| **UC Name** | ***UC01-.*Medical File/Personal File** |
| --- | --- |
| Summary | * + The system should securely store comprehensive electronic health records for each patient, including medical history, allergies,vital sign tracer , allergy list , lab result , radiology report ,health calculator , my tracer , medications,vaccines,medicine prescription ,monthly reports , sick leaves and treatment plans. It should allow authorized healthcare providers to update the patients information after every new data recorded in real time   + The system must collect and store users' personal information, including name, surname, gender, profile picture, phone number, nationality and birthday, at the beginning of interaction for identification and customization purposes. |
| Dependency | *Lab Results Management:Lab test results should be stored in the medical file for reference by healthcare providers and patients. These results help in tracking health conditions and monitoring treatment effectiveness.*  *Medicine Prescription:Prescription records, including medication details and dosage instructions, should be recorded in the medical file. This ensures accurate medication management and avoids potential drug interactions or allergies.*  *My Family:The personal file include information about family members, such as dependent profiles, emergency contacts, and caregiver permissions. This information is essential for managing family health-related matters and ensuring appropriate access controls.*  *My Vaccines List:Vaccination records should be stored in the medical file, providing a comprehensive history of received vaccinations, including dates, types, and administering healthcare providers. This information aids in assessing vaccination status and recommending appropriate immunizations.*  *User Authentication and Authorization:Access to the personal file should be securely managed through authentication mechanisms and role-based access controls, ensuring that only authorized individuals can view or modify sensitive health information*  *Allergy list - including allergies information for the patient*  *My tracer - This feature empowers patients to monitor their health metrics or conditions over time. Users select specific parameters like blood pressure, weight, or exercise habits to track regularly.*  *Radiology report - View all test result*  *Health calculator- feature provides users with tools to assess various aspects of their health and well-being.*  *Vital sign tracer-enables users to monitor and track key physiological parameters crucial for assessing overall health.*  *Health summary report* |
| Actors | ***Patient (primary Actor)***  *healthcare providers* |
| Preconditions | * ***Patient Identification:*** *Patients must be properly identified and registered within the system before their electronic health records can be securely stored. This may involve collecting and verifying personal information such as name, surname, gender, and other identifying details.* * ***Availability of System Resources****: The system must have sufficient resources, such as storage capacity and processing power, to securely store and manage electronic health records for each patient. Adequate backup and recovery mechanisms should also be in place to prevent data loss and ensure system availability.* * ***User Authentication and Authorization:*** *Before accessing or updating patient records, healthcare providers must authenticate themselves through the system using valid credentials. They must also have appropriate permissions and authorization to view and modify patient information.* * ***Data Integrity and Security Measures:*** *The system must have robust security measures in place to ensure the confidentiality, integrity, and availability of patient records.* |
| Description of the Main Sequence | * *1.Logging In: The patient logs in to the patient portal using their credentials, such as a username and password, or through other authentication methods such as biometric authentication (e.g., fingerprint or face recognition).* * *2.Navigating to Personal Information: Once logged in, the patient navigates to the section of the patient portal where they can view and manage their personal information.* * *3.Viewing Personal Information: The system displays the patient's personal information, including their name, surname, gender, date of birth, contact information (phone number, email address), nationality, and profile picture.* * *4.Reviewing Health Information: The patient also has access to their comprehensive electronic health records (EHR) through the patient portal. They can view their medical history, allergies, medications, eye measurements, vaccines, and any past doctor-patient chats.* * *5.Reviewing Treatment Plans and Reports: Additionally, the patient can review any treatment plans, monthly reports, sick leaves, and appointment timelines associated with their healthcare.* |
| Description of the Alternative Sequence | *None* |
| Non functional requirements | ***Performance:***   * *The system should have low latency and high availability to ensure healthcare providers can access patient records and personal information quickly and reliably.* * *Real-time updates to patient information should occur within an acceptable timeframe to ensure healthcare providers have access to the latest data when making medical decisions.* * *The system should be able to handle concurrent access from multiple healthcare providers without significant degradation in performance.*   ***Reliability:***   * *The system must be highly reliable, with minimal downtime and data loss, to ensure continuous availability of patient records and personal information.* * *Data backups should be performed regularly to prevent data loss in case of system failures or disasters.*   ***Usability:***   * *The user interface should be intuitive and user-friendly, with clear navigation and easy access to patient records and personal information.* * *Healthcare providers should be able to quickly locate and retrieve patient information without extensive training or technical expertise.* * *The system should provide prompts or reminders to healthcare providers for updating patient information in real-time to ensure completeness and accuracy of records.?*   ***Compliance:***   * *The system must comply with relevant healthcare regulations and standards, to ensure the privacy and security of patient records and personal information.* * *Patient consent should be obtained for collecting and storing personal information, and appropriate measures should be taken to protect patient privacy and confidentiality.* * *The system should undergo regular security assessments and audits to ensure compliance with regulatory requirements and industry best practices.*   ***Security:***   * *The system must implement encryption mechanisms to ensure the confidentiality of stored electronic health records and personal information.* * *Access to patient records and personal information should be restricted to authorized healthcare providers only, with appropriate authentication and authorization mechanisms in place.* |
| Postconditions | ***1.Secure Storage of Electronic Health Records (EHR):***  *After the system securely stores comprehensive electronic health records for each patient, the postcondition is that all patient data, including medical history, allergies, medications, insurance card information, eye measurements, vaccines, medicine prescriptions, past doctor-patient chats, monthly reports, sick leaves, appointment timeline, and treatment plans, are accurately stored and accessible within the system.*  ***2.Authorized Healthcare Providers Update Patient Information in Real-Time:***  *After authorized healthcare providers update patient information in real-time, the postcondition is that the patient's electronic health records are immediately updated with the new data. This ensures that all healthcare providers have access to the most up-to-date patient information when making medical decisions or providing treatment.*  ***3.Collection and Storage of Users' Personal Information:***  *After the system collects and stores users' personal information, including name, surname, gender, profile picture, phone number, nationality, and birthday, at the beginning of interaction, the postcondition is that this information is securely stored and associated with the respective user accounts. This allows for identification and customization purposes throughout the user's interaction with the system.* |

