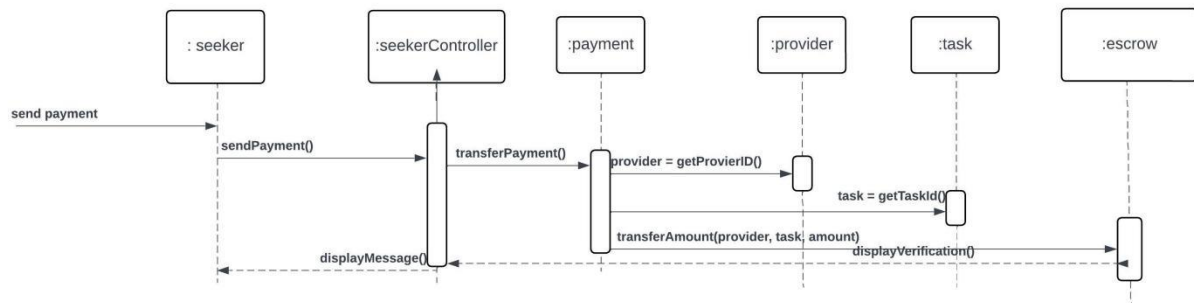
1.3. Use Case : Escrow Service

1.3.1. SSD
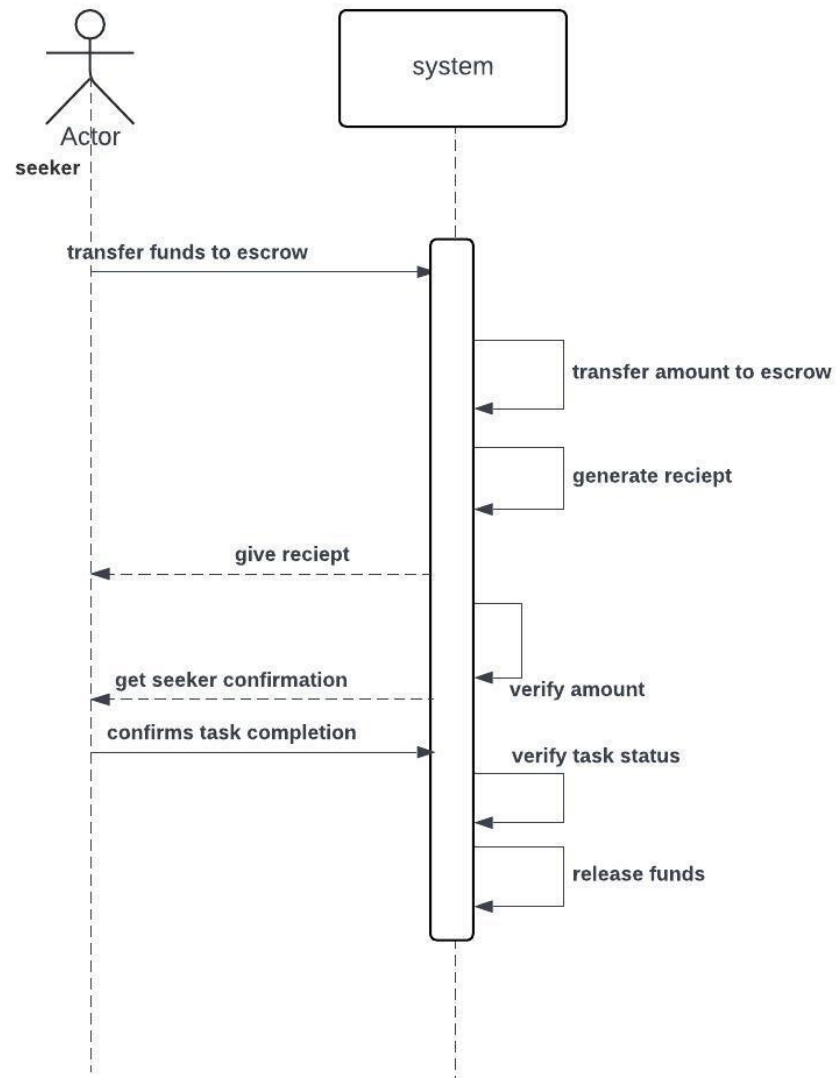
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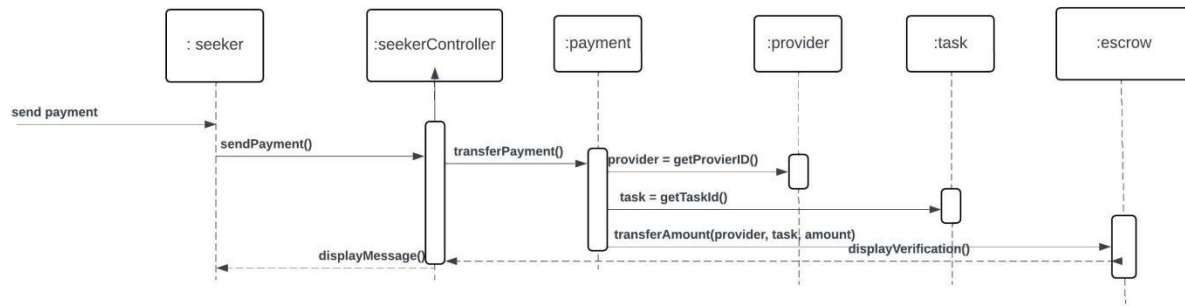
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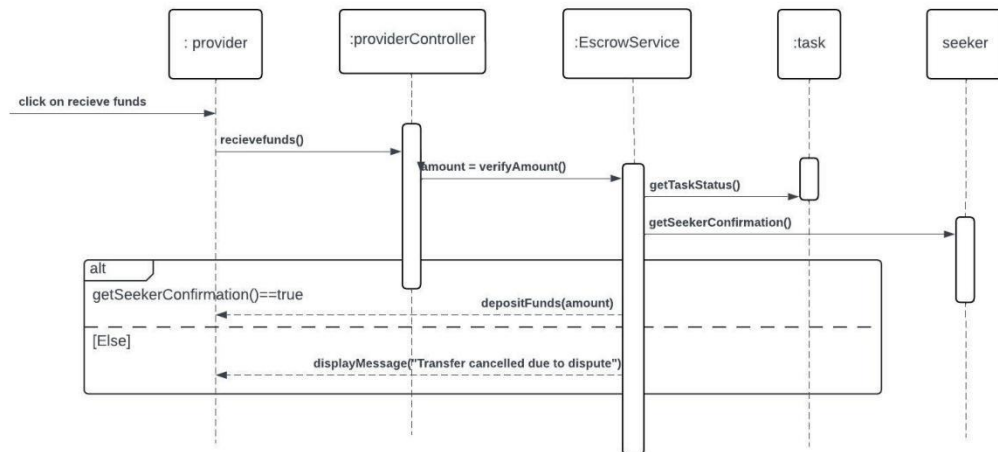
1.4. Use Case : Real-Time tracking of task

1.4.1. SSD
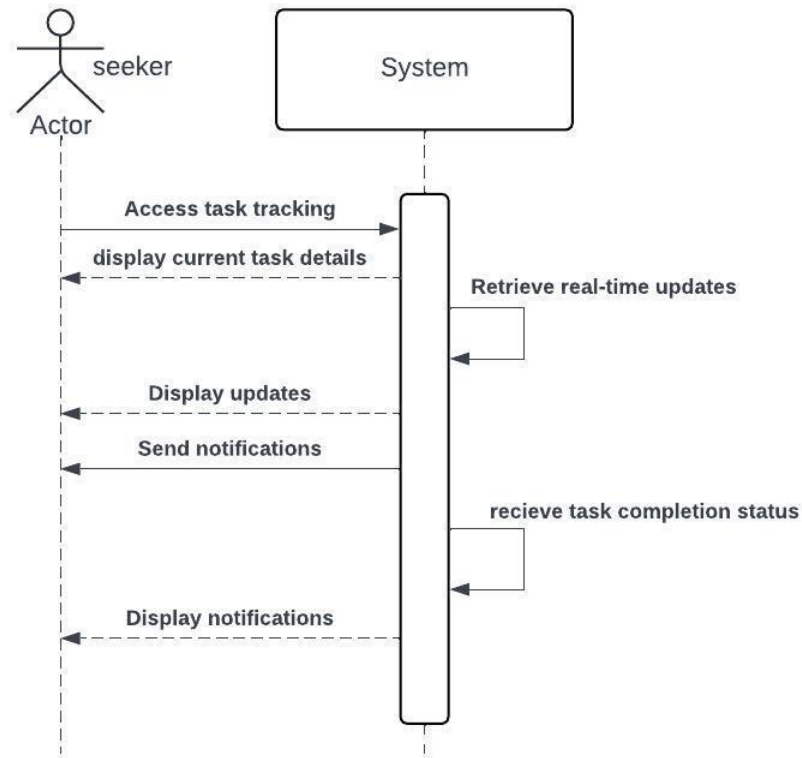
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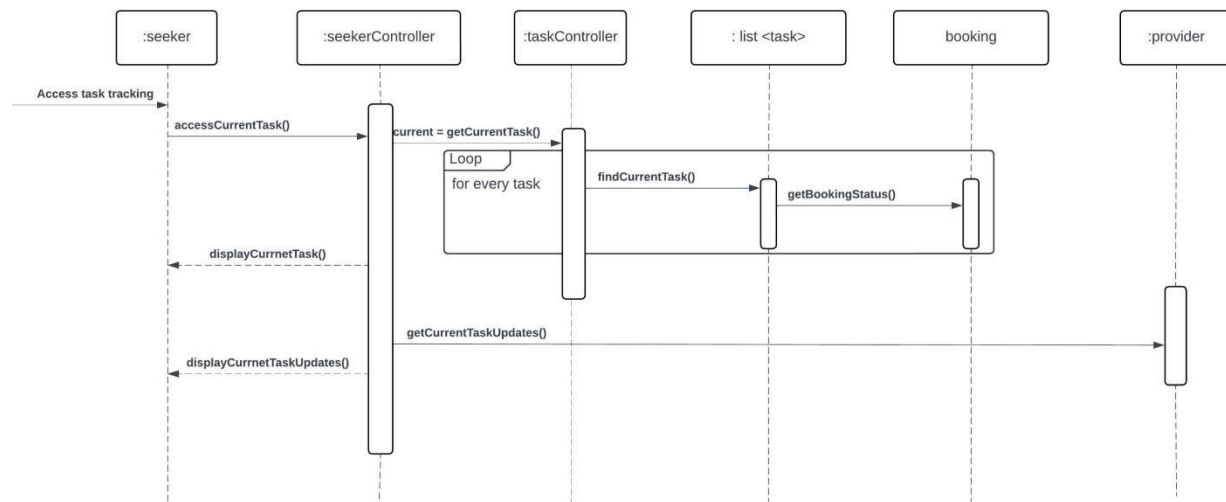
1.5. Use Case : viewing of skill badges and certifications

