Section 1: Introduction

1.1 Purpose

HestiaHub is being developed with the intention of providing a platform for managing personal health and family health records. Through the use of an intuitive dashboard, it seeks to improve accessibility, efficiency, and customization of health management.

1.2 Scope and Perspective

HestiaHub is a complete health management solution intended for both individuals and families. Within a home, it makes it easier to save, retrieve, track, and manage health information and follow-up procedures. Since they are beyond the purview of the system, it will not track dietary habits, integrate with physical health monitoring devices, provide comprehensive medical diagnoses, schedule appointments with healthcare providers, or have a kid-friendly mode.

Section 2: Stakeholders

- **Family Me**mbers (Users): HIGH - Primary users who will read and edit information.
- **Family Doctors and Healthcare Providers: HIGH** - Potential readers of patient health records for better patient care.
- **Developers and IT Staff: HIGH** - Responsible for system development, deployment, and maintenance.
- **Health Insurance Companies: MEDIUM** - Readers of insurance forms/claims provided by insurers.
- **Project Managers: MEDIUM** - Ensure project alignment with business objectives and stakeholder expectations.
- **UX Designers: MEDIUM** - Design the interface and overall user experience.
- **QA Testers: MEDIUM** - Ensure the platform meets quality standards.
- **Government Health Departments: MEDIUM** - Monitor and regulate healthcare data management practices.
- **Competitors: LOW** - Other platforms offering similar services.

Section 3: Regulations, Guidelines, Standards, Laws

- **HIPAA (Health Insurance Portability and Accountability Act): HIGH** - Ensures data privacy and security provisions for safeguarding medical information in the U.S.

  Impact: Strict security measures must be put in place by HestiaHub in order to guarantee the privacy, availability, and integrity of protected health data. This covers user authentication procedures, access controls, audit trails, and encrypted data transport and storage. HestiaHub must also have policies and procedures for handling protected health information, including breach notification protocols, in order to comply with HIPAA.

- **WHO Standards: HIGH** - Provides guidelines for vaccination schedules and health practices.

  Impact: HestiaHub's content and recommendations will be directly impacted by WHO guidelines regarding immunization regimens and health practices. In order to guarantee that users obtain correct and current information, the system will need to integrate these recommendations into its capabilities for tracking vaccinations and managing health. In order to incorporate the most recent WHO cautions and guidelines, the system's health recommendations may also need to be updated on a regular basis.

- **Data Protection Regulations (e.g., GDPR in Europe): HIGH** - Regulates the processing of personal data within the EU.

  The implementation of comprehensive data protection measures, such as user permission procedures for data processing, data minimization techniques, and the right for users to view, correct, and erase their personal data, will be necessary for HestiaHub to comply with GDPR and equivalent data protection legislation. The application must guarantee that data is processed lawfully, openly, and for valid reasons, as this will have a substantial impact on how user data is managed and preserved.

- **Children's Online Privacy Protection Act (COPPA): MEDIUM** - While the system does not directly target children, it will store information about family members, including minors. Ensuring compliance with COPPA for parts of the system dealing with children’s information is important.

Impact: HestiaHub must adhere to COPPA by putting in place extra safeguards for children's data because it will keep information on minors as part of family health management. This involves giving parents control over their children's personal information and securing verified parental consent before collecting, using, or revealing information about them.

- **Health Level 7 (HL7) Standards: MEDIUM** - These standards for the exchange, integration, sharing, and retrieval of electronic health information could influence system design, especially for interoperability with other healthcare systems.

  Impact: In order to enable data sharing between HestiaHub and other healthcare systems, HL7 standards must be adopted. The development of interfaces and protocols that can precisely exchange, integrate, share, and retrieve electronic health information in a standardized format will be necessary as a result, since it will have an impact on the architecture and data integration capabilities of the system.

- **ADA Compliance for Web Accessibility: LOW** - Ensures that websites are accessible to people with disabilities. While crucial for inclusivity, it may rank lower in a context where primary concerns are privacy and data integrity.

  Impact: Ensuring ADA compliance for online accessibility will have an impact on the user interface design of the application, even if it is regarded as a lower priority than privacy and data integrity. In order to make HestiaHub usable by people with impairments, features like keyboard navigation, screen reader compatibility, and accessible fonts and color schemes may need to be implemented.

- **ISO 27001: LOW** - This is an international standard for information security management. While it's critical for ensuring the security of health information, its implementation details and specific requirements might be more of a background concern compared to direct health-related regulations like HIPAA.