| **UC Name** | **UC02 - Blood Donation Management** |
| --- | --- |
| Summary | The system should manage the end-to-end process of blood donation campaigns in specific given cities,also including donor recruitment, eligibility screening . It responds to patient needs. |
| Dependency | *Appointment Scheduling:*  *Integration with appointment scheduling to allocate time slots for blood donation sessions and manage donor appointments efficiently.*  *Lab Results Management:*  *Compatibility testing of donated blood with recipient blood types requires coordination with laboratory services. Lab results regarding blood compatibility should be accessible within the blood donation management system.*  *Medicine Prescription:*  *Blood donors may require specific medications or dietary supplements before or after donation to ensure their well-being.*  *User Authentication and Authorization:*  *Access controls should be implemented to manage permissions for blood donation staff, ensuring that only authorized personnel can manage donor recruitment, eligibility screening, and blood availability updates*  *My Vaccines List:*  *Donor eligibility screening may involve checking vaccination records to ensure compliance with donor health requirements, such as immunity status for infectious diseases.*  *Healthy Summary Report & Medical File: Generating health summary reports may depend on the availability and accuracy of data stored in the patient's medical file, including recent visits, test results, and treatments.* |
| Actors | ***Patients/Donors (Primary Actor)***  *Healthcare Professionals*  *Laboratory Personnel*  *Ambulance Services/Emergency Responders?* |
| Preconditions | ***User Registration-****Patients, donors, healthcare professionals, and administrators must complete the registration process within the app*  ***Database Population****-The app's database must be populated with relevant data, including patient records, donor information, blood inventory, and healthcare professional profiles.*  *This information ensures that users can access accurate data when utilizing the blood donation feature.*  ***Healthcare Provider Authorization****-Healthcare professionals must be authorized to access patient records, manage blood transfusions, and coordinate blood donation activities within the app.* |
| Description of the Main Sequence | ***1.User Authentication and Login-****The sequence begins when users, such as patients, donors, healthcare professionals, or administrators, access the patient management app.*  *Users are prompted to authenticate themselves by providing their credentials (username and password) or using biometric authentication methods if available.*  *Upon successful authentication, users are logged into the app and directed to the appropriate dashboard based on their role.*  ***2.Blood Donation Form Submission***  *Once logged in, the patient navigates to the blood donation feature within the app.*  *The patient fills out a form providing essential information for blood donation, including their blood type, any existing medical conditions, history of tattoos or recent surgeries, and other pertinent details*  ***3.Hospital Approval and Notification***  *The submitted request is received by the hospital or blood donation center staff for review.*  *Hospital personnel assess the patient's eligibility based on the provided information and blood donation guidelines.*  *Upon approval of the donation request, the hospital notifies the patient through the app, indicating that their request has been approved and providing further instructions for donation.*  ***4.Donor Appointment Scheduling***  *Upon receiving the approval notification, the patient can schedule a donation appointment through the app.*  *The app presents available donation slots based on the hospital's schedule and the patient's preferences.*  *The patient selects a convenient appointment time and confirms the donation appointment.*  ***5.Blood Donation Process(NOT PART OF APP)***  *On the scheduled donation date and time, the patient arrives at the designated blood donation center within the hospital.*  *Hospital staff guide the patient through the blood donation process, ensuring their comfort and safety throughout.*  *The patient undergoes the blood donation procedure, which typically involves a health screening, blood collection, and post-donation refreshments.*  ***6.Post-Donation Care and Follow-Up***  *After donating blood, the patient receives post-donation care instructions and advice from healthcare professionals.*  *The patient's donation status is updated in the app's database, indicating the successful completion of the donation process.*  *The patient may receive follow-up notifications or reminders for future donation opportunities or health checks, as applicable.* |
| Description of the Alternative Sequence | 1-4 are the same steps as provided in the main sequence.  **4.Initial Donation Request Denial-**After the patient submits the blood donation form and request to the hospital, the hospital staff review the request.  The hospital determines that the patient's current health condition or medical history does not meet the eligibility criteria for blood donation.  The hospital denies the patient's donation request and provides a reason for the denial, which may include factors such as recent illnesses, medication usage, or travel history.  **5.Notification of Donation Request Denial:**  The patient receives a notification through the app indicating that their donation request has been denied by the hospital.  The notification includes details regarding the reason for the denial and any additional instructions or recommendations provided by the hospital.  **6.Appeal Process Initiation**  Upon receiving the denial notification, the patient has the option to initiate an appeal process if they believe the denial was issued in error or if their circumstances have changed since the initial request.  The patient can indicate their intention to appeal the decision through the app, providing any relevant additional information or documentation to support their case.  **7.Hospital Review of Appeal(NOT SHOWED IN THE APP)**  The hospital reviews the patient's appeal, considering any new information provided and reassessing the patient's eligibility for blood donation.  Hospital staff may conduct further assessments or consultations with healthcare providers to make a final determination regarding the appeal.  **8.Appeal Outcome Notification**  After reviewing the appeal, the hospital notifies the patient of the outcome through the app.  If the appeal is successful and the patient's eligibility for donation is confirmed, the hospital provides instructions for scheduling a donation appointment.  Alternatively, if the appeal is denied, the hospital communicates the decision to the patient along with any additional explanations or recommendations. |
| Non functional requirements | ***Performance***   * *The app should respond to user interactions within two seconds under normal operating conditions.* * *The system should support concurrent user interactions without significant degradation in performance.* * *Blood donation appointment scheduling should be completed within three minutes of initiation.*   ***Reliability***   * *The system should have a minimum uptime of 99.9% to ensure availability for users.* * *Data integrity should be maintained at all times, with backup and recovery mechanisms in place to prevent data loss.* * *The app should handle errors gracefully, providing informative error messages and logging issues for analysis.*   ***Security***   * *User authentication should follow industry-standard protocols, to ensure secure access to the app.* * *Personally identifiable information and medical data should be encrypted both in transit and at rest to prevent unauthorized access.* * *Role-based access control should be implemented to restrict access to sensitive features and data based on user roles.*   ***Scalability***   * *The system should be able to handle a growing user base and increasing data volume without a significant decrease in performance.* * *Load balancing mechanisms should be implemented to distribute incoming traffic evenly across multiple servers or instances.* * *The app's architecture should be designed to scale horizontally and vertically as needed to accommodate future growth.*   ***Usability***   * *The user interface should be intuitive and user-friendly, requiring minimal training for users to navigate and perform tasks.* * *Accessibility features should be implemented to ensure that users with disabilities can effectively use the app.* * *The app should support multiple languages to cater to users from diverse linguistic backgrounds.* |
| Postconditions | ***Donation Request Approval***   * *After a patient submits a donation request, the postcondition is that the request is either approved or denied by the hospital.* * *If approved, the patient receives notification of approval and can proceed with scheduling a donation appointment.* * *If denied, the patient receives notification of denial along with any relevant explanations or recommendations for further action.*   ***Appointment Scheduled***   * *After a patient successfully schedules a blood donation appointment, the postcondition is that the appointment is recorded in the system.* * *The appointment details, including date, time, location, and donor information, are stored in the database for future reference.* * *The patient and relevant healthcare personnel are notified of the scheduled appointment.*   ***Blood Donation Process Completion***   * *After a donor completes the blood donation process, the postcondition is that the donated blood is collected, labeled, and stored appropriately.* * *Donor information, including donation history and any post-donation instructions, is updated in the system.* * *The donor receives acknowledgment of their donation and any necessary post-donation care instructions.*   ***Post-Transfusion Follow-Up***   * *After the transfusion process is completed, the postcondition is that the patient's health status is monitored and documented.* * *Any adverse reactions or complications during or after the transfusion are recorded in the patient's medical records.* * *The patient receives post-transfusion care instructions and may be scheduled for follow-up appointments as needed.* |

| **UC Name** | **UC03 - Lab Results Management** |
| --- | --- |
| Summary | The system should facilitate the ordering, tracking, and interpretation of laboratory tests, ensuring timely delivery of results to patients.Using the lab result option we are able to get information about the doctor name , the clinic , general results (its description , values and range) and also special results. |
| Dependency | ***Medical File-****The interpretation and tracking of lab results rely on the patient's medical history, including past test results, medications, and allergies stored in the medical file.*  ***Emergency Services Integration****- In emergency situations, certain lab tests may be prioritized. The integration with emergency services ensures that urgent test requests are processed promptly and results are delivered quickly to aid in patient care.*  ***User Authentication and Authorization-*** *Access to lab test results needs to be securely managed through authentication and authorization mechanisms to ensure that only authorized individuals, such as healthcare providers and patients, can view sensitive health information.* |
| Actors | ***Patients***  *Healthcare Providers*  *Administrative Staff- Administrative staff members may be involved in scheduling appointments, managing test orders, and coordinating the delivery of lab results to patients.* |
| Preconditions | *Lab Test Order Placed: A healthcare provider has previously placed an order for lab tests for the patient.*  *Results Available in the App: Once the testing process is completed, the results must be made available within the patient-facing app. This ensures that patients can access their lab test results through the Lab Results Management feature.* |
| Description of the Main Sequence | ***1.Patient Accesses the App:*** *The main sequence begins when the patient accesses the healthcare app on their device.*  ***2.Lab Results Management Selection*** *Once logged in, the patient navigates to the Lab Results Management section of the app, where they can view their lab test results.*  ***3.View Available Results:*** *The patient sees a list of available lab test results.*  ***4.Select Result for Viewing:*** *The patient selects a specific lab test result from the list to view more details.*  ***5.Option to Download or Share Results:*** *The patient may have the option to download or share the lab test result from within the app, allowing them to keep a copy for their records or share it with their healthcare provider if needed.*  ***6.Return to Results List or Log Out:*** *After reviewing the selected lab test result, the patient can choose to return to the list of available results to view additional tests or log out of the app.* |
| Description of the Alternative Sequence | None |
| Non functional requirements | *Performance*  *-The system should respond to user requests for lab results within 5 seconds to ensure a satisfactory user experience.*  *-The system should be able to handle concurrent requests from multiple users without significant degradation in performance.*  *Security*  *-Lab test results must be stored and transmitted securely to protect patient confidentiality and comply with healthcare regulations*  *-Access to lab results should be restricted to authorized users only, with appropriate authentication and authorization mechanisms in place.*  *Reliability:*  *-The system should have a high level of reliability, ensuring that lab results are consistently available and accurate.*  *-The system should have backup mechanisms in place to prevent data loss in case of system failures or disruptions.*  *Usability:*  *-The user interface should be intuitive and easy to navigate, ensuring that patients can easily access and interpret their lab results without requiring extensive training.* |
| Postconditions | ***Lab Test Results Displayed-*** *After accessing the Lab Results Management feature, the patient can view the relevant lab test results within the application.*  *N****o Data Loss-*** *The system ensures that there is no loss of data or changes to the lab test results during the viewing process.* |

