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# 1. Introduction

## 1.1 Purpose

This document specifies the software requirements for a web-based application designed to provide text translation and summarization services using Large Language Models (LLMs) such as OpenAI and Deepseek. It covers the core functionalities of the system, including text input, language selection, and result generation. This SRS focuses on the primary system components related to user interaction and API integration.

## 1.2 Document Conventions

This document follows standard conventions for formatting and highlighting. Bold text is used to emphasize key terms and acronyms. Numbered lists outline sequential processes, while bullet points are used for itemized lists. All requirements are stated clearly, and priorities are inherited from higher-level categories unless explicitly stated.

## 1.3 Intended Audience and Reading Suggestions

This document is intended for diverse types of readers, including developers, project managers, marketing staff, users, testers, and documentation writers. It is structured to guide each reader type to the sections most relevant to their role.

- **Developers** should focus on Section 3 (Specific Requirements) and Section 4 (System Features) to understand functionality and integration.
- **Project Managers** may prioritize Section 2 (Overall Description) to grasp the system scope and constraints.
- **Testers** should refer to Section 3 (Specific Requirements) for testing criteria.
- **Marketing Staff and Users** can review Section 1 (Introduction) and Section 2 (Overall Description) for a general overview of system capabilities.

A recommended reading sequence is as follows: start with Section 1 (Introduction) to understand the system's purpose and scope, then move to Section 2 (Overall Description) for context, followed by Section 3 (Specific Requirements) and Section 4 (System Features) for detailed functionality. Conclude with Section 5 (Other Requirements) to ensure compliance and limitations.

## 1.4 Project Scope

This section provides a brief overview of the software being specified and its intended purpose. The web-based platform is designed to facilitate text translation and summarization using Large Language Models (LLMs) such as OpenAI and Deepseek. The primary objectives are to deliver fast, accurate translations and concise summaries, enhancing productivity and communication across different languages. The platform supports both individual users and organizations, aligning with corporate goals related to digital transformation and global collaboration. Key benefits include overcoming language barriers, streamlining content processing, and improving information accessibility. The current release focuses on core functionality while supporting future scalability and feature enhancements.

## 1.5 References

- IEEE 830-1998 Recommended Practice for Software Requirements Specifications, IEEE Computer Society, 1998
  - OpenAI API documentation, available at <https://platform.openai.com>
  - Deepseek API documentation, available at <https://deepseek.com>
  - Web Content Accessibility Guidelines (WCAG) 2.1, World Wide Web Consortium (W3C), available at <https://www.w3.org/WAI/>
  - Data Privacy Regulations: GDPR (EU), CCPA (California), referenced from respective official government websites.
- 

## 2. Overall Description

### 2.1 Product Perspective

The application is a new, standalone web-based platform designed to provide text translation and summarization using LLM APIs such as OpenAI and Deep seek. It serves as middleware, facilitating communication between users and these external APIs through an intuitive user interface. The system does not replace any existing products but is built to support future integrations with additional AI services. It is part of the organization's strategic goal to leverage AI technology for improving communication and productivity.

A simple architecture diagram illustrates the main components:

- **User Interface (UI):** Allows users to input text, select functions, and view results.
- **Application Backend:** Manages user requests, processes text and interacts with LLM APIs.

- **External LLM APIs:** Provide translation and summarization services.

The system interacts with external APIs using secure connections, ensuring data privacy and compliance with regulations.

## 2.2 Product Features

This section provides a high-level summary of the product's key features:

- **Text Upload:** Users can upload text documents or paste text directly into the interface.
- **Translation:** The system translates text between multiple languages using LLM APIs.
- **Summarization:** The platform creates concise summaries of long texts with options for detailed or bullet-point formats.
- **File Download:** Processed results can be downloaded in various formats, including PDF, DOCX, and TXT.
- **User Interface:** The intuitive and responsive UI ensures ease of use for both individuals and organizations.

These features are designed to enhance productivity, improve communication, and streamline text processing workflows.

## 2.3 User Classes and Characteristics

- **End Users:** Individuals who need text translation or summarization. They may have varying levels of technical expertise and use the platform occasionally or regularly.
- **Administrators:** Users responsible for managing system settings, user accounts, and monitoring API usage. They require advanced access permissions and a deeper understanding of system functionalities.
- **Developers:** Technical users who maintain and extend the platform. They require access to system code, APIs, and debugging tools.
- **Testers:** Responsible for verifying that the platform meets its functional and performance requirements. They interact with both the user interface and backend systems.