  Impact: In order to obtain ISO 27001 accreditation, HestiaHub will need to create and maintain an information security management system (ISMS), despite this requirement being less important than direct health-related requirements like HIPAA. This entails evaluating information security threats and putting in place the necessary safeguards to lessen them, which will have an effect on the app's overall security plan and functionality.

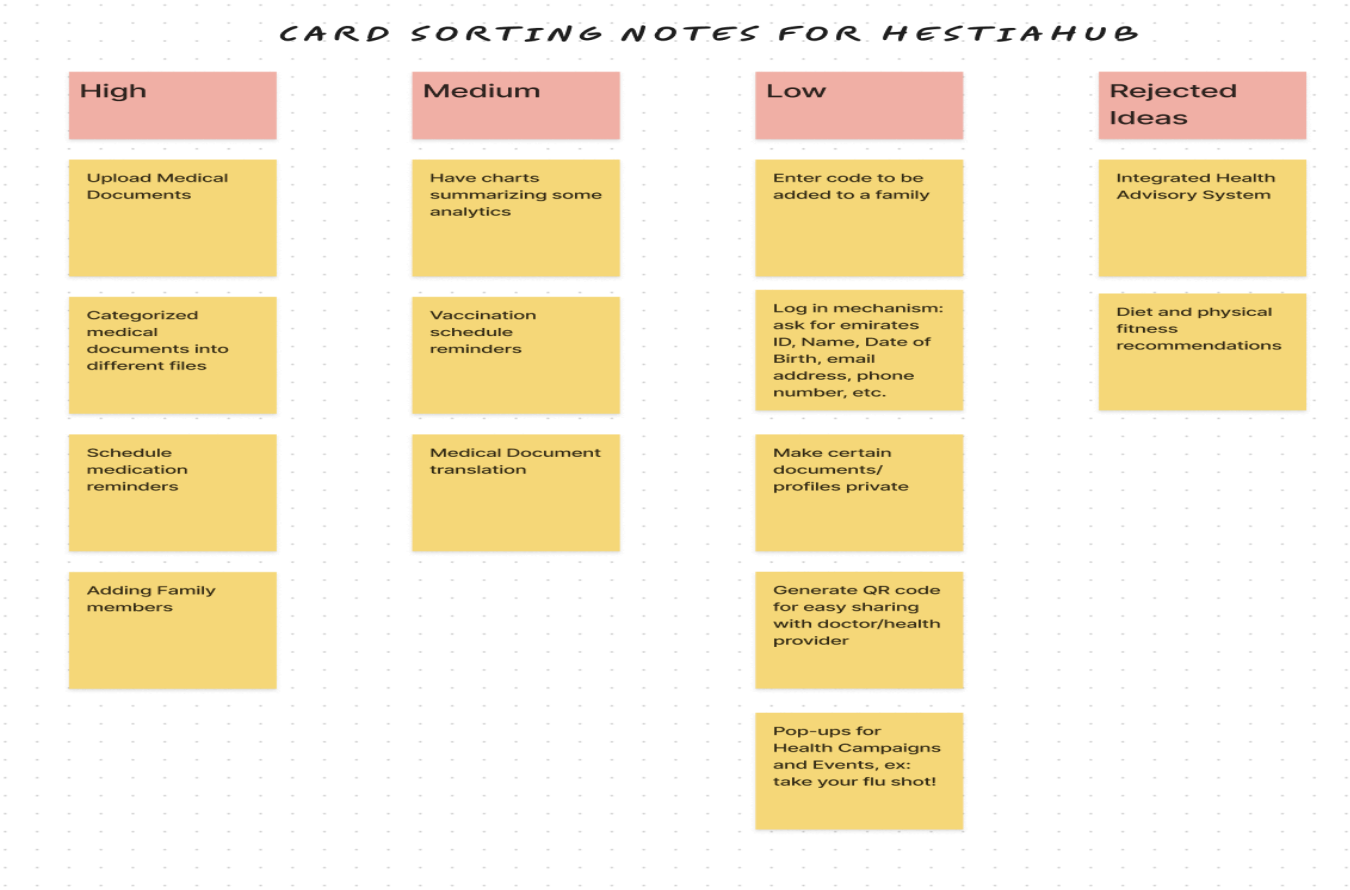
Section 4: Requirements Elicitation Used

Card Sorting

Rationale:

Card sorting was selected for HestiaHub to directly align with its mission of creating a highly intuitive and accessible health management platform. This method allows for the efficient organization of the application's interface by understanding user preferences and mental models regarding health information management. It is particularly beneficial for ensuring that the platform can cater to a diverse user base, making navigation and functionality intuitive across different demographics. By involving users in the structuring process, card sorting enables the development team to prioritize and design features that meet the real needs of families and individuals for managing their health records, scheduling, and tracking. This approach significantly contributes to the development of a user-friendly dashboard that simplifies complex health management tasks.