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| **UC Name** | ***UC04 -*  Sick Leave Management:** |
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| Summary | The system should provide an option for sick leave requests and approvals for patients . Each sick leave should contain the doctor , the clinic , the date and the reason of patient absence request . |
| Dependency | *Appointment Scheduling: The availability of doctors and clinics for sick leave approvals depends on the appointment scheduling system. If a patient needs a sick leave approval, they may need to consult with their doctor, which requires availability within the scheduling system.*  *User Authentication and Authorization :Access to the sick leave request and approval feature must be controlled based on user roles and permissions. Only authorized users, such as patients, doctors, or administrative staff, should be able to initiate or approve sick leave requests.*  *Medical File: The reason for the patient's absence, as well as any relevant medical history or conditions, may need to be referenced from the patient's medical file when requesting a sick leave. Additionally, details of the approved sick leave may need to be recorded in the patient's medical record.* |
| Actors | ***Patients (Primary Actor)***  *Doctors/Healthcare Providers*  *Staff* |
| Preconditions | *User Authentication and Authorization-Users, including patients and healthcare providers, must be authenticated and authorized to access the system and submit/approve sick leave requests. This ensures that only authorized individuals can initiate or approve sick leave requests*  *Medical Consultation-The patient may need to consult with a healthcare provider to assess their condition and determine the necessity of taking sick leave. This may involve visiting a doctor's office or consulting remotely through telemedicine services.* |
| Description of the Main Sequence | ***1.Patient Initiates Sick Leave Request****: The main sequence begins when a patient, experiencing illness or medical reasons preventing them from attending an appointment or fulfilling work obligations, initiates a sick leave request through the system.*  ***2.Submission of Request Details:****The patient provides necessary details for the sick leave request, including the date(s) of absence, reason for the request, and any supporting documentation or justification required.*  ***3.Routing to Healthcare Provider:*** *The system routes the request to the designated healthcare provider responsible for approving sick leave requests, typically the patient's attending physician or primary care provider.*  ***4.Healthcare Provider Review:****The healthcare provider reviews the sick leave request, evaluates the patient's condition, and determines the validity of the absence based on medical grounds. They may consult the patient's medical history or conduct a telemedicine consultation if necessary.*  ***5.Approval or Rejection:****Based on their assessment, the healthcare provider approves or rejects the sick leave request within the system. If approved, they may specify the duration of the sick leave and any additional instructions for the patient.*  ***6.Notification to Patient:****The system notifies the patient of the status of their sick leave request, informing them whether it has been approved or rejected. If approved, the notification may include details such as the approved duration of absence and any instructions provided by the healthcare provider.*  ***7.Documentation and Recordkeeping:****The system records the details of the approved sick leave request, including the doctor's name, clinic, date(s) of absence, reason for the request, and any supporting documentation provided. This information is stored securely for reference and audit purposes.*  ***8.Update of Patient Records:****The approved sick leave request is updated in the patient's medical records within the system, ensuring that all relevant healthcare providers and administrative staff have access to accurate information regarding the patient's absence.* |
| Description of the Alternative Sequence | *In case of rejection steps from 1-6 are the same and steps 7 and 8 will be omitted* |
| Non functional requirements | *-Performance:-The system should process sick leave requests efficiently, with minimal delay, ensuring prompt responses to patient submissions.*  *-Response time for sick leave request approvals or denials should be within a reasonable timeframe to avoid unnecessary delays for patients and employees.*  *-Reliability:-The system should be reliable, with minimal downtime and robust error handling mechanisms in place to ensure continuous availability for submitting and processing sick leave requests.*  *-Sick leave request data should be accurately recorded and securely stored to prevent data loss or corruption.*  *Security:-Sick leave request data must be protected to ensure confidentiality and integrity. Access controls should be implemented to restrict unauthorized access to patient information.*  *Usability:-The system should have an intuitive user interface, making it easy for patients and healthcare providers to submit, review, and process sick leave requests.* |
| Postconditions | ***Sick Leave Request Status Updated:****The status of the sick leave request is updated in the system to reflect whether it has been approved, denied, or is pending review.*  ***Patient Informed:****The patient is informed of the decision regarding their sick leave request, providing clarity on their absence status and any next steps required.* |