1.5.1. SSD

1.5.2. SD

1.5.3. SD
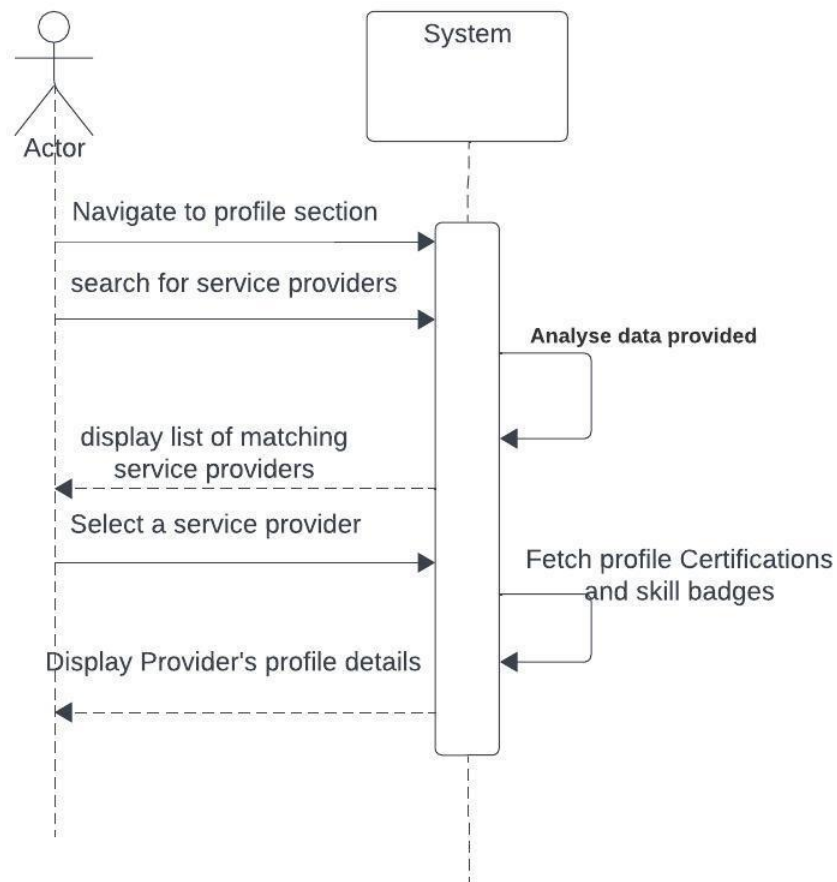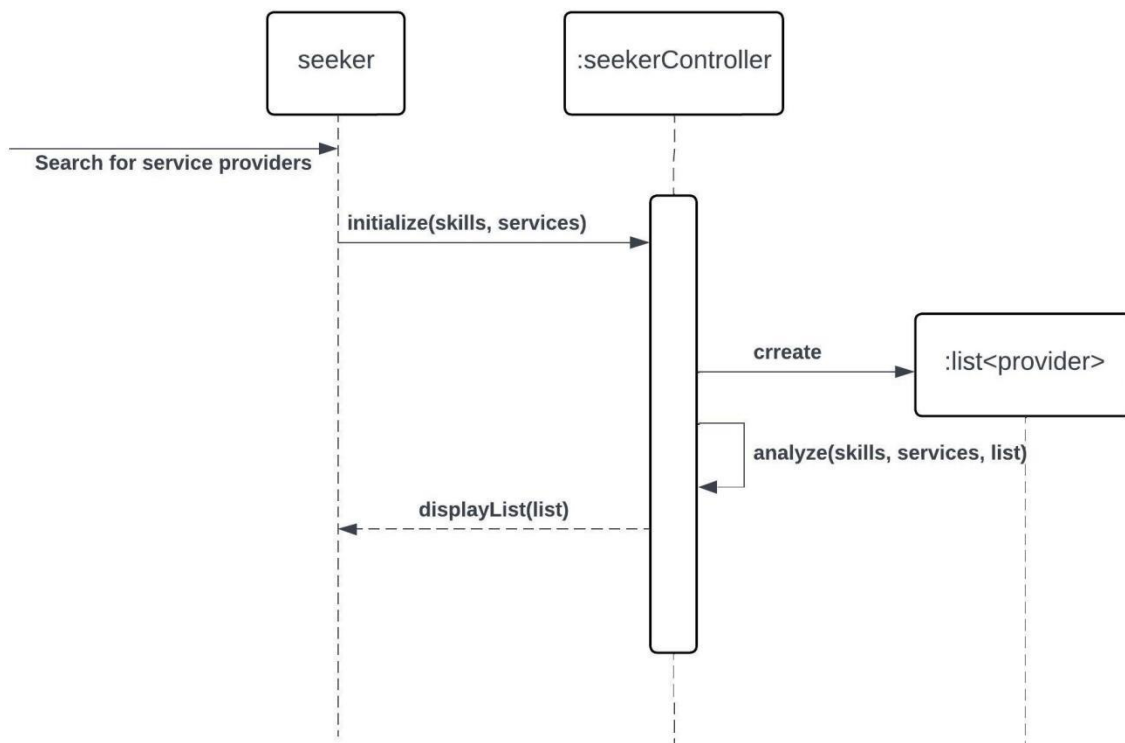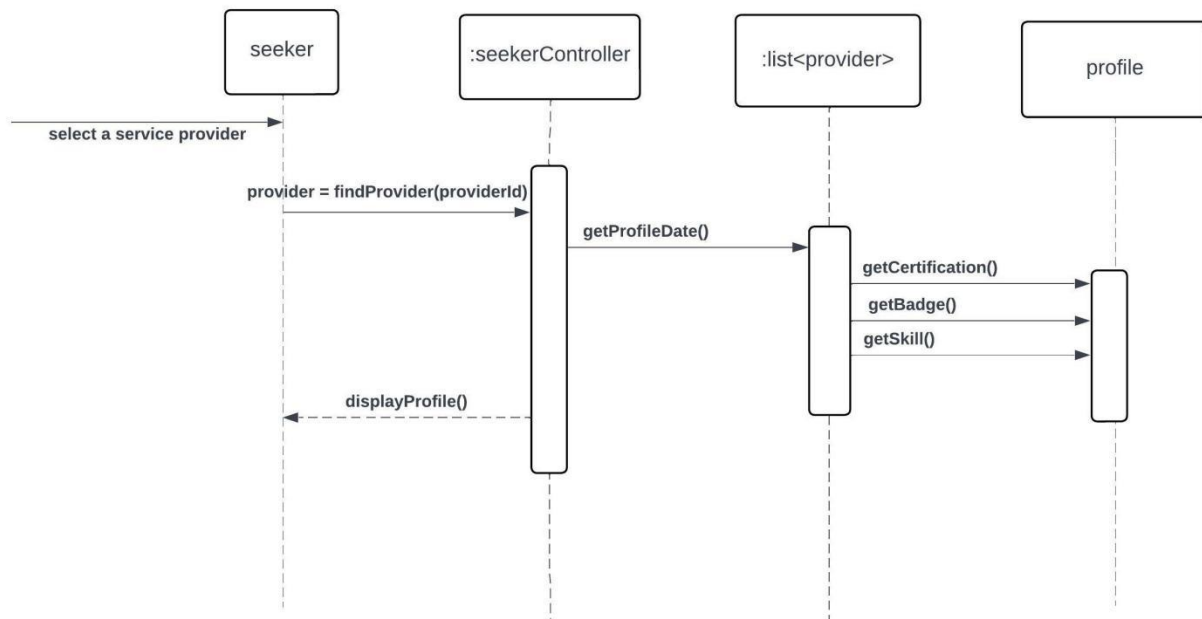
1.6. Use Case : Posting Task

1.6.1. SSD

sd usecase1ssd

| Seeker | | System |

1 : Navigate to task posting

2 : Fill Details

3 : Specify urgency

4 : Review Details

5 : Validate Details

seq EXP   Validation ==True

6 : Task is Confirmed

1.6.2. SD

sd usecase1sd4

| obj: Seeker Controller | Seeker: List<Seeker> | obj: Task Controller | Tasks: List<Task> |

1 : ValidateTask(Taskid,seekerid)

2 : ValidateTask(Taskid)

3 : ValidateTask(Taskid)

4 : ValidateAlldetails

5 : Task Confirmed

1.6.3. SD
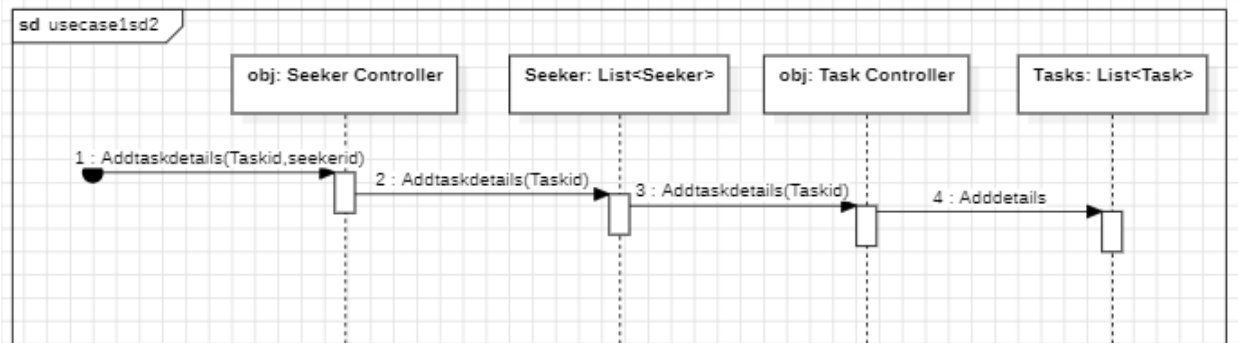
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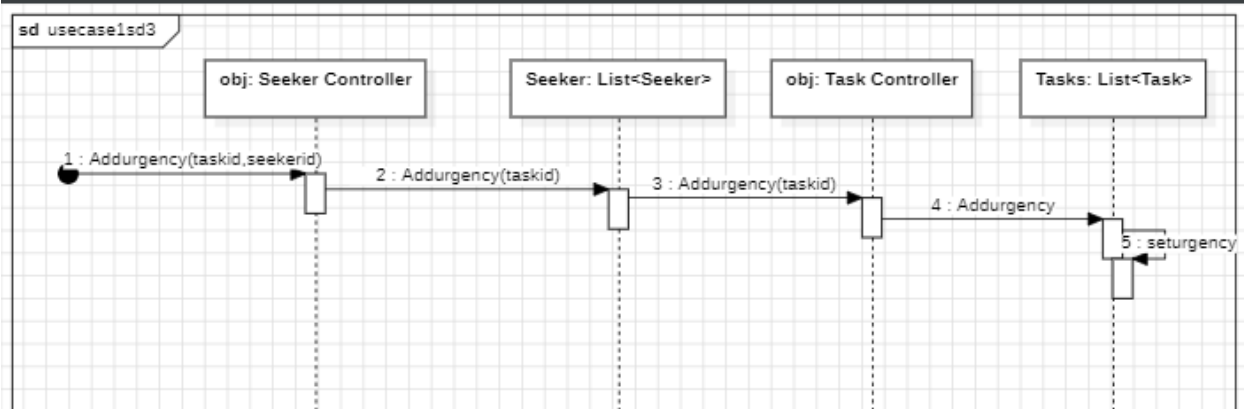
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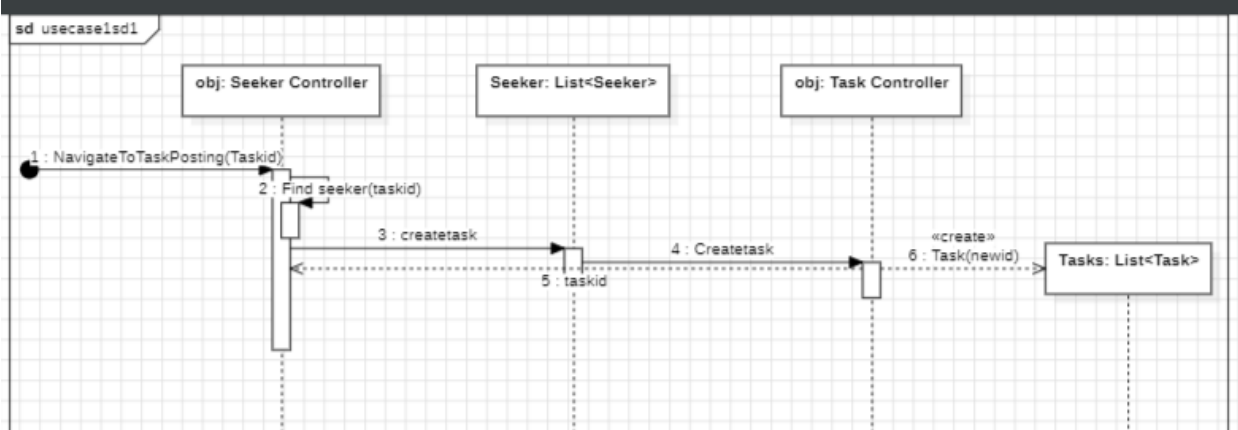
1.7. Use Case : Messaging