Proof:



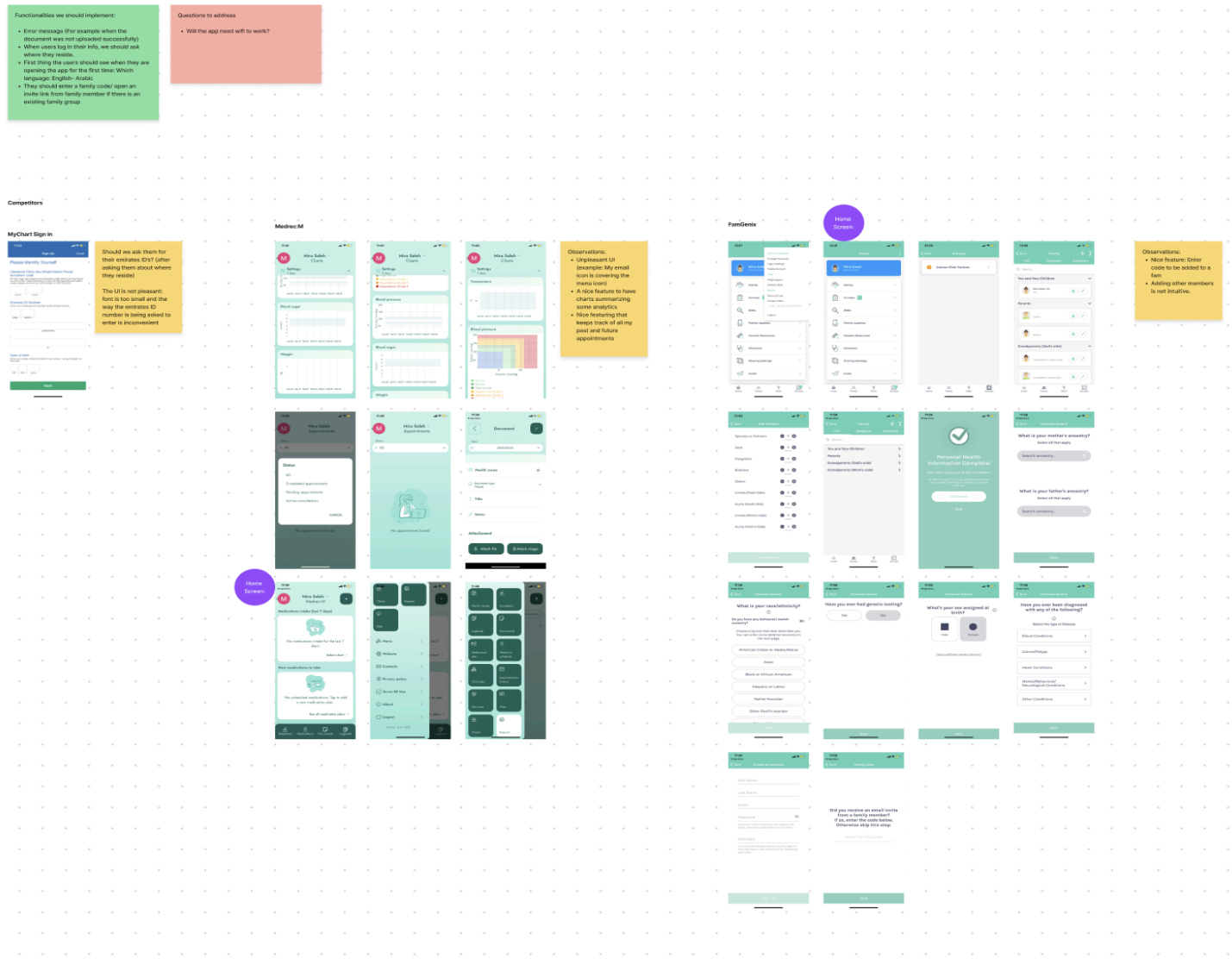
Domain Analysis

Rationale:

Domain analysis is crucial for HestiaHub as it allows the project team to understand and model the healthcare management domain comprehensively. This technique helps in identifying common features, entities, and functionalities that are typical within the domain of family health management systems. By understanding the domain's complexities, including healthcare regulations, data privacy concerns, and user needs for managing health information, the team can design a system that is both robust and user-centric. Domain analysis supports the creation of a feature-rich platform by highlighting the essential components required for effective health management, such as vaccination tracking, health check-up scheduling, and medical document management.