| **UC Name** | **UC05 - My Family** |
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| Summary | The system should enable patients to manage health-related information for their family members, including dependent profiles, emergency contacts, and caregiver permissions.  It should support access controls, allowing designated individuals to view and manage health records on behalf of family members with appropriate consent. |
| Dependency | *User Authentication and Authorization-The "My Family" feature relies on user authentication and authorization mechanisms established in the system. This ensures that only authorized users can access and manage health-related information for their family members.*  *Medical File-The "My Family" feature depend on the existence of comprehensive electronic health records for family members, as captured in the Medical File use case. This includes medical history, allergies, medications, and other relevant health information.*  *Emergency Services Integration-In case of emergency, the "My Family" feature depend on integration with emergency services to ensure that designated emergency contacts are notified and provided with necessary health-related information about family members requiring assistance.*  *Medicine Prescription-The "My Family" feature rely on electronic prescription functionalities to enable primary users to request and manage medication prescriptions for family members within the system*  *Healthy Summary Report-The "My Family" feature depend on the generation and distribution of health summary reports for family members, as provided in the Healthy Summary Report use case, to keep primary users informed about the health status of their family members.* |
| Actors | *Patient*  ***Family Member (Primary Actor)***  *Healthcare Providers*  *System Administrator* |
| Preconditions | ***User Authentication-****The primary user must be authenticated and logged into the healthcare system to access the "My Family" feature. This ensures that only authorized individuals can manage health-related information for their family members.*  ***Existing Patient Profile-****The primary user must have an existing patient profile within the system. This profile serves as the basis for managing health-related information for both the primary user and their family members.*  ***Consent from Family Members-****The primary user must have consent from their family members to manage their health-related information within the system. This may involve obtaining explicit permission or consent from family members to access and manage their health records.*  *.* |
| Description of the Main Sequence | ***1.Family Member Management:***  *-The primary user selects the option to manage family members' health-related information.*  *-They have the option to add new family members by providing their demographic details, medical history, allergies, medications, and other pertinent health information.*  *-Alternatively, they can select existing family members from a list if previously added.*  ***2.Emergency Contacts Designation:***  *-The primary user designates emergency contacts for each family member by providing their contact information and specifying their role as emergency contacts.*  *-They may designate multiple emergency contacts for each family member, prioritizing them based on preference or proximity.*  ***3.Caregiver Permissions Assignment:***  *-The primary user assigns caregiver permissions to designated individuals, allowing them to access and manage health records on behalf of family members.*  *-Caregivers may include other family members, healthcare professionals, or designated caregivers responsible for providing care and support.*  ***4.Access and Management:***  *-With the family member profiles updated, the primary user and authorized caregivers can now access and manage health-related information for family members within the system.*  *-This includes viewing health records, scheduling appointments, requesting medication refills, and communicating with healthcare providers on behalf of family members.* |
| Description of the Alternative Sequence | None |
| Non functional requirements | ***Performance:***  *Response Time: The system should respond to user actions within 5 sec, ensuring quick navigation and data retrieval within the "My Family" feature.*  *Scalability: The system should scale seamlessly to accommodate a growing number of users and family members without degradation in performance.*  ***Reliability:***  *Availability: The "My Family" feature should be available 24/7, with minimal downtime for maintenance or upgrades.*  ***Security:***  *Access Control: The feature should enforce role-based access control , ensuring that only authorized users can access and manage health-related information for family members.*  ***Usability:***  *User Interface: The user interface of the "My Family" feature should be intuitive and user-friendly, allowing primary users to easily navigate and manage health-related information for family members.* |
| Postconditions | ***Updated Family Member Profiles:****After making changes or updates to family member profiles, the system should reflect the updated information, including demographic details, medical history, allergies, medications, emergency contacts, and caregiver permissions.*  ***Confirmation Messages:****Upon successfully submitting changes to family member profiles, the system should display confirmation messages or notifications to inform users that the updates have been saved.*  ***Ongoing Maintenance Enabled:****The system should support ongoing maintenance and updates to family member profiles, allowing users to make further changes or adjustments as needed to ensure the accuracy and completeness of health-related information.* |

| **UC Name** | ***UC -06*  Allergies list** |
| --- | --- |
| Summary | The system should provide a list of all allergy tests made for the patients a as that are manually imputed by the health care provider  The system should also give a list of all the positive test results that the user received from the allergy list |
| Dependency | ***Medicine Prescription:***  *Healthcare providers may need to consider a patient's vaccination history when prescribing medications, especially if certain medications interact with vaccines or if vaccination status influences treatment decisions.*  ***Emergency Services Integration:***  *Dependency: There may not be a direct dependency, but in emergency situations, healthcare providers may need access to a patient's vaccination history stored in the "Vaccine List" to inform treatment decisions or assess potential risks, especially if the emergency involves infectious diseases.* |
| Actors | ***Patients (Primary Actor)***  *Healthcare Providers*  *Authorized Personnel* |
| Preconditions | *One or more conditions that must be true at the start of use case, from the perspective of this use case.* |
|  | ***Patient Registration:***  *The patient must be registered within the healthcare system, and their demographic information, including name, date of birth, and contact details, should be accurately recorded.*  ***Access Authorization***  *Users, such as healthcare providers or authorized personnel, must have appropriate access authorization to view and manage vaccination records. Access rights should be configured based on user roles and responsibilities within the healthcare organization.*  ***Data Entry Capability:***  *Healthcare providers or authorized personnel should have the capability to input vaccination data into the system. This may involve access to data entry forms or interfaces specifically designed for recording vaccination details.* |
| Description of the Main Sequence | * ***1.Authentication and Access:****The patient logs into the healthcare system's patient portal or mobile application using their credentials, such as username and password or biometric authentication.* * ***2.Navigating to Vaccine List:****Once logged in, the patient navigates to the section of the patient portal or app where vaccination records are accessible, labeled as "Vaccine List"* * ***3.Viewing Existing Vaccination Records:****The system retrieves and displays existing vaccination records for the patient, presenting details such as vaccine names, administration dates, and any notes provided by healthcare providers.* * ***4.Reviewing Vaccination History:****The patient reviews their vaccination history, examining past vaccinations they have received and noting any upcoming vaccinations recommended by healthcare providers.* * ***5.Navigating Back or Continuing Tasks:****After reviewing their vaccination history, the patient can choose to navigate back to the main menu of the app or continue with other tasks, such as scheduling appointments or accessing medical reports.* |
| Non functional requirements | ***Performance:***  *Response Time: The system should respond promptly to patient requests for accessing and viewing vaccination records, ensuring a seamless user experience.*  ***Reliability:***  *Availability: The system should be available and accessible to patients whenever they need to view their vaccination records, with minimal downtime for maintenance or upgrades.*  ***Security:***  *Access Control: Patient access to vaccination records should be restricted to authorized users only, with robust authentication mechanisms in place to prevent unauthorized access.*  ***Usability:***  *User Interface: The patient interface for accessing vaccination records should be intuitive, user-friendly* |
| Postconditions | ***Updated Vaccine Records:***  *After viewing or making changes to their vaccination records, patients should see the most up-to-date and accurate information reflected in their vaccine list.*  ***Privacy Protection:***  *Patient privacy should be protected throughout the interaction with vaccination records, with measures in place to safeguard sensitive health information and comply with privacy regulations.* |

| **UC Name** | ***UC-07*  Medicine Prescription** |
| --- | --- |
| Summary | Heathcare providers should be able to electronically prescribe medications within the system f.e dosage specification, route , frequency,duration,r |
| Dependency | *user authentication and authorization: in order to have a personalized prescription for each patient and avoid excess drug use.*  *Medical file: to allow the healthcare personal to access the patient's medical file to check if they any health issues may arise when assigning the medications also to be able to add the prescriptions to their file*  *Allergy list: to allow healthcare providers to see if the patient may get any allergies from the medication* |
| Actors | ***healthcare provider (Primary Actors)***  *Patient*  *System admin* |
| Preconditions | * *the health care provider prescribing medication online should be logged in and authenticated* * *The patient must give access must for the healthcare provider medical file to view past medical prescriptions and view any medical history* * *The process should be approved by the legal bodies to abide by regulatory laws and procedures* |
| Description of the Main Sequence | * **Step 1:**  the health care provider logs in * **Step 2:** then they assign the patient a prescription * **Step 3:** the patient receives a notification that their doctor has placed a prescription for them * **Step 4:** the user logs in and authenticates themselves * **Step 5:** the user navigates to the prescription and opens it * **Step 6:** the user can then view all previous prescriptions that they have been assigned including details such as frequency, dosage and any notes * **Step 7:** if the user has any questions or concerns they can contact the healthcare provider virtually |
| Description of the Alternative Sequence | ***None*** |
| Non functional requirements | 1. *Performance: the system should be able to respond fast enough so that the patient can be updated as soon as possible* 2. *Reliability: The system should be highly reliable, since the doctors can prescribe strong medication that can be negative if an error had occurred.* 3. *Security: the system should be very strong and not be accessed by a lot of individuals to protect patient security and avoid tampering with individuals prescriptions* 4. *Scalability: the system should allow multiple users to use thing functionality. Each user should have their own personal prescription records.* 5. *Usability: The interface of the system should be simple and user friendly for the patients* 6. *Maintainability: the system should be written and organized very well to allow easier maintenance required* |
| Postconditions | *The user can show their prescription from their user account and show it to the pharmacist and be able to collect their medication.* |