Each class has distinct needs, and the system is designed to provide an intuitive experience while offering advanced controls for administrators and developers. Operating Environment

- Web-based applications are accessible via modern browsers like Chrome, Firefox, and Safari

- Backend server integrates with LLM APIs

## **2.4 Operating Environment**

- The software is a web-based platform accessible via modern web browsers such as Chrome, Firefox, Safari, and Edge.
- Backend servers are hosted on a cloud infrastructure that ensures scalability, performance, and reliability.
- It integrates with external LLM APIs such as OpenAI and Deepseek using secure HTTPS connections.
- The system requires stable internet connectivity and is optimized for both desktop and mobile devices.
- Compatibility is maintained with operating systems including Windows, macOS, Linux, iOS, and Android.
- The platform adheres to web standards and accessibility guidelines to ensure an inclusive user experience.

## **2.5 Design and Implementation Constraints**

- Internet connectivity is required for accessing LLM APIs.
- API usage is subject to rate limits, associated costs, and potential latency.
- The platform must comply with corporate data privacy and security policies, including GDPR and CCPA regulations.
- Compatibility with external LLM APIs (OpenAI, Deepseek) requires maintaining API tokens and adhering to their usage guidelines.
- The system is designed to be scalable, but hardware limitations may affect performance for extremely large text inputs.
- The application must use secure HTTPS communication protocols and implement encryption for data transmission.
- Development follows industry-standard programming languages, frameworks, and best practices to ensure maintainability and extensibility.

## 2.6 User Documentation

- The platform will include comprehensive user documentation delivered in digital formats, including:
  - **User Manual:** A detailed guide covering all platform features and functions.
  - **Online Help:** Context-sensitive help accessible directly within the platform.
  - **Tutorials:** Step-by-step guides for common tasks, available as both text and video formats.
  - **FAQs:** A searchable knowledge base addressing common user questions.
- Documentation will follow standard accessibility guidelines and be available in multiple languages to support global users.

## 2.7 Assumptions and Dependencies

- The platform assumes continuous availability and responsiveness of LLM APIs (OpenAI, Deepseek).
- Text input must comply with the size limits specified by the APIs.
- Internet connectivity is required for real-time API interactions.
- The system depends on secure HTTPS protocols for communication.
- Compliance with data privacy regulations such as GDPR and CCPA is essential.
- Integration with external APIs relies on maintaining valid API tokens and adhering to their usage policies.

# 3. System Features

This section organizes the functional requirements of the platform based on its major system features. Each feature outlines the key services provided, supporting different user needs and ensuring optimal performance.

## 3.1 System Feature 1

- **3.1.1 Description and Priority**

This feature allows users to translate text documents or pasted text into a selected target language using LLM APIs.

Priority: High (9/9 for benefit, with medium penalty and cost, and low risk)

- **3.1.2 Stimulus/Response Sequences**

User uploads a document or pastes text.

User selects source and target languages.

System processes the input via LLM APIs and displays the translated text.

- **3.1.3 Functional Requirements**

REQ-1: The system shall support text input through file uploads and direct text pasting.

REQ-2: The system shall provide a language selection interface with supported languages.

REQ-3: The system shall use LLM APIs for translation and display the result within 5 seconds.

REQ-4: The system shall provide error messages for unsupported languages or invalid inputs.

REQ-5: The system should ensure data privacy and delete uploaded documents after processing.

(TBD: Additional language options and advanced formatting preservation)

## **3.2 Text Summarization**

- Users can upload documents or paste text for summarization.
- Available options include concise summaries, detailed summaries, and bullet-point formats.
- The system processes the text via LLM APIs and displays the summarized content.

## **3.3 File Download**

- Users can download processed results in PDF, DOCX, and TXT formats.
- Download options are available directly from the user interface.

## **3.4 Performance**

- The platform processes document up to 10,000 words within 5 seconds.
- Multiple users can access the system simultaneously without performance degradation.

## **3.5 Security**

- Uploaded documents are encrypted during transmission.
- All documents are deleted after processing to maintain data privacy.

## **3.6 User Interface**

- The interface is intuitive, responsive, and compliant with web accessibility standards.
- Users can navigate the system with ease, regardless of technical expertise.