1.7.1. SSD

1.7.2. SD

1.7.3. SD

1.7.4. SD
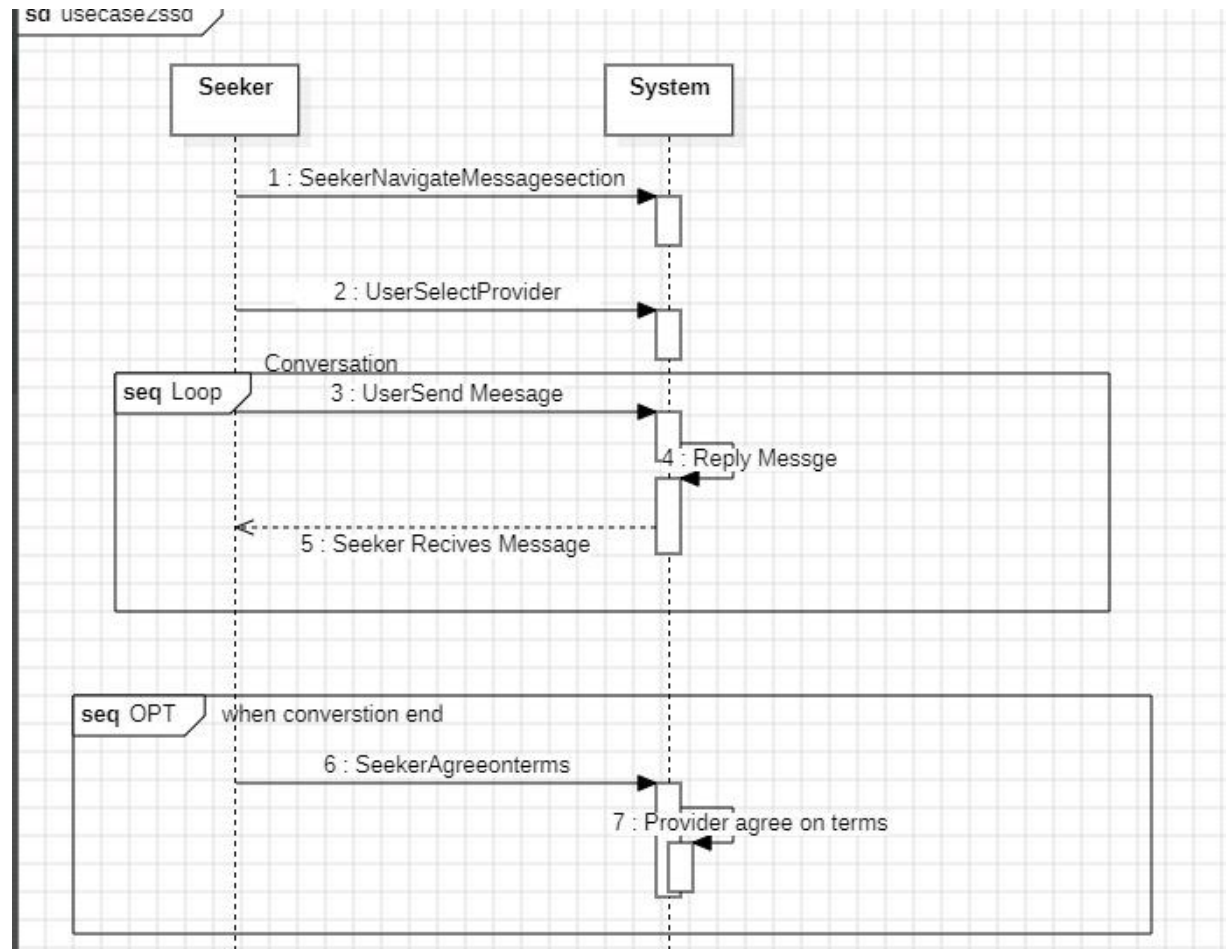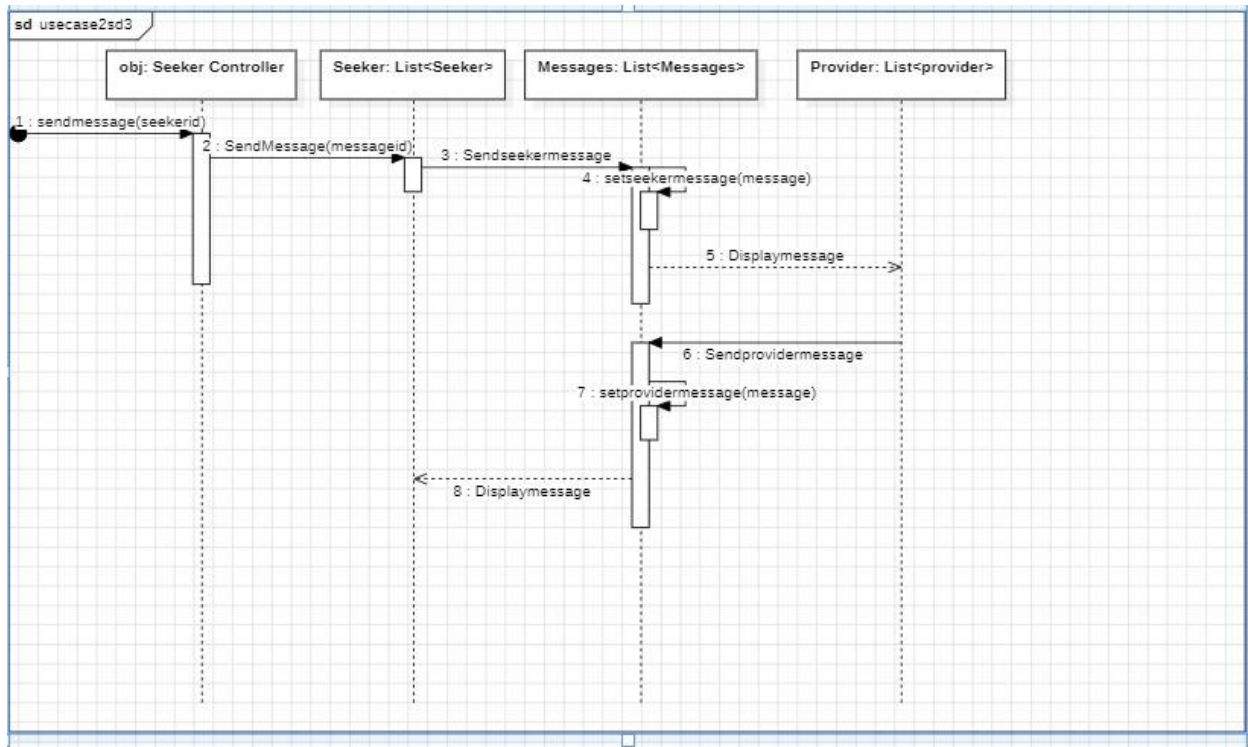
1.7.5. SD
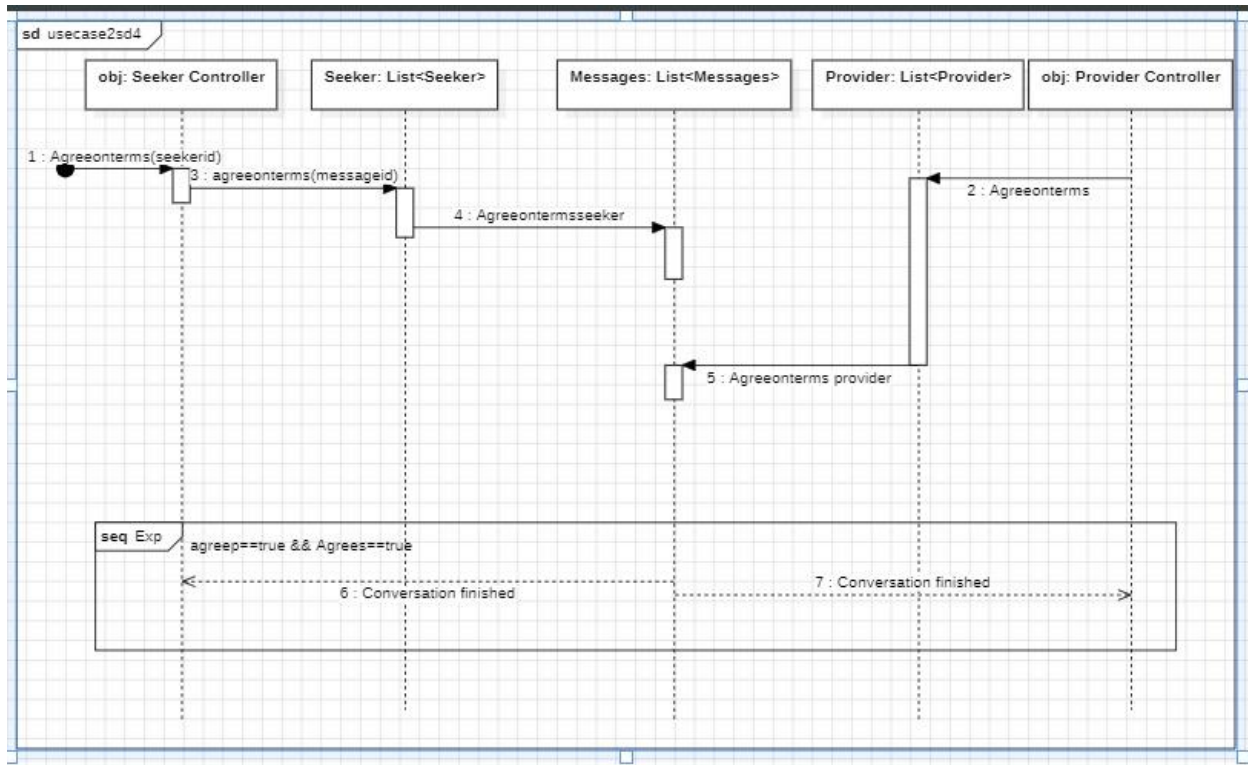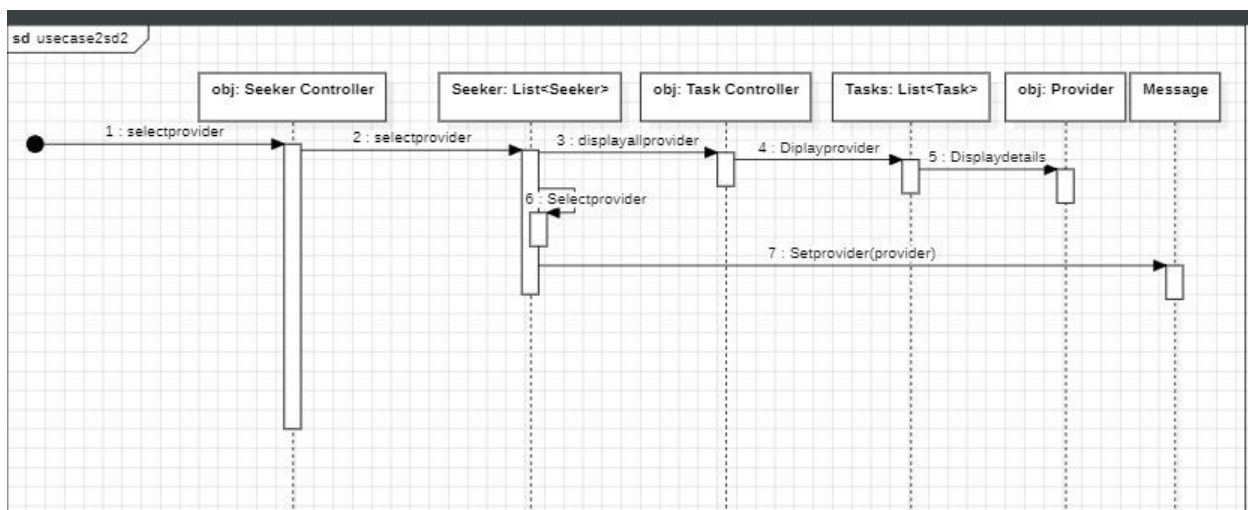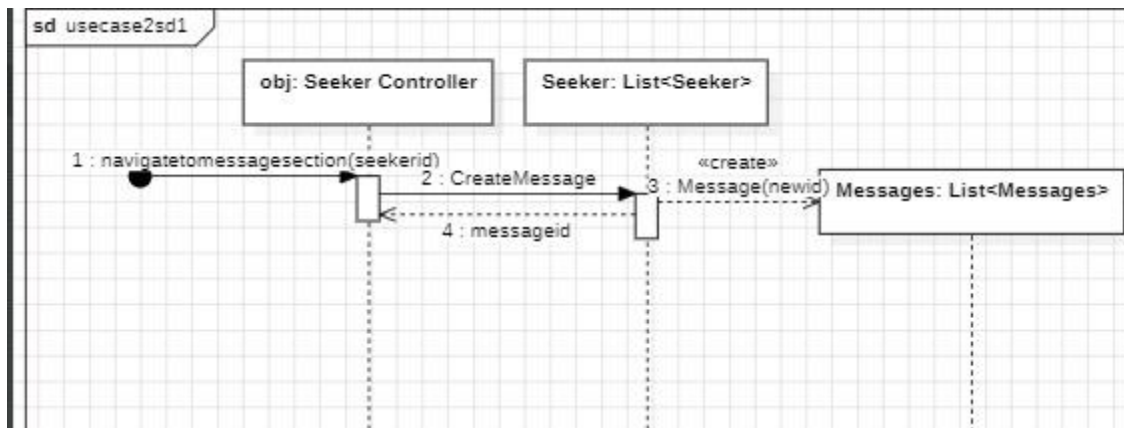
1.8. Use Case : Reviews and Rating