| **UC Name** | ***UC-08 staff performance evaluation*** |
| --- | --- |
| Summary | * + The system should provide a comprehensive staff performance evaluation module to assess the performance of medical staff.   + The system should facilitate the collection of feedback from patients through surveys, ratings, and comments. |
| Dependency | *Medical file: to see if the patient actually visted the doctor in order to rate him*  *Authentication: the person must authenticate and validate themselves before placing any comment to makesure they haave a file in the system* |
| Actors | *Health care providors*  ***Patients (Primary Actor)***  *Admin staff*  *HR* |
| Preconditions | * *The patient must authenticate themselves to avoid any misconduct or predujjus against healthcare provideors from outside the hospital patian scope* * *The patient must have visted the doctor before given the option to give him an evaluation* |
| Description of the Main Sequence | * **Step 1:** the user will receive a notification asking if they would like to evaluate the doctor or healthcare provider that they have recently visited * **Step 2:** if the user chooses to rate him a menu appears * **Step 3:** inside the menu the patient can choose how many stars out of 5 they would like to present them with * **Step 4:** the patient is then given a textbox to add any comments or thoughts about the doctor they have visited during the stay in the hospital and discribe the reason they have given them such rating |
| Description of the Alternative Sequence | *None* |
| Non functional requirements | 1. *Performance: the system should be able to respond fearly quiiiickly to give the patient the notification inorder for them to rate their doctor visit* 2. *Reliability: The system should be reliable to present the correct doctor to rate not allow patients to rate the doctors that they havent visited* 3. *Security: the system should be fearly secure inorder to not allow just anyone to rate all the doctors in the system* 4. *Scalability: the system should be able to collect reviews about the same doctor from multiple patient profiles* 5. *Usability: The interface of the system should be simple and user friendly for the patients in order for them to feel at ease when writing their review* 6. *Maintainability: the system should be written and organized very well to allow easier maintenance required* |
| Postconditions | *The user has rated and commented on the behavior and satisfaction with their healthcare providor* |

| **UC Name** | ***UC - 09 Emergancy service integration*** |
| --- | --- |
| Summary | The system should include features for prioritizing and managing emergency cases such as, requesting an ambulance , integrating with rapid emergency response systems,ED services (a medical treatment facility specializing in emergency medicine, the acute care of patients who present without prior appointment) |
| Dependency | *Appointment scheduling*  *Home healthcare coordination* |
| Actors | *ER personel*  *Healthcare providers*  *Emergency response teams*  ***Patients (Primary Actors)*** |
| Preconditions | * *The person requesting the ambulance should have a high priority request level before ordering* * *They should have a medical file inside the hospital system* |
| Description of the Main Sequence | * **Step 1:** the patient chooes which ambulance they would like request * **Step 2:** the patient must specy the need of an ambulance * **Step 3:** the patient needs to specify if they only need an ambulance for transportation, if they need it for normal treatment, or if they requare special ambulance fro intense care/disability clients * **Step 4:** a notification is sent to the healthcare prodirs about the requested details * **Step 5:** a notification is received by the patient to confirm the arrival of the ambulance |
| Description of the Alternative Sequence | *None* |
| Non functional requirements | 1. *Performance: the system should be able to respond fast to give the patient the notification so that the ambulace with the healthcare proidors can arrive as soon as possible* 2. *Reliability: The system should be reliable to present the correct doctor to rate not allow patients to order an invalid ambulance* 3. *Security: the system should be fearly secure inorder to not allow just anyone to order and cancel the ambulance requests* 4. *Scalability: the system should be able to allow a fair amount of people to ordar an ambulance* 5. *Usability: The interface of the system should be simple and user friendly for the patients in order for them to feel at ease when requesting an ambulance* 6. *Maintainability: the system should be written and organized very well to allow easier maintenance required* |
| Postconditions | *The patient is then taken to the hospital by the ambulance and healthcare providors* |

| **UC Name** | ***UC - 10 MyVaccinesList*** |
| --- | --- |
| Summary | *The system should maintain a comprehensive record of all vaccinations received by users, including both mandatory vaccinations administered since birth(early life immunizations) and optional vaccinations(prime immunization).* |
| Dependency | * *Dependency on Medical File: It depends on the Medical File system to access and update the vaccination records within the comprehensive electronic health records.* * *Dependency on User Authentication and Authorization: The system requires user authentication and authorization to ensure that only authorized users can access and update vaccination records securely.* |
| Actors | ***User (primary Actor)*** |
| Preconditions | *Users must have an account on the system.* |
| Description of the Main Sequence | 1. User logs into the system.  2. User navigates to the "My Vaccines List" section.  3. The system displays a list of all vaccinations received by the user, including dates of administration, vaccine types, and administering healthcare providers. |
| Description of the Alternative Sequence | ● *None* |
| Non functional requirements | 1. *Performance: The system should display vaccine records quickly, even with large datasets.* 2. *Scalability: The system should be able to handle increasing numbers of vaccine records without performance degradation.* 3. *Reliability: The system should maintain accurate and up-to-date vaccine records.* 4. *Security: User authentication and authorization mechanisms should ensure that only authorized users can access vaccination records.* 5. *Usability: The user interface should be intuitive and easy to navigate for viewing vaccination records.* 6. *Maintainability: The system should be modularized and well-documented for ease of maintenance.* |
| Postconditions | *User has viewed their complete vaccination history within the system.* |

| **UC Name** | ***UC -11 RadiologyResult*** |
| --- | --- |
| Summary | *The system should provide users with access to view and manage radiology reports and associated images, facilitating efficient retrieval and interpretation of diagnostic information.* |
| Dependency | * *Dependency on Medical File: So it can access relevant patient information, such as medical history and previous diagnostic procedures.* * *Dependency on User Authentication and Authorization: To ensure the confidentiality of radiology reports and patient information.* |
| Actors | ***User (Primary Actor)***  *Secondary Actor: Radiologists (who interpret radiology reports and may interact with the system)* |
| Preconditions | *Users must have an account on the system.* |
| Description of the Main Sequence | *1. User logs into the system.*  *2. User navigates to the "Radiology Result" section.*  *3. The system displays a list of radiology reports, including essential details such as date, type of procedure, and interpreting radiologist's name.*  *4. User selects a report to view.*  *5. The system displays the report summary and associated images for interpretation.* |
| Description of the Alternative Sequence | ● *None* |
| Non functional requirements | 1. *Performance: The system should display radiology reports and images quickly, even with large datasets.* 2. *Scalability: The system should be able to handle increasing numbers of radiology reports without performance degradation.* 3. *Reliability: The system should maintain accurate and up-to-date radiology reports.* 4. *Security: User authentication and authorization mechanisms should ensure that only authorized users can access radiology reports.* 5. *Usability: The user interface should be intuitive and easy to navigate for viewing radiology reports.* 6. *Maintainability: The system should be modularized and well-documented for ease of maintenance.* |
| Postconditions | *User has viewed radiology reports and associated images for diagnostic purposes.* |