This structured approach ensures that the platform's core functionalities are clear, comprehensive, and aligned with user needs and performance goals.

## **4. External Interface Requirements**

### **4.1 User Interfaces**

- The platform provides a responsive web interface accessible via modern browsers.
- The design follows accessibility guidelines, ensuring usability for diverse users.
- The interface includes standard navigation elements, clearly labeled buttons, and user feedback messages.
- Error messages are displayed near input fields when validation fails.
- Keyboard shortcuts are supported for common actions.
- A help section and tooltips offer guidance on key features.
- Sample screen images and a detailed user interface design will be provided in a separate specification document.

### **4.2 Hardware Interfaces**

- The software interacts with cloud servers that host LLM APIs.

- No dedicated hardware is required on the user side apart from a standard device capable of running a modern web browser.
- Data transmission between the user's device and cloud servers uses secure HTTPS protocols.
- The system is designed to be compatible with various devices, including desktops, laptops, tablets, and smartphones.

### **4.3 Software Interfaces**

- Integrates with OpenAI and DeepSeek LLM APIs for text translation and summarization.
- Supports file uploads in DOCX, PDF, and TXT formats.
- Outputs downloadable results in DOCX, PDF, and TXT formats.

### **4.4 Communications Interfaces**

- The platform uses secure HTTPS protocols to ensure encrypted communication.
- All API calls to LLM services include secure authentication methods.
- The system logs errors and key events for maintenance and troubleshooting.
- Network communication adheres to standard web protocols, ensuring compatibility with modern web infrastructure.
- No email communication or FTP is required.

(TBD: API documentation for future third-party integrations and additional communication standards)

## **5. Other Nonfunctional Requirements**

### **5.1 Performance Requirements**

- The system must process text up to 10,000 words within 5 seconds.
- It must support simultaneous access by multiple users without performance degradation.
- Response time for API calls must be under 2 seconds.
- File upload and download operations must be completed within 3 seconds.

### **5.2 Safety Requirements**

- The system must prevent unauthorized access to sensitive data.
- It must comply with data privacy regulations, ensuring that user data is deleted immediately after processing.
- Uploaded documents must not be stored or accessible after processing.
- The system should include mechanisms to prevent misuse, such as rate limiting to avoid excessive API calls.
- Error messages should not expose sensitive information.
- The platform must undergo regular security assessments to identify and mitigate vulnerabilities.

### **5.3 Security Requirements**

- All data transmitted must be encrypted using HTTPS.
- Uploaded documents must be automatically deleted after processing.
- User data privacy must be always maintained.
- The system must implement user identity authentication using secure login methods.
- Role-based access control (RBAC) must restrict access to sensitive features and data.

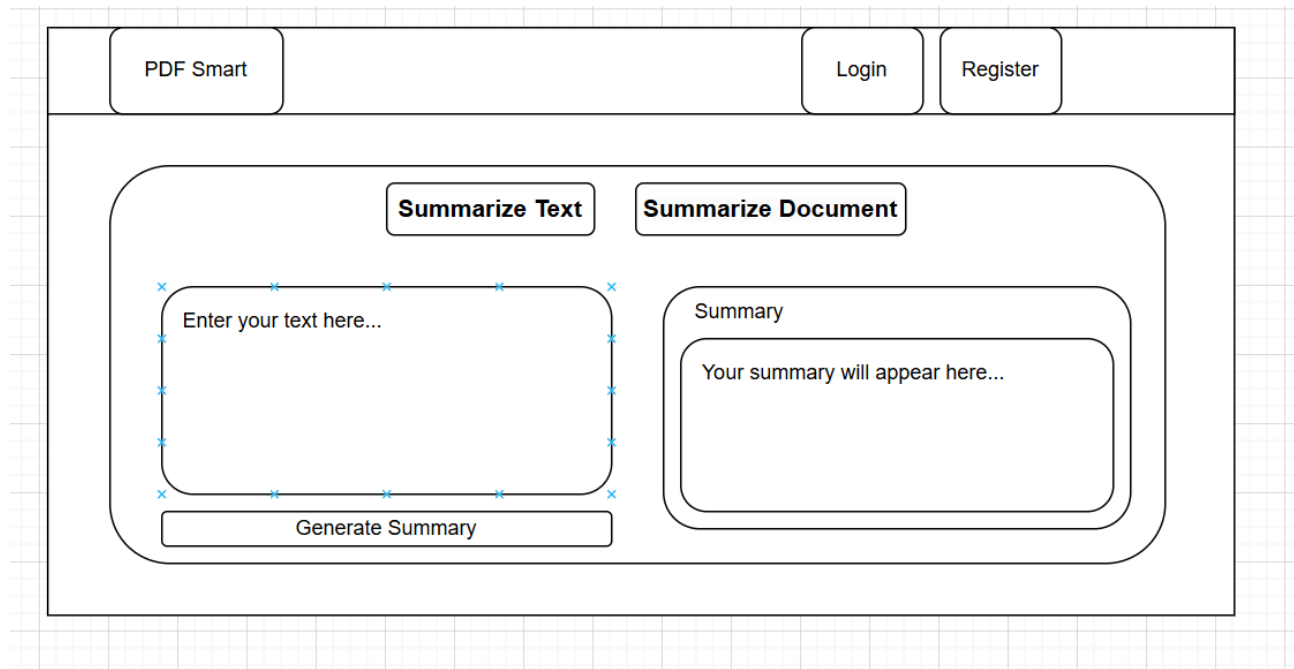
- The software must comply with relevant security standards and regulations, such as GDPR and ISO 27001.
- Security logs should be maintained to monitor and audit system access and usage.