1.8.1. SSD
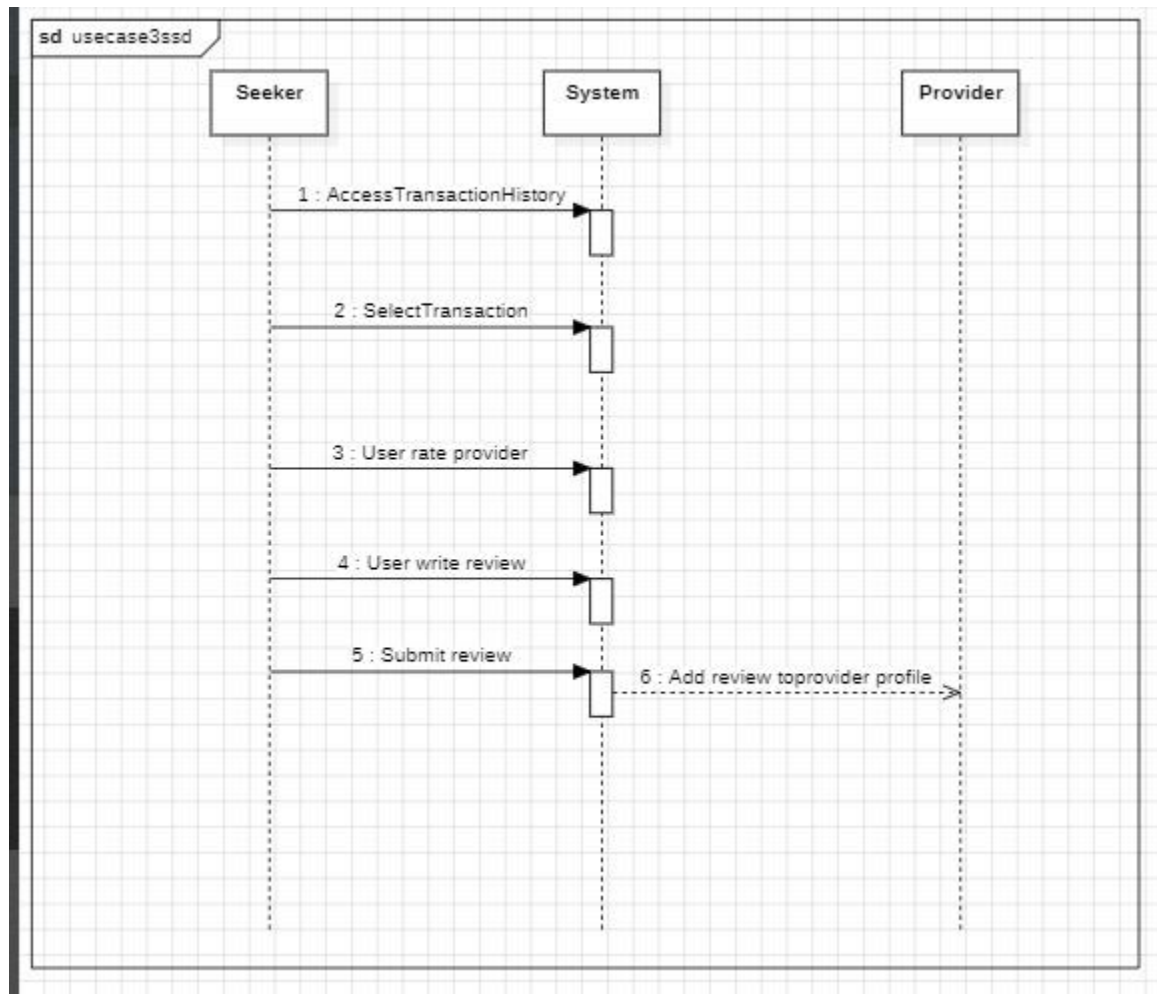
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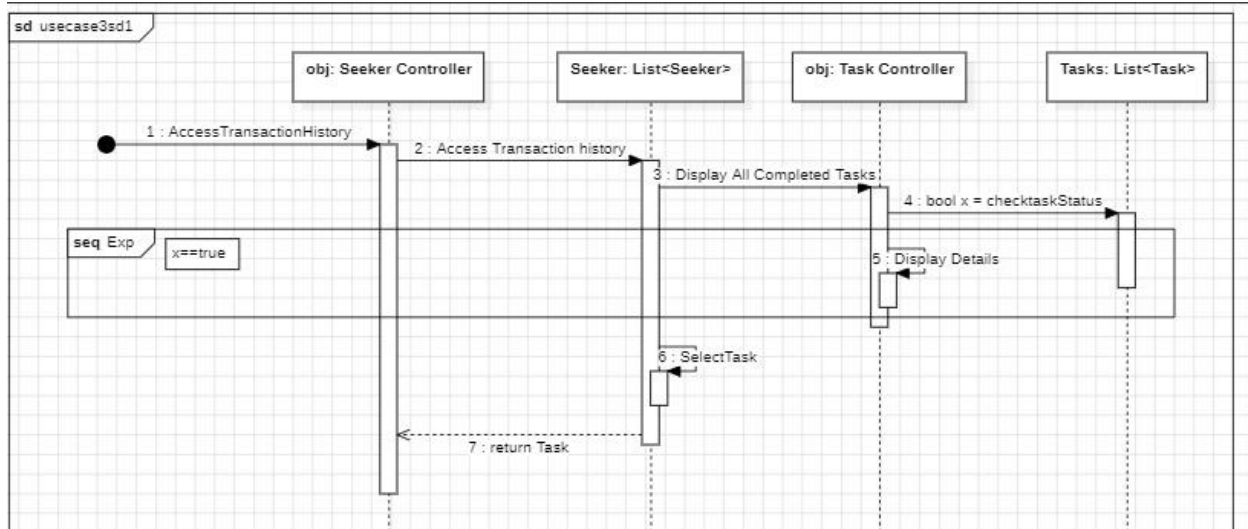
1.8.3. SD
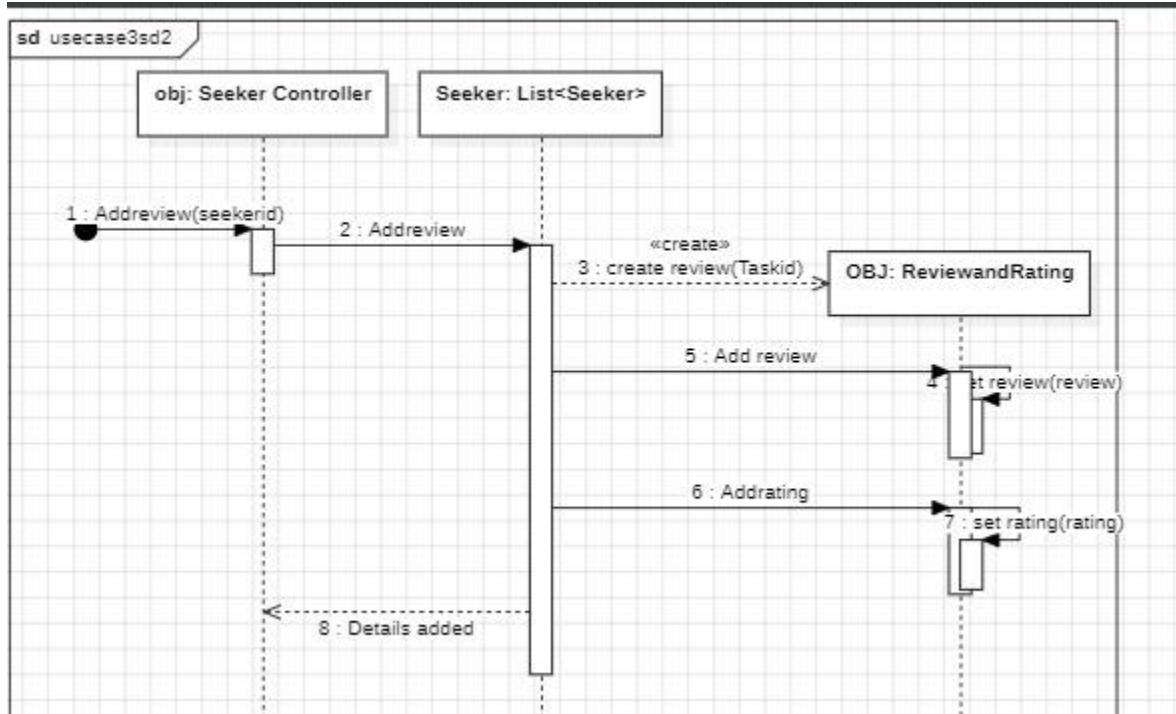
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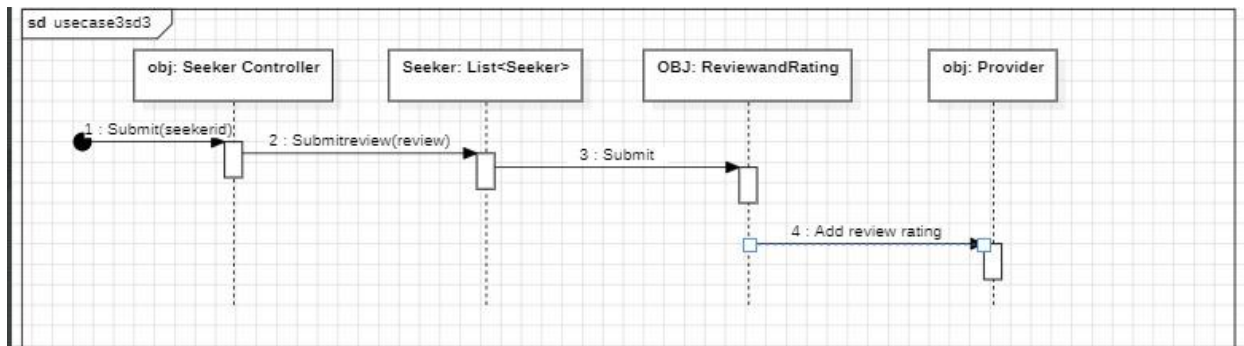
1.9. Use Case : Dispute Resolution