| **UC Name** | ***UC -12 Healthy Summary Report*** |
| --- | --- |
| Summary | *This use case allows patients to access a monthly report summarizing their health indicators and analysis results from their latest visits, through the app.* |
| Dependency | *This use case depends on the app being linked to the patient management system and having access to a patient's medical file..*   * *Dependency on Medical File: So it can access relevant patient information, such as medical history and previous diagnostic procedures.* |
| Actors | *Primary Actor: Patient* |
| Preconditions | *1.The patient has a registered account within the app and is logged in.*  *2.The patient has at least one visit recorded in the hospital management system within the past month.* |
| Description of the Main Sequence | *1.The patient opens the app and navigates to the "Health Reports" section.*  *2.The app displays a list of available reports, including an option for "Monthly Health Summary."*  *3.The patient selects "Monthly Health Summary."*  *4.The app retrieves and displays a report for the current month, including:*  *5.Demographics (name, date of birth)*  *6.Summary of vital signs for the past month (e.g., average blood pressure, heart rate) (if recorded during visits)*  *7,List of diagnoses from recent visits*  *8,Overview of key lab test results (e.g., cholesterol, blood sugar) (if available)*  *9.The patient can review the report and:*  *10.Download a PDF copy of the report for their records.*  *11.View detailed information about specific other months by tapping on them (if available).* |
| Description of the Alternative Sequence | *If the patient has no visits within the past month, the app displays a message indicating this and allows them to choose a different timeframe for the report (if allowed by the system).* |
| Non functional requirements | 1. *Performance- The report should load quickly and be easy to access within the app.* 2. *Usability-The report format should be clear, concise, and easy to understand for patients.* 3. *Security-The app should ensure data security and patient privacy according to regulations.* 4. *Reliability-The app should be designed to gracefully handle unexpected errors or interruptions, providing informative error messages to users and minimizing disruptions to their workflow.* 5. *Scalability:-The app should be designed to accommodate an increasing number of users and data volume without experiencing degradation in performance or reliability.* 6. *Maintainability:-The app codebase should be well-organized and documented, following industry best practices and coding standards to facilitate ease of understanding and modification by developers.* |
| Postconditions | *The patient has easy access to a summary of their recent health status.*  *The report empowers patients to be more informed about their health and participate in shared decision-making with their healthcare providers.* |

| **UC Name** | ***UC - 13 My Tracker*** |
| --- | --- |
| Summary | *This use case allows patients to manage their health information through a connected tracker and share it with authorized doctors.* |
| Dependency | * *Dependency on Medical File: So it can access relevant patient information, such as medical history and previous diagnostic procedures.* |
| Actors | ***Patient (Primary Actor)***  *Doctor* |
| Preconditions | * *1.The patient has a registered account on the app.* * *2.The patient has a compatible health tracker connected to their smartphone.* |
| Description of the Main Sequence | 1. *The patient logs in to the app.* 2. *The patient navigates to the "My Tracker" section.* 3. *The app displays the patient's health data retrieved from their connected tracker (if data is available).* 4. *The patient can manually input additional health information (e.g., symptoms, medication intake).* 5. *(Optional) The patient can select a doctor from their healthcare team and grant them access to view their health tracker data.* 6. *The system securely transmits the patient's health data to the app and the doctor's authorized interface (if access is granted).* |
| Description of the Alternative Sequence | 1. *The patient encounters issues connecting their health tracker to the app. The system provides clear instructions or troubleshooting steps to assist the patient.* 2. *The patient chooses not to share their health tracker data with any doctors.* |
| Non functional requirements | ***Security:*** *Patient health data must be encrypted and transmitted securely.*  ***Availability:*** *The app and data transmission should be highly available with minimal downtime.*  ***Performance:*** *The app should load data quickly and respond to user actions promptly.*  ***Usability:*** *The user interface for "My Tracker" should be intuitive and easy to navigate for patients of varying technical abilities.* |
| Postconditions | *The patient has access to their health data through the app.*  *The patient can monitor their health trends and input additional information.*  *(Optional) Authorized doctors can view the patient's health tracker data to gain a more comprehensive understanding of their health.* |

| **UC Name** | **UC14 - Home Healthcare Coordination** |
| --- | --- |
| Summary | The system should facilitate accessibility where doctors for specific services such as (laboratory analyzes - radiology - vaccinations -physical therapy), etc go to a patients house and do the procedures requested by this patient.Also the systems offers track of the order log of these requests . |
| Dependency | Medical file ,Appointment Scheduling,Authentication |
| Actors | Patient  Doctor  hospital Administrators |
| Preconditions | * The patient must have access to the system. * The system must have available doctors registered. * There must be a list of services |
| Description of the Main Sequence | 1.The patient logs in to the Patient Management app.  2. The patient browses the available home healthcare services or searches for a specific service.  3. The patient selects the desired service and chooses a preferred date and time for the visit.  4. The system presents a list of available doctors for the chosen service and time slot.  5. The patient selects a doctor from the list and submits the request  6. The system sends a notification to the chosen doctor about the new home visit  request.  7. The doctor receives the notification and reviews the patient's request details.  8. The doctor can either accept or reject the request within the system.  9. If the doctor accepts:  ◦ The system confirms the appointment with the patient and sends them an  appointment reminder.  The system updates the doctor's schedule and marks the slot as booked.  10. If the doctor rejects:  The system notifies the patient about the rejection and offers options to  reschedule or choose a different doctor.  11. On the appointment date and time, the doctor travels to the patient's home for the visit  12. After the visit, the doctor documents the consultation and any procedures  performed within the system.  13. The system updates the patient's medical record with the doctor's notes |
| Description of the Alternative Sequence | * The patient might not find a suitable doctor or time slot for their request. The system should offer options to search for a different service, date, or time, or allow them to be added to a waiting list if available. * The doctor might need to reschedule the appointment due to unforeseen circumstances. The system should facilitate communication between the doctor and patient to reschedule the visit. * The patient might cancel the appointment beforehand. The system should allow cancellation and update the doctor's schedule accordingly. |
| Non functional requirements | -Security: Patient health information must be protected following data privacy regulations.  -Performance: The system should respond quickly to patient requests and appointment scheduling.  -Usability: The interface for scheduling home visits should be patient-friendly and easy to navigate for patients. |
| Postconditions | 1.The patient receives the requested home healthcare service at their convenience  2.The doctor manages their home visit schedule effectively within the system  A complete record of the home healthcare visit is documented in the patient's medical record. |

| **UC Name** | **UC -15 Appointment Scheduling** |
| --- | --- |
| Summary | This service provides three options : scheduling a consultation call , getting consultation immediately no matter the form, and booking an appointment for check up . The system should allow doctors to view patients' medical files and prescribe them specific medications for their concerns .  If the patient wants a face to face consultation The system should allow patients to schedule appointments with specific healthcare providers in different clinics that the hospital provides , based on their availability and specialization. It should support recurring appointments, appointment reminders, and rescheduling/cancellation functionalities.  If the patient wants online conversation then the system will provide ask your doctor feature.  If the patient wants to book an appointment for check up then the system will provide a check up feature. |
| Dependency | Account |
| Actors | Patient  Healthcare Provider  Staff |
| Preconditions | 1.The patient must have access to the hospital management system.  2.Healthcare providers must have their schedules and availability updated in the system.  3.Clinics must be operational during the scheduling period. |
| Description of the Main Sequence | 1.The patient logs into the hospital management system.  2.The patient selects the "Appointment Scheduling" option.  3.The patient checks which option(online,face to face and check up) does fit his/her need.  4.According to the selection the system will navigate the user to the interface required,if he is an undecided person then by default the system will show him to book an face to face appointment.  5.For that reason the system presents available healthcare providers and their respective clinics.  6.The patient searches for a preferred healthcare provider or clinic.  7.If the patient selects the clinic,then all the doctors available with respective information will appear.  8.The system displays the provider's available time slots.  9.The patient selects a suitable time slot.  10.The staff confirms the appointment and the system sends a notification to both the patient and the healthcare provider.  11.The appointment is added to the system's database.  12.If the patient selects the doctorName,the doctor that is being searched will appear.  13.The system displays the doctor’s available time slots.  14.The patient selects a suitable time slot.  15.The staff confirms the appointment and the system sends a notification to both the patient and the healthcare provider.  16.The appointment is added to the system's database. |
| Description of the Alternative Sequence | -No available appointments match the patient's preference:  1.The system displays alternative options with different providers or dates.  2.The patient can choose an available option or refine their search criteria.  -Patient needs to reschedule or cancel an existing appointment:  1.The system displays a list of the patient's upcoming appointments.  2.Patient selects the appointment they want to modify.  3.The system offers available slots for rescheduling or allows cancellation.  4.Patient confirms the change and receives an updated notification. |
| Non functional requirements | -Performance: The system should respond promptly to appointment scheduling requests to ensure a seamless patient experience.  -Reliability: The system must accurately reflect the availability of healthcare providers and clinics.  -Security: Patient data should be securely stored and transmitted to maintain confidentiality.  -Usability: The interface should be intuitive and easy to navigate for patients scheduling appointments.  -Scalability: The system should be capable of handling a large number of appointment requests during peak times. |
| Postconditions | 1.The appointment is successfully booked, rescheduled, or canceled in the system.  2.The patient receives a confirmation notification with details about the appointment.  3.The healthcare provider's schedule is updated accordingly. |