## 5.4 Software Quality Attributes

- **Adaptability:** The system should be easily adaptable to support additional languages and LLM providers.
- **Availability:** Ensure 99.9% uptime for both user interface and API services.
- **Correctness:** The system must deliver accurate translations and summaries within the defined parameters.
- **Flexibility:** Allow customization of translation style and summary length.
- **Interoperability:** Ensure compatibility with modern web browsers and common file formats (e.g., .docx, .pdf, .txt).
- **Maintainability:** Modular design to facilitate code updates and bug fixes.
- **Portability:** Compatible with cloud-based deployment on platforms like AWS, Azure, and GCP.
- **Reliability:** The system must recover automatically from service interruptions.
- **Reusability:** Core components should be reusable in different modules.
- **Robustness:** Handle large inputs and unexpected data gracefully.
- **Testability:** Ensure automated testing covers key functionalities and edge cases.
- **Usability:** The interface must be intuitive, with clear feedback and accessible navigation.

## 6. Other Requirements

### Appendix B: Analysis Models



The homepage layout of the Translate and Summary website in the image consists of the following main sections:

#### 1. Header (Top Navigation Bar):

- Website Logo/Name: "PDF Smart" on the left side.
- Login and Register Buttons: Located on the right side, allowing users to log in or create an account.

#### 2. Feature Tabs:

- Summarize Text: The currently selected tab displays the interface for summarizing text input directly.
- Summarize Document: Another tab likely switches to an interface for uploading documents to generate summaries.