1.9.1. SSD

sd usecase5ssd

Seeker | System

1 : User Access System Service Support

2 : Report issue and provide detail

3 : select provider

seq Loop / Conversation

4 : send message

5 : Provider message

6 : recieve message

seq opt / if dispute not resolved

7 : call seeker

1.9.2. SD

1.9.3. SD

1.9.4. SD
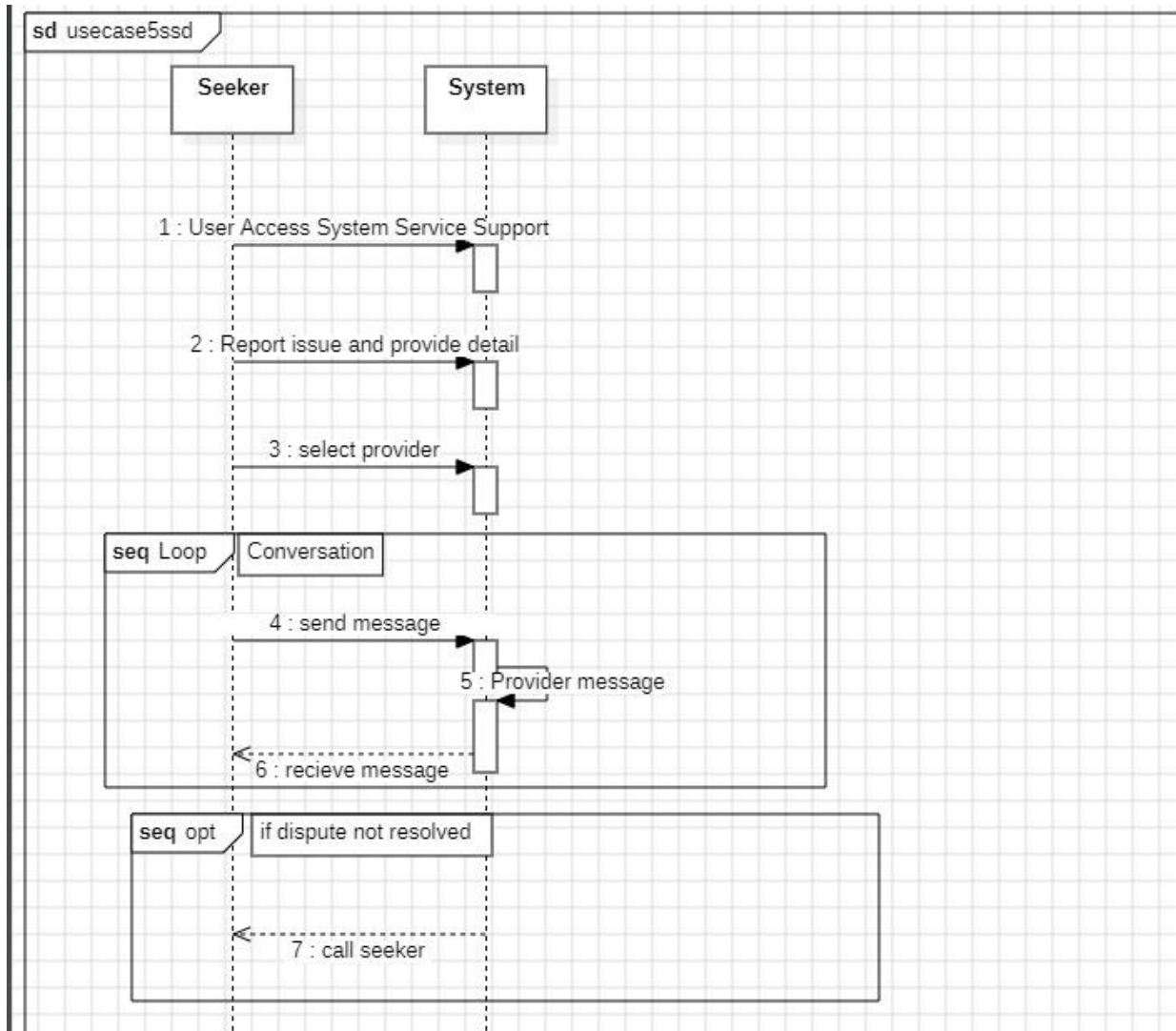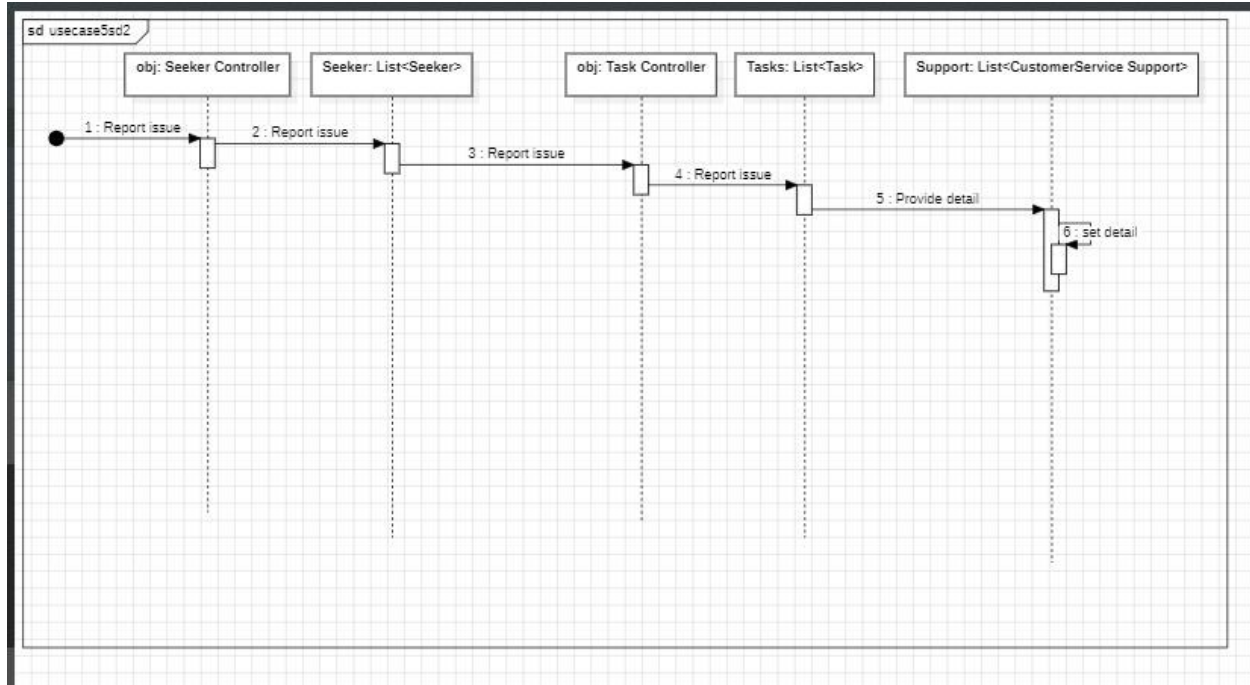
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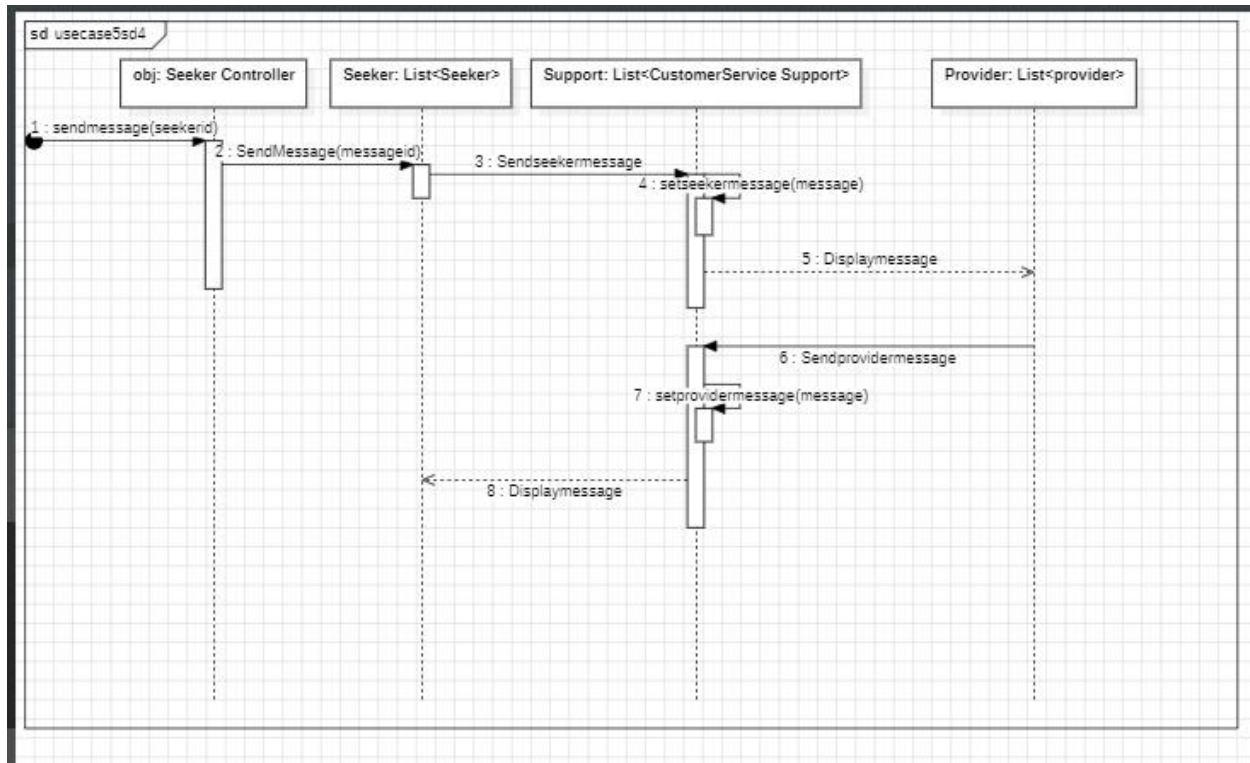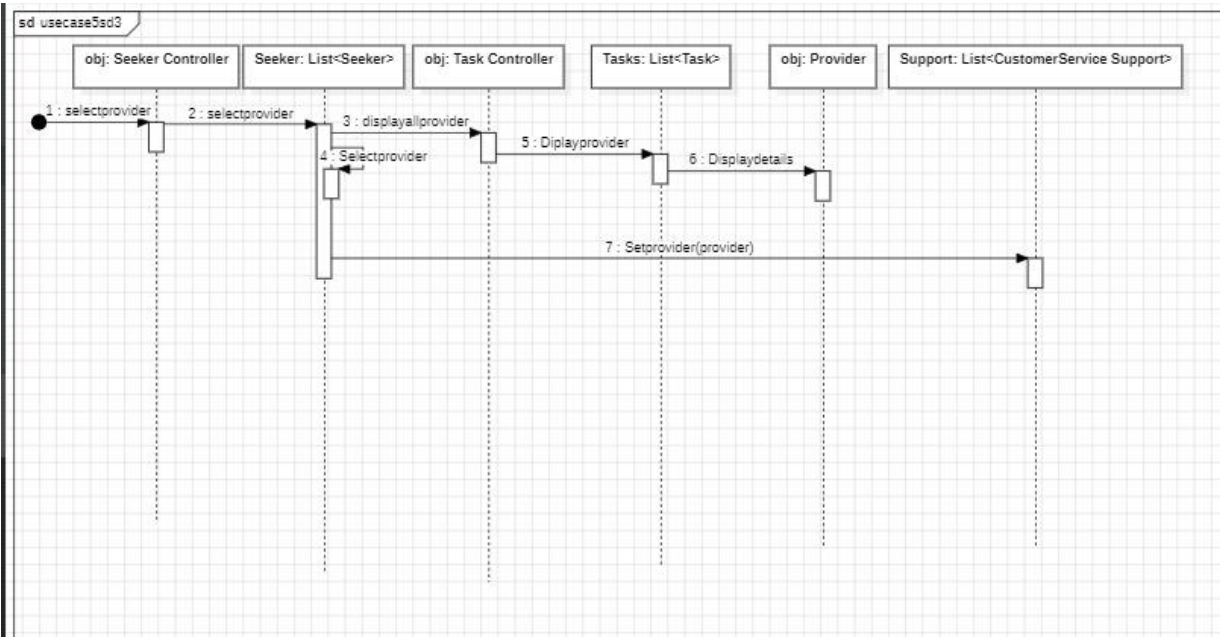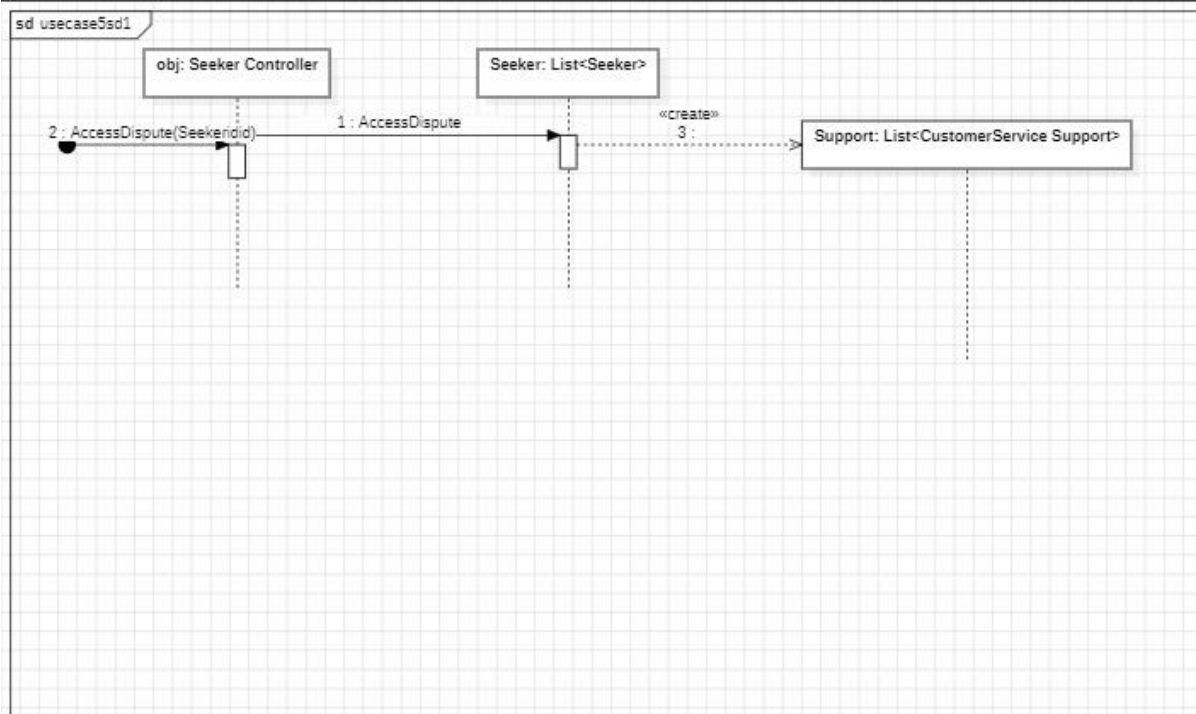
1.10. Use Case : Scheduling task