| **UC Name** | **UC -16 Ask your Doctor** |
| --- | --- |
| Summary | Patients should have a secure option for asking medical questions and seeking advice from their primary care providers or specialists.This service provides three options : scheduling a consultation call , get consultation in chat  , and inquiring information about medications . The system should allow doctors to view patient medical file and prescribe them specific medications for their concerns |
| Dependency | Medical file and Authentication |
| Actors | Patient  Staff  Doctor |
| Preconditions | 1.The patient has a registered account on the hospital management system's mobile app.  2.Doctors must be available for consultation |
| Description of the Main Sequence | 1.The patient logs in to the mobile app.  2.The patient selects the "Ask Your Doctor" option.  3.The system displays a list of the patient's doctors  4.The patient selects the doctor they want to ask a question to.  5.The patient chooses one of three options:  -Schedule a consultation call: The patient selects a date and time for a phone or video call consultation. The system sends an appointment request to the doctor.  -Get consultation immediately: The patient types their question in a secure chat window. The doctor receives a notification and can respond within the chat window if available.  -Inquire information about medications: The patient enters the name of a medication or selects it from a list. The system displays relevant information from the patient's medical record (if prescribed previously) or general information about the medication.  +If scheduling a consultation call:  1.The doctor receives the appointment request and can accept or decline.  2.Upon acceptance, the system confirms the appointment time with both patient and doctor.  +If getting consultation immediately:  1.The doctor can choose to respond to the patient's question within the chat window or suggest scheduling a consultation call for a more detailed discussion.  +If inquiring about medications:  1.The patient can view the provided information. |
| Description of the Alternative Sequence | 1.The doctor may not be available for immediate consultation. The system should inform the patient and offer the option to schedule a call or leave a message. |
| Non functional requirements | -Security: Ensure patient data and communication with doctors are encrypted and secure.  -Reliability: The system should be available 24/7 to accommodate patient inquiries.  -Responsiveness: Prompt responses from doctors to patient inquiries.  -Scalability: Ability to handle multiple concurrent consultations and inquiries. |
| Postconditions | 1.Patient receives medical advice, prescriptions, or scheduled consultation confirmation.  2.Doctor's response and prescriptions are recorded in the patient's medical file for future reference. |

| **UC Name** | **UC -17 Help and Support Integration** |
| --- | --- |
| Summary | The system should offer comprehensive help from technical providers and support resources, including contextual help menus, knowledge base articles, tutorial videos, and patient forums.It should provide multi-channel support options, such as live chat, email ticketing, to address patient inquiries and technical issues promptly. |
| Dependency | none |
| Actors | patient  Technical Providers |
| Preconditions | 1.Support resources such as contextual help menus, knowledge base articles, tutorial videos, and patient forums must be available.  2.Technical providers and support staff must be available to respond to patient inquiries. |
| Description of the Main Sequence | 1.patient accesses the help and support section within the hospital management system.  2.patient selects the type of assistance needed (e.g., technical support, general inquiries).  -If seeking technical support:  a. patient chooses the preferred support channel (e.g., live chat, email ticketing).  b. patient describes the technical issue or inquiry.  c. System assigns the request to available technical providers or support staff.  d. Technical providers or support staff respond to the patient's inquiry or issue through the selected support channel.  -If seeking general inquiries or assistance:  a. patient navigates through contextual help menus or searches for relevant knowledge base articles.  b. If further assistance is needed, patient may access tutorial videos or patient forums for additional guidance. |
| Description of the Alternative Sequence | 1.If live chat support is unavailable due to high demand or off-hours, the system prompts the patient to submit an email ticket, ensuring their inquiry is addressed promptly once support staff becomes available. |
| Non functional requirements | -Availability: The help and support resources should be accessible 24/7 to accommodate patient inquiries.  -Responsiveness: Support staff should respond to patient inquiries promptly, aiming for minimal response times.  -Scalability: The system should be capable of handling multiple patient inquiries simultaneously across different support channels.  -patient-Friendly Interface: Ensure that help menus, knowledge base articles, and support channels are easily navigable and intuitive for patients.a |
| Postconditions | 1.patient receives assistance or resolution to their inquiry or technical issue.  2.Feedback from patient interactions with support resources may be recorded for continuous improvement purposes. |

| **UC Name** | **UC-18 Patient Account:** |
| --- | --- |
| Summary | The system should implement robust authentication mechanisms, such as multi-factor authentication (MFA) and biometric authentication, to verify the identity of patients accessing sensitive data. patients can identify through Face ID , fingerprint , SMS , Whatsapp . |
| Dependency | none |
| Actors | Patient  System administrators |
| Preconditions | 1.Authentication services must be integrated into the system.  2.Biometric verification systems must be available and compatible with the app. |
| Description of the Main Sequence | 1.patient attempts to access the hospital management system through the app.  2.System prompts the patient to authenticate their identity.  3.patient selects the preferred authentication method (e.g., Face ID, fingerprint, SMS, WhatsApp).  -If using biometric authentication:  a. patient provides biometric data (e.g., facial scan, fingerprint).  b. System verifies the biometric data against stored records.  c. If the verification is successful, patient gains access to the system.  -If using MFA:  a. System sends a verification code to the patient via SMS or WhatsApp.  b. patient enters the verification code.  c. If the code is correct, patient gains access to the system.  4.Upon successful authentication, the patient is granted appropriate access permissions based on their role and authorization level. |
| Description of the Alternative Sequence | 1.If biometric authentication fails due to technical issues or patient error, the system prompts the patient to retry or use an alternative authentication method, such as MFA via SMS or WhatsApp.  2.If MFA verification fails due to incorrect code entry or other issues, the system may prompt the patient to request a new verification code or use another authentication method. |
| Non functional requirements | -Security: Ensure that authentication mechanisms are robust and resistant to unauthorized access attempts.  -Reliability: Authentication processes should be reliable and available to patients whenever access to the system is required.  -Usability: Authentication methods should be patient-friendly and intuitive, providing a seamless patient experience.  -Compatibility: Authentication mechanisms should be compatible with a wide range of devices and operating systems. |
| Postconditions | 1.Upon successful authentication, the patient gains access to the hospital management system.  2.Unauthorized access attempts are detected and prevented, ensuring the security of sensitive data. |