Proof:

The application of domain analysis in the HestiaHub project can be evidenced by the detailed features and objectives outlined in the proposal. For instance, the system's capability to manage family member profiles, track vaccinations and health check-ups, and translate medical documents indicates a deep understanding of the family health management domain. These features were likely identified as critical through a thorough analysis of the domain, involving research into existing systems, regulatory requirements, and potential user needs. Additionally, the project's consideration of integrating with healthcare provider systems and facilitating secure information sharing demonstrates an understanding of the broader healthcare domain's complexities and stakeholders' interactions.



User Stories

Rationale:

User stories were chosen as an elicitation technique for their effectiveness in capturing specific requirements from the perspective of end-users. This approach aligns with HestiaHub's goal to enhance the health management experience by making it more accessible, efficient, and personalized. By focusing on the user's needs and how they will interact with the system, the development team can ensure the final product truly reflects the expectations and requirements of its users.

Proof:

For example, a user story might detail a parent creating profiles for each family member, uploading medical documents, and receiving reminders for upcoming vaccinations. These user stories directly inform the design and development of key features, ensuring the system is user-centric and meets the stated goals of enhancing health management efficiency, improving preventive healthcare, facilitating access to health information, and ensuring data security and privacy.

Section 5: Requirements

1. The system shall allow users to create their own profiles and other family member profiles. - HIGH
2. The system shall allow the user to manage and update profiles for each family member, including health records, medical history, and personal information. - HIGH
3. The system shall automatically generate vaccination schedules based on WHO guidelines and suggest follow-up vaccinations with automatic reminders. - HIGH
4. The system shall provide secure login mechanisms for user accounts to ensure secure and easy access to user accounts for personal and medical information. - HIGH
5. The system shall provide an intuitive user interface to navigate through different functions. - HIGH
6. The system shall include a comprehensive user guide and in-app support to assist users in navigating the platform and utilizing its features effectively. - HIGH

7. The system shall enable users to schedule and track health check-ups with reminders and calendar integration. - HIGH
8. The system shall enable the scheduling of recurring health-related tasks and reminders, such as medication reminders, to assist users in maintaining their health routines. - MEDIUM
9. The system shall allow users to track family histories and past medical interventions. - MEDIUM
10. The system shall enable users to upload medical documents with file size under 20MB and support a wide range of upload formats, including but not limited to PDF, JPEG, and PNG, allowing users to manage and organize their health records. - MEDIUM
11. The system shall provide translated versions of the documents via an integrated translation feature. - MEDIUM
12. The system shall generate a unique QR code for each individual user or family profile, enabling secure and convenient sharing of health information in PDF format with password to access with healthcare providers or family members. - MEDIUM
13. The system shall prompt users with notifications about local health campaigns and events based on local hospitals and government initiatives. - MEDIUM
14. The system shall integrate with external healthcare provider systems for real-time data exchange. - MEDIUM
15. The system shall provide insurance claims and form management functionalities, allowing families to store and update related records. - LOW
16. The system shall allow for the sharing of events and activities based on hospital or government initiatives. - LOW
17. The system shall ensure data security and privacy through secure storage and management of personal health information. - LOW
18. The system shall support the management of test results, treatments, and prescriptions within family member profiles. - LOW
19. The system shall include motivational messages and health tips based on user activity and health records to encourage proactive health management." - LOW
20. The system shall feature a feedback mechanism for users to suggest improvements or report issues, contributing to the continuous enhancement of the platform." - LOW

Section 6: Use Cases

Use Case Name: Creating Profiles

1. Scope: To provide users with the ability to create personal and family member profiles within HestiaHub.
2. Level: User-goal level
3. Primary Actors: User
4. Stakeholders and Interests:
    4.1. User: Wants to efficiently manage personal and family health information by creating individual profiles.
5. Pre-Conditions:
    5.1. User is registered and logged into HestiaHub.
6. Success Guarantee:
    6.1. A new profile is created and accessible within the user's account.
7. Main Success Scenario:
    7.1. User navigates to the profile creation section of HestiaHub.
    7.2. User fills in the necessary information, including name, relationship to the user, medical history, and personal information.
    7.3. User submits the information for profile creation.
    7.4. The system validates and stores the information, creating a new profile.
8. Postconditions:
    8.1. User can view and interact with the newly created profile.
9. Extensions:
    9.1. If the user submits incomplete information, the system prompts for all required fields to be filled.
10. Special Requirements:
    10.1. None.
11. Technology & Data Variation List:
    11.1. Mobile Interfaces.
12. Frequency of Occurrence:
    12.1. Regularly, as users add or update their family health management system.
13. Open Issues/Miscellaneous: None