1.10.1. SSD
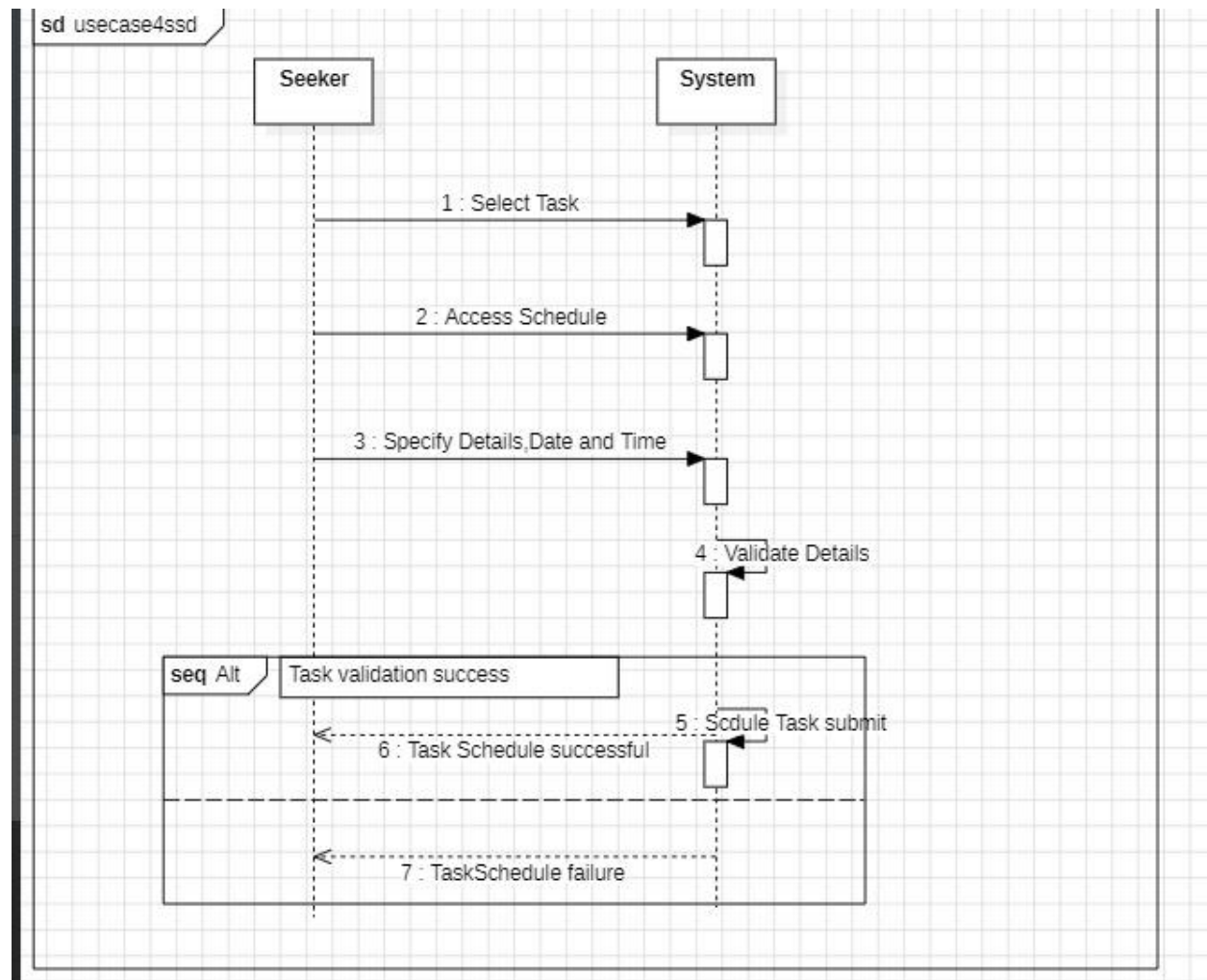
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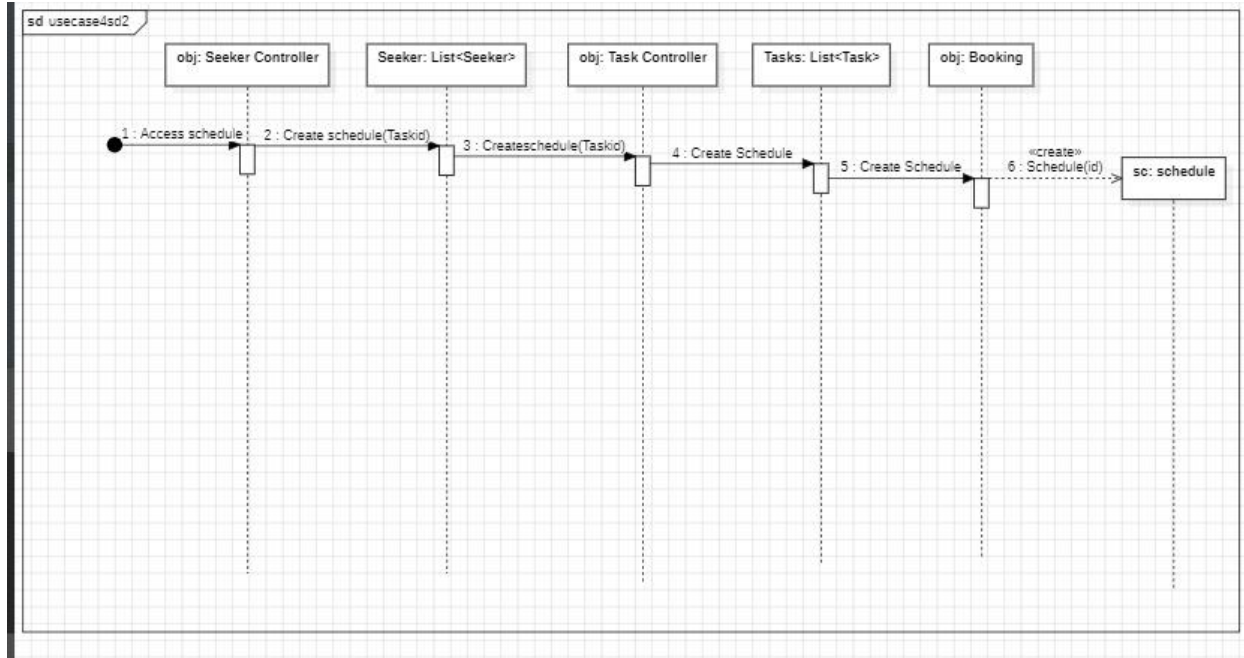
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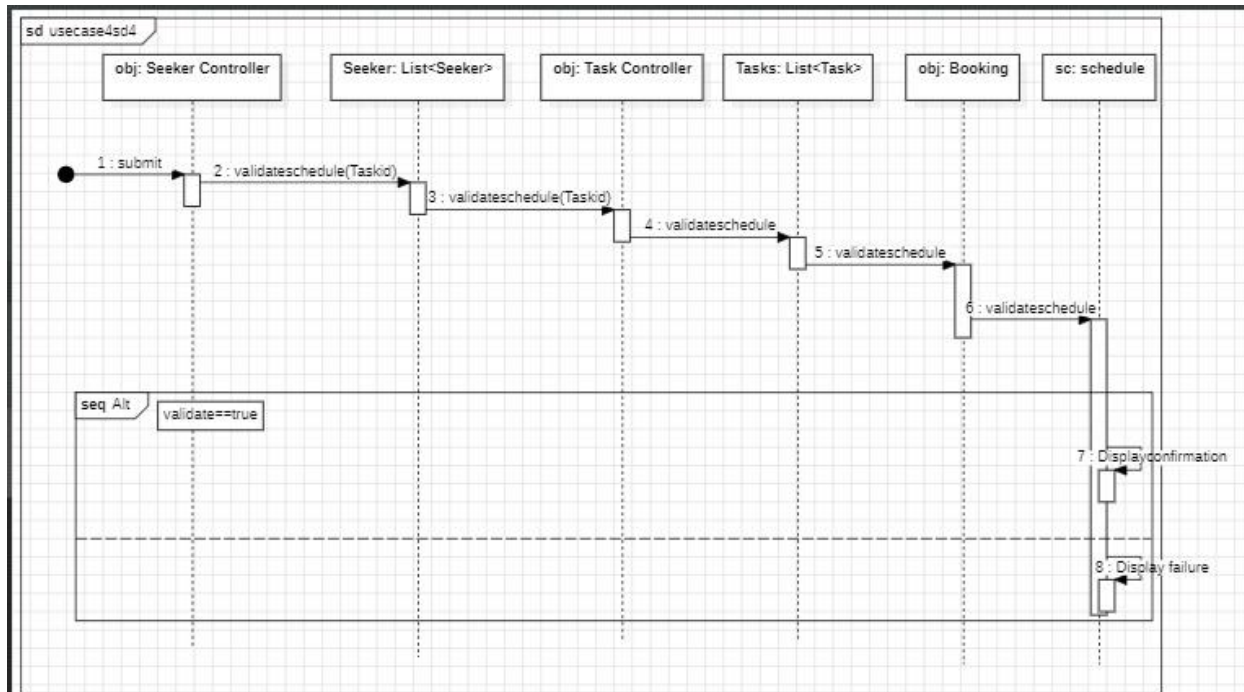
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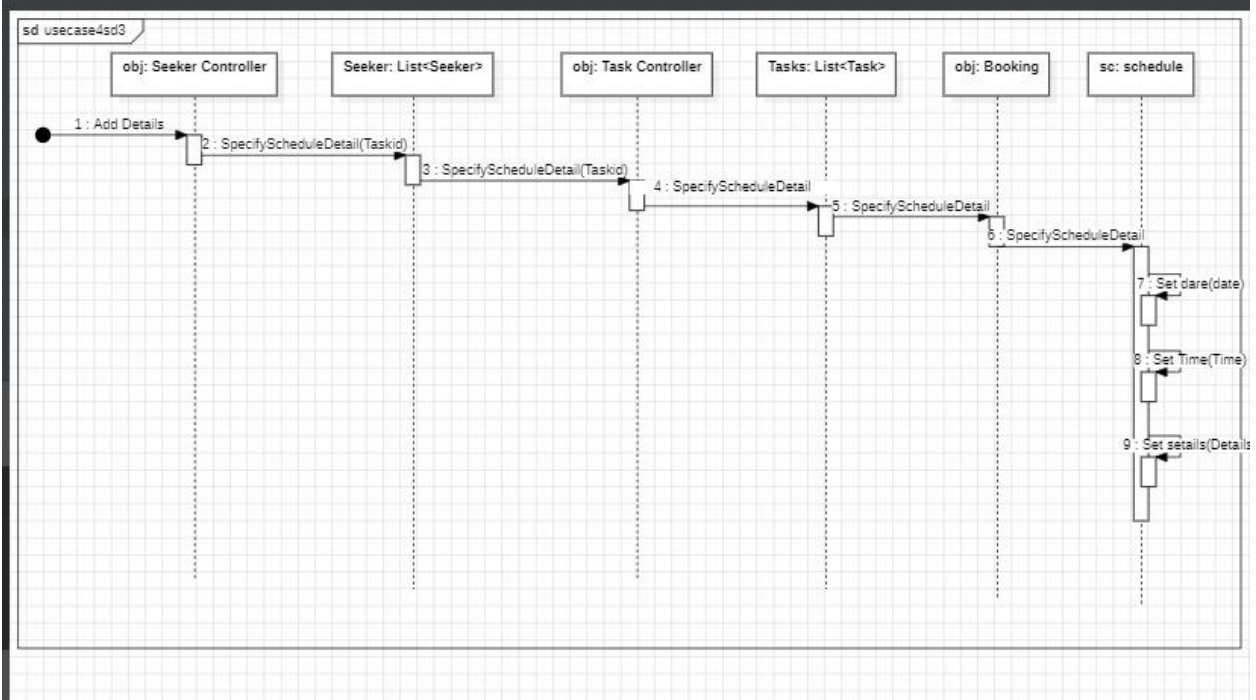
1.10.5. SD
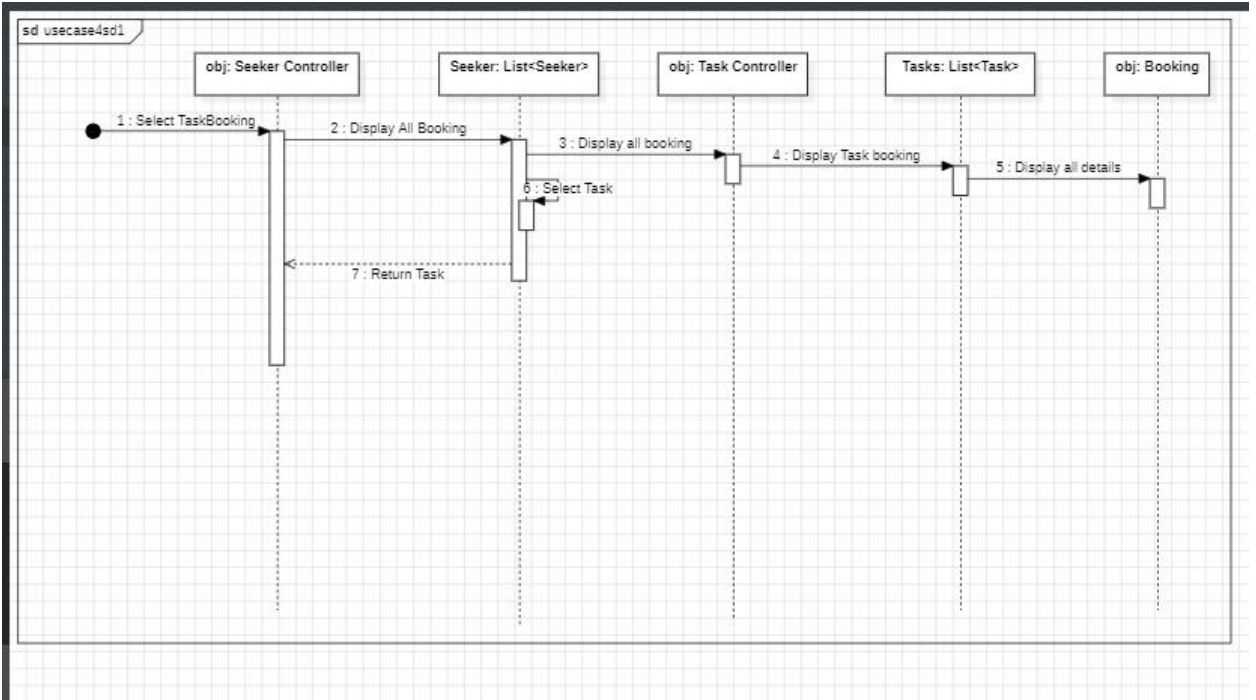
1.11. Use Case : Matching Task