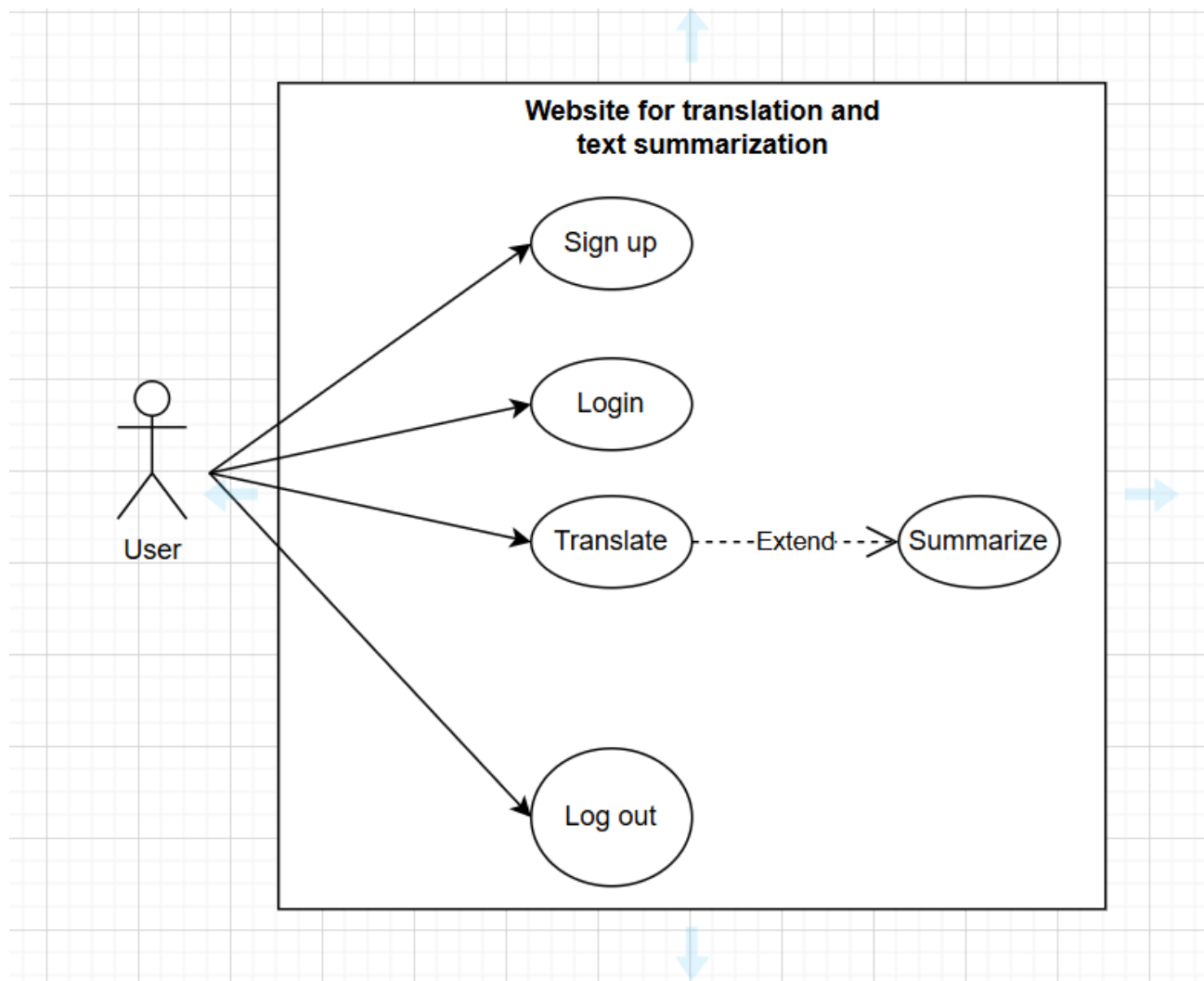
#### 3. Text Input Section:

- A text area on the left where users can input text for summarization (placeholder: "Enter your text here...").
- Generate Summary Button: Positioned below the text area to initiate the text summarization process.

#### 4. Summary Result Section:

- A display area on the right where the generated summary appears (placeholder: "Your summary will appear here...").

The layout is simple, user-friendly, and designed for quick text summarization tasks.



The Use Case Diagram in the image represents the functionalities of the Website for Translation and Text Summarization. Here's the explanation:

**Actors:**

- User: The primary actor who interacts with the system.

**Use Cases:****1. Sign up:**

- The user can create an account to access personalized services.

**2. Login:**

- The user logs into their account to access the website's features.

**3. Translate:**

- The user inputs text or documents to be translated.
- This use case is the core functionality of the website.