Use Case Name: Managing and Updating Profiles

1. Scope: To enable users to update personal and family member profiles with new or changed information.
2. Level: User-goal level

3. Primary Actors: User
4. Stakeholders and Interests:
    4.1. User: Seeks to keep health records and personal information up-to-date.
5. Pre-Conditions:
    5.1. User is logged in and has at least one profile created.
6. Success Guarantee:
    6.1. The selected profile is updated with the new information.
7. Main Success Scenario:
    7.1. User selects an existing profile to update.
    7.2. User modifies information within the profile.
    7.3. User submits the updates.
    7.4. System validates and applies the updates to the profile.
8. Postconditions:
    8.1. The profile reflects the updated information.
9. Extensions:
    9.1. If the system encounters an error while updating, it notifies the user and logs the incident.
10. Special Requirements: None.
11. Technology & Data Variation List:
    11.1. Web and mobile interfaces.
12. Frequency of Occurrence:
    12.1. Frequently, as users' personal or medical situations change.
13. Open Issues/Miscellaneous: None

Use Case Name: Generating Vaccination Schedules

1. Scope: Automatically generating personalized vaccination schedules for users based on WHO guidelines.
2. Level: User-goal level
3. Primary Actors: System, User
4. Stakeholders and Interests:
    4.1. User: Wants to receive accurate and timely vaccination schedules for themselves and family members.
5. Pre-Conditions:
    5.1. User has created a profile with accurate birth date information.
6. Success Guarantee:
    6.1. User receives a customized vaccination schedule based on WHO guidelines.
7. Main Success Scenario:

7.1. System calculates the vaccination schedule using the birth date from the profile and WHO guidelines.
7.2. System displays the schedule and sets up automatic reminders.
7.3. User views the vaccination schedule and receives reminders.

8. Postconditions:
8.1. User is informed of upcoming vaccinations and receives timely reminders.
9. Extensions:
9.1. If WHO guidelines update, the system recalculates schedules accordingly.
10. Special Requirements:
10.1. Integration with WHO guidelines database.
11. Technology & Data Variation List:
11.1. Real-time data fetching and processing.
12. Frequency of Occurrence:
12.1. Whenever a user creates a new profile or WHO guidelines change.
13. Open Issues/Miscellaneous:
13.1. Handling of global variations in vaccination schedules.