1.11.1. SSD

SSD 1 task matching

1.11.2. SD

SD#1 of use case task matching
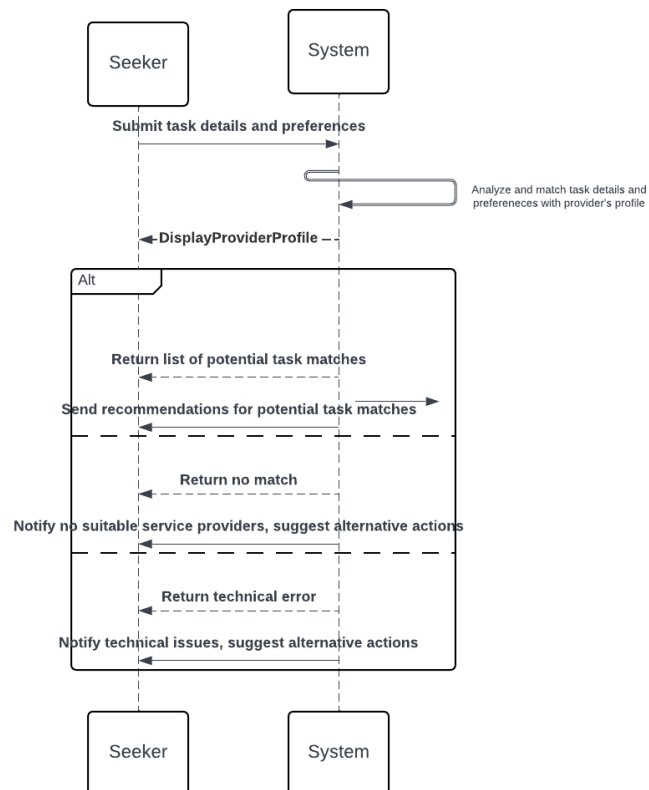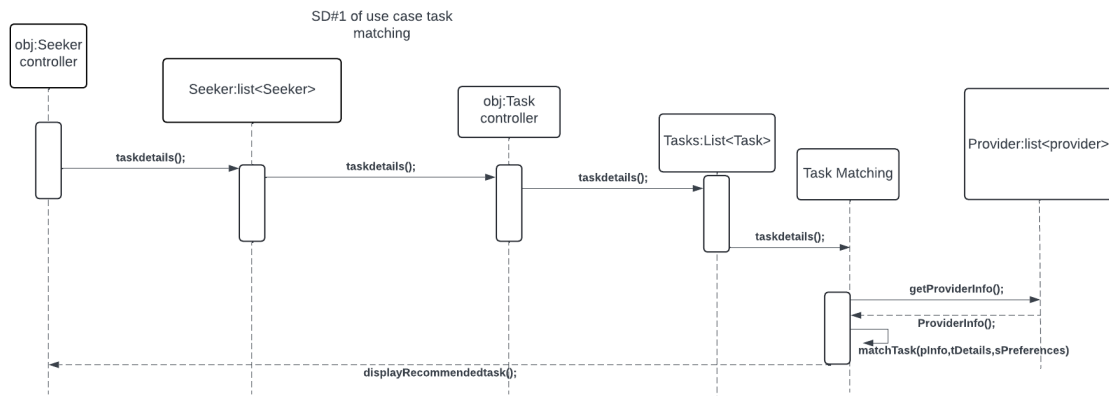
1.12. Use Case : Geo-location