**4. Summarize (Extend Relationship):**

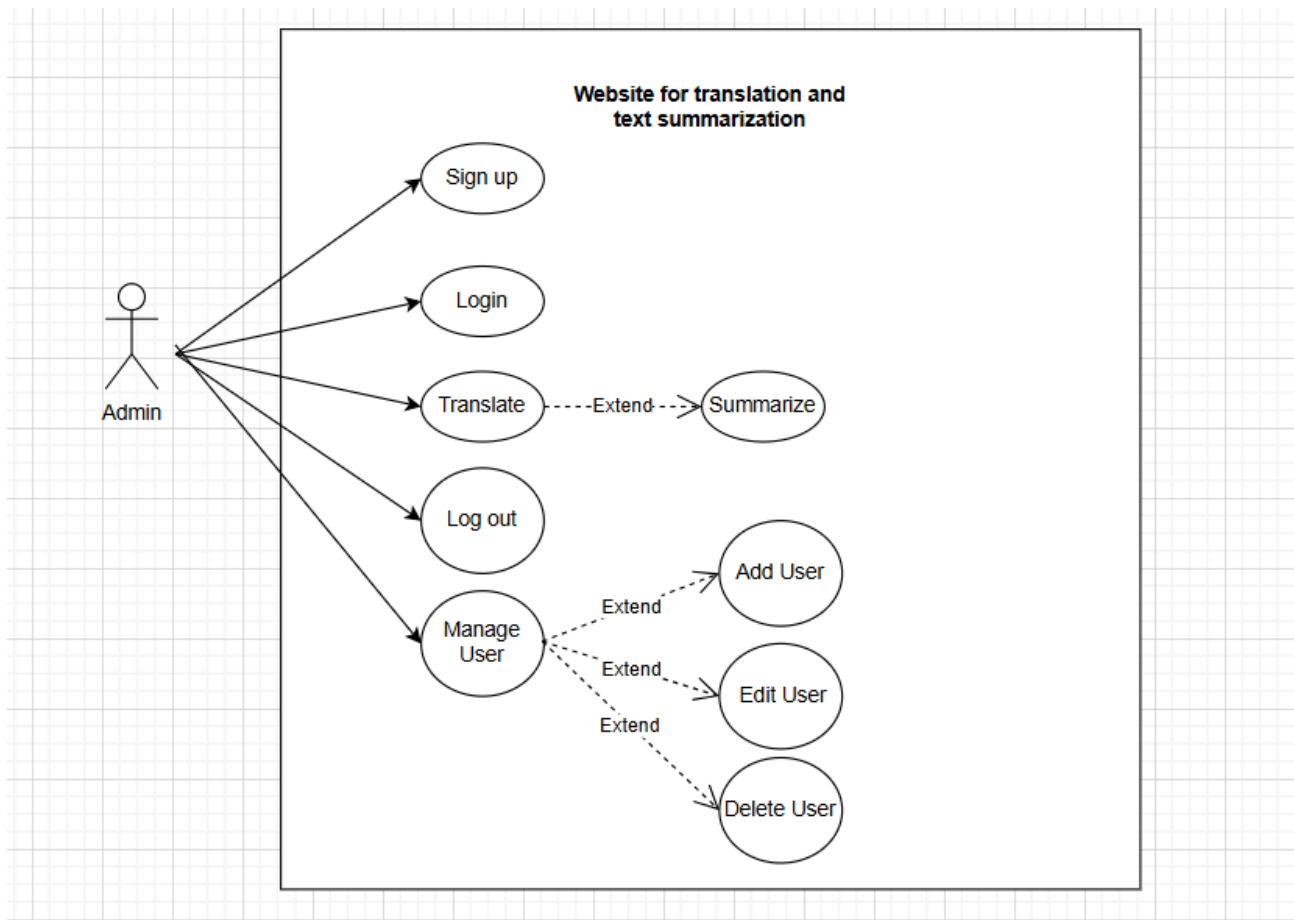
- The Summarize use case extends the Translate use case, meaning summarization is an optional feature that can be performed after translation.
- This indicates that summarization is a specialized feature that works only when translation is initiated.

**5. Log out:**

- The user can log out of their account when they finish using the system.

**Summary:**

The diagram shows how users can interact with the system by signing up, logging in, translating text, summarizing content (if needed), and logging out. The Extend relationship signifies that summarization is a secondary action following translation.



The Use Case Diagram in the image represents the functionalities of the Website for Translation and Text Summarization from the Admin perspective.

### Actors:

- Admin: The primary actor who manages both translation services and user administration.

### Use Cases:

#### 1. Sign up:

- The admin can create an account to access the system.

#### 2. Login:



- The admin logs into their account to access system functionalities.

### **3. Translate:**

- The admin can input text or documents for translation.

### **4. Summarize (Extend Relationship):**

- The Summarize use case extends the Translate use case, meaning summarization is an optional feature that follows translation.

### **5. Log out:**

- The admin logs out of the system when it is finished.

### **6. Manage User:**

- The admin can manage user accounts on the website.
- This case has three extensions:
  - Add User: Allows the admin to create new user accounts.
  - Edit User: Allows the admin to modify user information.
  - Delete User: Allows the admin to remove user accounts.

## **Summary:**

This diagram highlights the admin's capabilities in managing both Translation/Summarization features and User Management functions. The Extend relationships indicate that user management tasks are optional actions under the Manage User use case.