Use Case Name: Scheduling and Tracking Health Check-ups

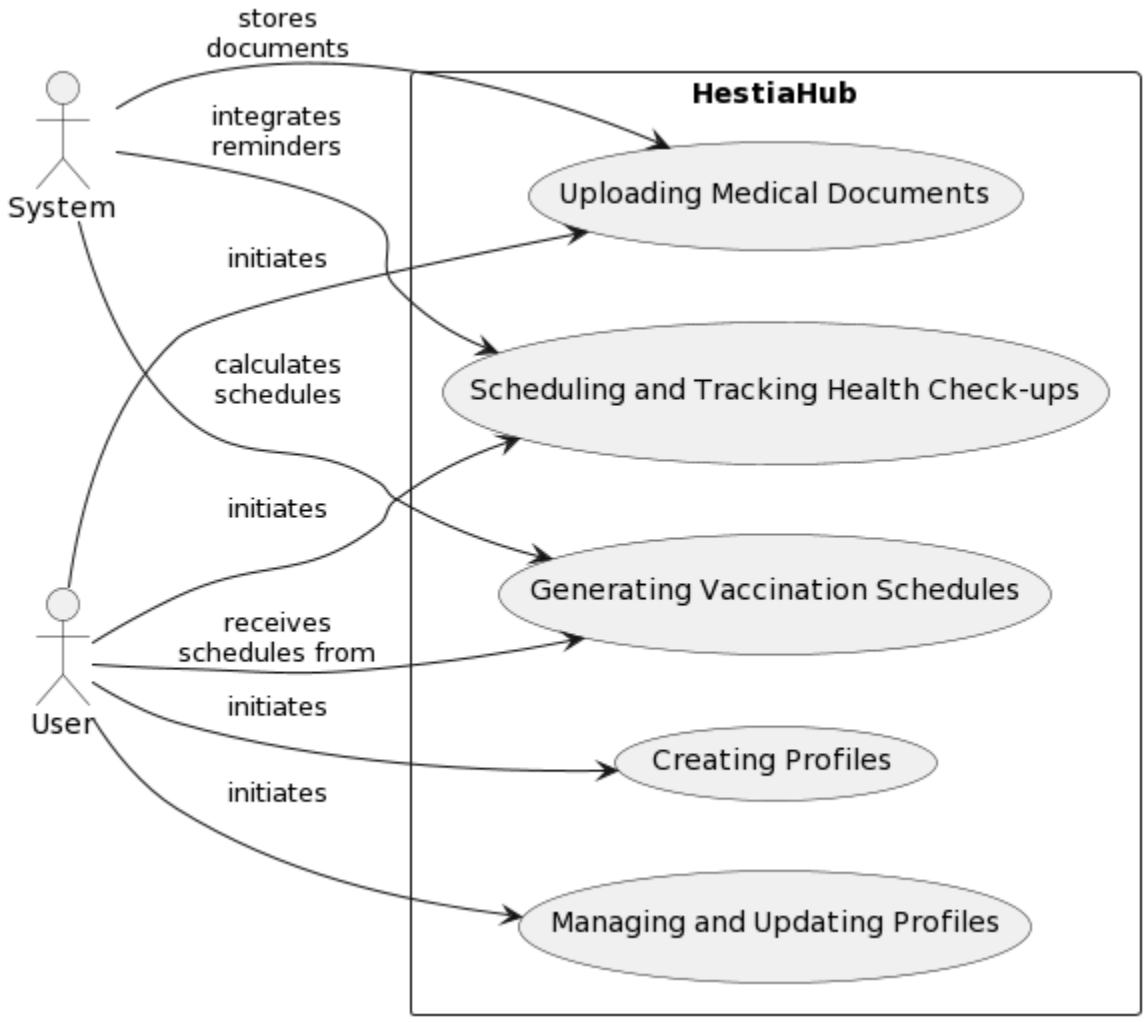
1. Scope: To facilitate the scheduling of health check-ups and integrate reminders into users' calendars.
2. Level: User-goal level
3. Primary Actors: User
4. Stakeholders and Interests:
4.1. User: Needs to schedule and be reminded of health check-ups.
5. Pre-Conditions:
5.1. User is logged in with at least one profile created.
6. Success Guarantee:
6.1. Health check-up is scheduled, and reminders are integrated into the user's calendar.
7. Main Success Scenario:
7.1. User chooses to schedule a health check-up.
7.2. User selects a profile, check-up type, and schedules a date and time.
7.3. System confirms the scheduling and integrates reminders.
8. Postconditions:
8.1. User has a health check-up scheduled with reminders set.
9. Extensions:
9.1. If the schedule needs to be updated, the system informs the user and suggests manual follow-up.

10. Special Requirements:
    10.1. Calendar integration for reminders.
11. Technology & Data Variation List:
    11.1. Varies by healthcare provider's system interface.
12. Frequency of Occurrence:
    12.1. As needed by the user.
13. Open Issues/Miscellaneous:
    13.1. Compatibility with various healthcare providers' systems.

Use Case Name: Uploading Medical Documents

1. Scope: To enable users to upload and manage medical documents within their profiles.
2. Level: User-goal level
3. Primary Actors: User
4. Stakeholders and Interests:
    4.1. User: Wants an organized way to store and access medical documents.
5. Pre-Conditions:
    5.1. User is logged in with at least one profile created.
6. Success Guarantee:
    6.1. Medical documents are uploaded and accessible within the selected profile.
7. Main Success Scenario:
    7.1. User selects a profile to add a document to.
    7.2. User uploads a document in a supported format and under the file size limit.
    7.3. System stores the document in the profile.
8. Postconditions:
    8.1. The document is available for management and organization within the profile.
9. Extensions:
    9.1. If the file exceeds the size limit, the system prompts the user to reduce the file size.
10. Special Requirements:
    10.1. Support for multiple file formats and size limitations.
11. Technology & Data Variation List:
    11.1. Web and mobile upload capabilities.
12. Frequency of Occurrence:
    12.1. Regularly, as users receive new medical documents.
13. Open Issues/Miscellaneous:
    13.1. Expansion of supported file formats and sizes.

Section 7: Use Case Diagram



Section 8: Domain Model Diagram