1.12.1. SSD

SSD 2 geolocation

1.12.2. SD

Sd1 of SSD gelocation
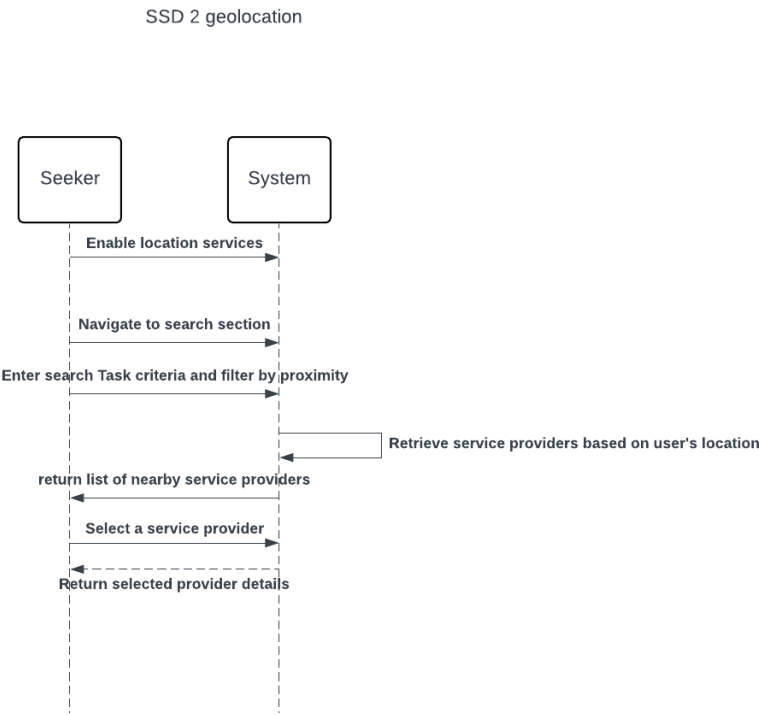
1.12.3. SD
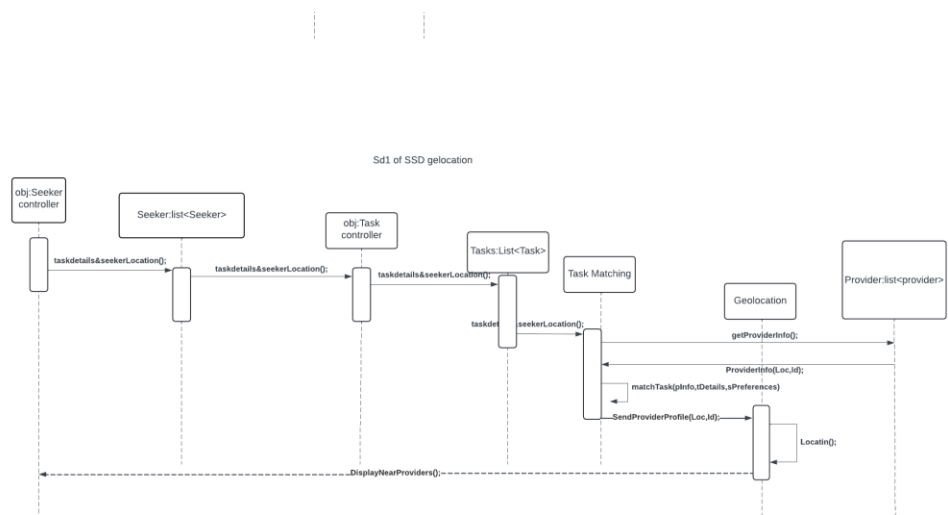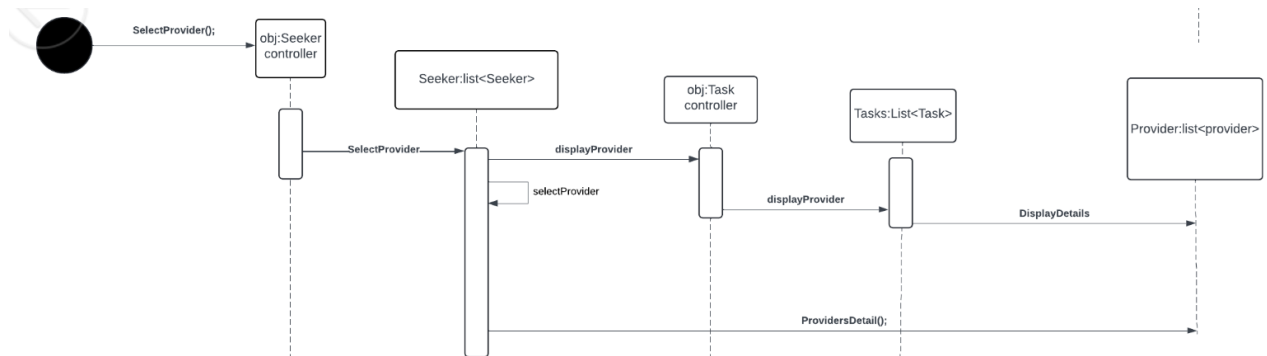
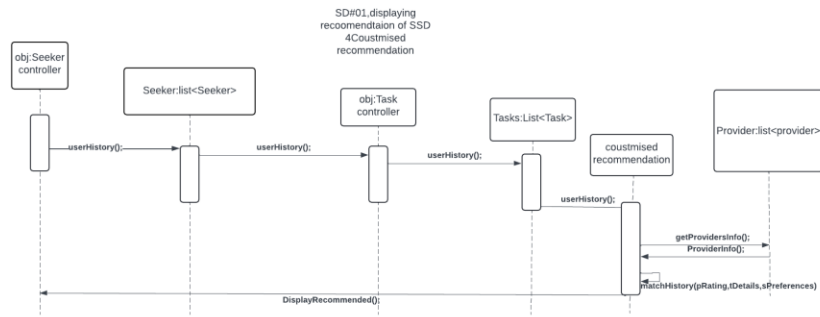## 1.13. Use Case : Multi-Service Support

1.13.1. SSD
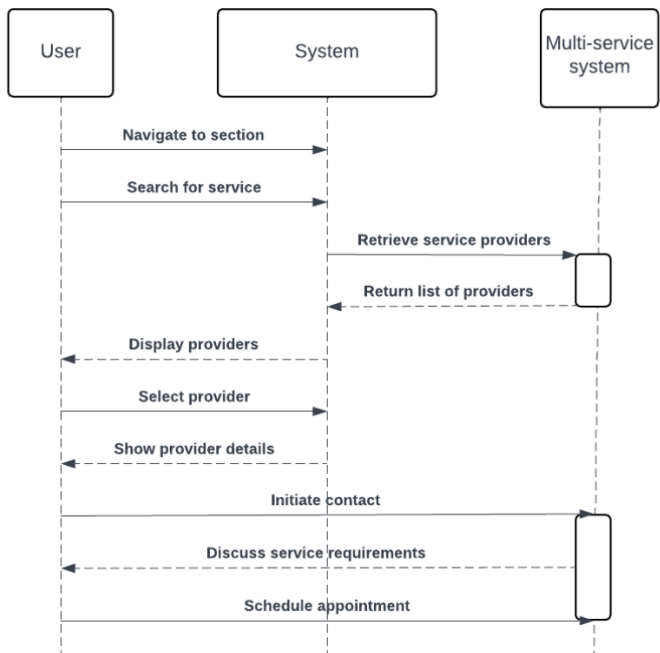
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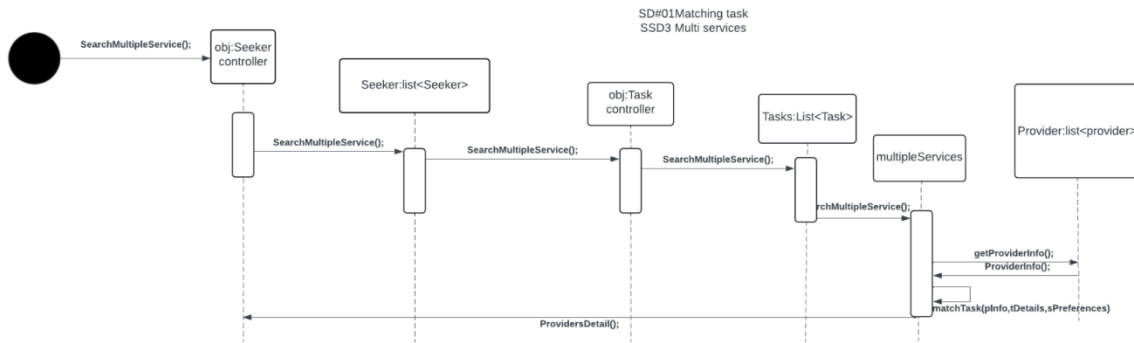
1.13.3. SD
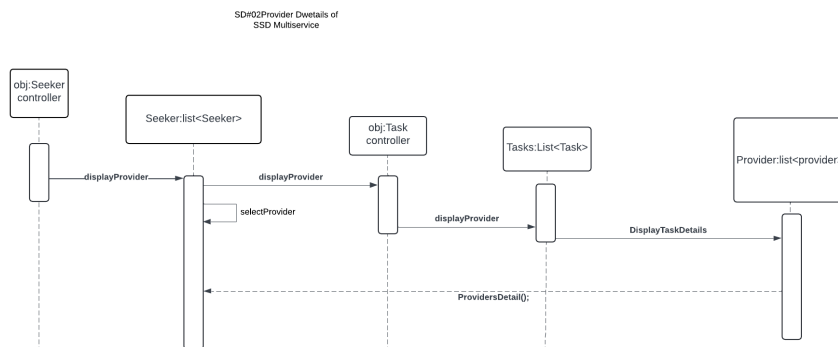
1.14. Use Case : Customized Recommendations

1.14.1. SSD

SSD 4Coustmised
recommendation

1.14.2. SD

SD#01,displaying
recoomendtaion of SSD
4Coustmised
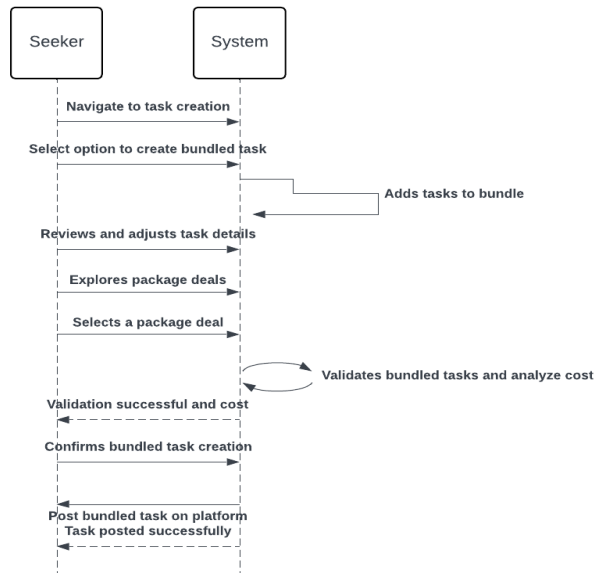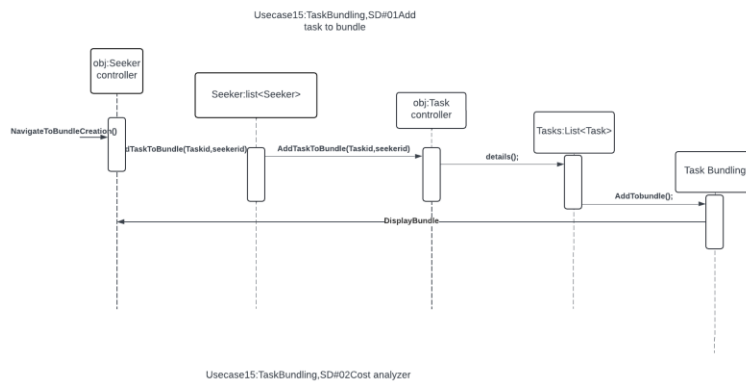recommendation
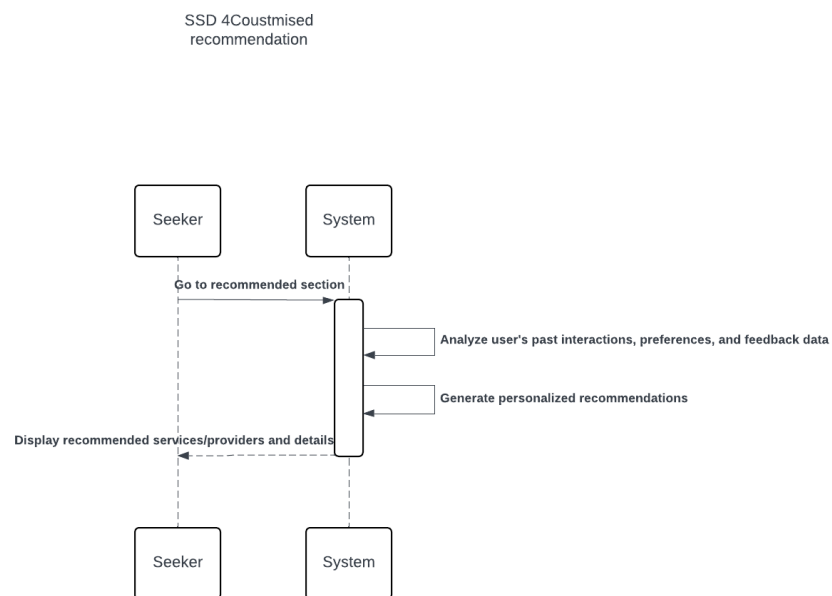
1.15. Use Case : Task Bundling and Package Deals

1.15.1. SSD

SSD 5Task bundling

1.15.2. SD

1.15.3. SD

1.15.4. SD

1.15.5. SD

Usecase15:TaskBundling,SD#04Posting
of bundle