| **UC Name** | **UC -19 Health Calculators** |
| --- | --- |
| Summary | The system enables patients to access a suite of health calculators for personalized health insights. Patients can input data like weight, height, age, activity level, and gender (optional) to calculate metrics like BMI, BMR, ideal body weight, body fat percentage |
| Dependency | Authentication |
| Actors | Medical File |
| Preconditions | 1.The patient has an active account on the app. |
| Description of the Main Sequence | 1.The patient logs in to the hospital management system.  2.The patient navigates to the "Health Calculators" section.  3.The system presents a list of available calculators:  -BMI Calculator  -BMR Calculator  -Ideal Body Weight Calculator  -Body Fat Percentage Calculator  -Macronutrient Calculator (Carbs, Protein, Fat)  4.The patient selects the desired calculator.  5.The system displays an input form for relevant data (weight, height, age, activity level, gender for some calculators).  6.The patient enters their information.  7.The system validates the input data (e.g., ensuring weight and height within reasonable ranges).  8.Upon valid input, the system calculates the selected metric and displays the result in a clear, easy-to-understand format.  9.The system may offer additional information or resources related to the calculated metric (e.g., healthy BMI ranges, BMR interpretation, ideal body weight considerations). |
| Description of the Alternative Sequence | 1.If the patient's medical history is unavailable for BMR adjustments, the system may offer an option to enter relevant conditions manually or provide a default BMR calculation. |
| Non functional requirements | -Security: Patient data must be securely stored and transmitted using industry-standard encryption protocols.  Performance: The system should respond promptly to user actions and calculations.  Usability: The user interface should be intuitive and easy to navigate for patients of varying technical skills.  Accessibility: The interface should be accessible to users with disabilities, adhering to WCAG standards.  Scalability: The system should be able to handle a growing number of users and data without performance degradation. |
| Postconditions | 1. The patient has gained personalized insights into their health through calculated metrics.  2.The patient has the option to save results for future reference or consult a healthcare professional for further guidance.  3.The system remains available for future use by the patient. |

| **UC Name** | ***UC20-.*Vital Signs Tracking** |
| --- | --- |
| Summary | * + This use case allows healthcare providers to monitor and record a patient's vital signs (heart rate, blood pressure, temperature, respiratory rate, oxygen saturation) and view trends over time. It also enables patients to view their own vital signs. |
| Dependency | *Medical File* |
| Actors | ***Healthcare Provider***  ***Patient*** |
| Preconditions | * *The patient's vital signs data is available (entered manually or via integrated medical devices).* * *The patient's height and weight are documented in the app (for BMI calculation).* |
| Description of the Main Sequence | * *1.HCP/Patient opens the Vital Signs Tracking feature in the app.* * *2.The system displays a list of patients (for HCP) or the patient's own vital signs (for patient).* * *3.HCP selects a specific patient (if applicable).* * *4.The system displays the patient's current vital signs data and historical trends in charts.* * *5.(Optional) HCP enters new vital sign readings for the patient.* * *6.The system stores the newly entered data and updates the charts.* * *7,(For Patients only) The system prompts for height and weight information (if not already entered).* * *8.(For Patients only) The patient enters their height and weight.* * *9.The system calculates and displays the patient's BMI.* |
| Description of the Alternative Sequence | * *If no historical data exists, the system displays a message indicating this.* * *If the HCP attempts to enter data for a patient they are not authorized to access, the system displays an error message.* |
| Non functional requirements | * *The system should be secure and protect patient health information (HIPAA compliant).* * *The system should display data accurately and in real-time (if integrated with medical devices).* * *The charts should be clear and easy to understand, with proper scaling and labeling.* * *The BMI calculation should be based on a standard formula.* |
| Postconditions | * *The patient's vital signs data is updated and stored securely.* * *The HCP has a clear view of the patient's condition and trends.* * *The patient can access and understand their own vital signs and BMI.* |

| **UC Name** | ***UC21-.Water Tracker*** |
| --- | --- |
| Summary | * + This use case allows hospitalized patients to monitor their daily water intake and set personal hydration goals. It provides features to set reminders, track beverage types, and access educational content on the importance of hydration. |
| Dependency | *Patient account on the app* |
| Actors | ***Patient*** |
| Preconditions | * *Patient has logged in in the app.* * *Patient has an active internet connection.* |
| Description of the Main Sequence | 1. *Patient opens the "Water Tracker" section within the app.* 2. *The app displays the patient's current water intake for the day.* 3. *The patient can set a daily hydration goal based on their needs.* 4. *The patient can choose to set reminders to drink water at specific intervals.* 5. *The patient can manually log the amount and type of beverage consumed (e.g., water, juice).* 6. *The app updates the patient's daily water intake progress towards their goal.* 7. *The patient can access educational content within the app about the importance of hydration and its impact on health.* |
| Description of the Alternative Sequence | * *If the patient does not set a daily hydration goal, the app defaults to a recommended daily intake.* * *The patient can choose to ignore reminder notifications.* |
| Non functional requirements | * *The app interface should be user-friendly and accessible for patients with varying technical skills.* * *The app should be responsive and function smoothly on different mobile devices.* * *Data privacy: Patient water intake data should be stored securely within the app.* |
| Postconditions | * *The patient has monitored their daily water intake and set a hydration goal (if desired).* * *The patient has received reminders to drink water (if enabled).* * *The patient has access to educational content about the importance of hydration.* |

| **UC Name** | ***UC22-.Comprehensive Medical Check-Up*** |
| --- | --- |
| Summary | * + This use case describes the process for a patient to apply for a comprehensive medical check-up within the system. He first applies and gets the schedule of the checkup in place and after he finished the checkup he expects the results back. |
| Dependency | *appointment scheduling, lab result management, health summary report, allergy list, my vacinne list, radiology report* |
| Actors | ***Patient***  ***Staff***  ***HealthCare Provider*** |
| Preconditions | * *The patient has a registered account in the hospital system.* * *The system has a defined set of tests included in the comprehensive check-up.* |
| Description of the Main Sequence | 1. *The patient logs in to the system.* 2. *The patient selects the "Comprehensive Medical Check-up" option.* 3. *The system displays available dates and times for appointments.* 4. *The patient selects a preferred date and time for the check-up.* 5. *The system confirms the appointment and provides instructions (if any) for preparing for the check-up (e.g., fasting requirements).* 6. *On the appointment date, the patient arrives at the hospital for the check-up.* 7. *Medical staff perform the various tests included in the check-up.* 8. *After the tests are completed, the patient may have a consultation with a doctor (optional).* 9. *The system processes the test results and generates a comprehensive report.* 10. *The system notifies the patient when the report is ready.* 11. *The patient logs in to the system and accesses the report.* 12. *The report includes details of the performed tests, results, and any necessary next steps or recommendations based on the findings.* |
| Description of the Alternative Sequence | * *During the appointment, if additional tests are deemed necessary based on initial findings, the system prompts for approval and reschedules those tests if needed.* * *The patient may cancel the appointment before the date through the system.* |
| Non functional requirements | * *The system should be available 24/7 for patients to schedule appointments.* * *The system should ensure the security and confidentiality of patient data.* * *The report should be clear, concise, and easy for patients to understand.* |
| Postconditions | * *The patient has a completed comprehensive medical check-up.* * *The patient has access to a detailed report with their test results and recommendations.* * *The hospital has a record of the patient's check-up and results for future reference.* |

| **UC Name** | ***UC -23 MyTodoList*** |
| --- | --- |
| Summary | *The system should feature a comprehensive task management module that allows users to create, organize, and track their to-do lists efficiently.* |
| Dependency | * *Dependency on User Authentication and Authorization: User authentication and authorization are essential for secure access to task management functionalities.* |
| Actors | ***Patient(primary Actor)*** |
| Preconditions | *Users must have an account on the system.* |
| Description of the Main Sequence | *1. User logs into the system.*  *2. Users access the "Todo List" section.*  *3. The system displays a centralized dashboard with two sections: "Appointments" and "Orders".*  *4. In the "Appointments" section, users can view all scheduled appointments.*  *5. In the "Orders" section, users can track pending prescription orders and medication refills.* |
| Description of the Alternative Sequence | *None* |
| Non functional requirements | 1. *-Performance: The system should respond quickly to user interactions with the task management module.* 2. *-Scalability: The system should be able to handle increasing numbers of tasks without performance degradation.* 3. *-Reliability: The system should reliably store and track user tasks.* 4. *-Security: User authentication and authorization mechanisms should ensure that only authorized users can access task lists.* 5. *-Usability: The user interface should be intuitive and easy to navigate for managing tasks.* 6. *-Maintainability: The system should be modularized and well-documented for ease of maintenance.* |
| Postconditions | *User has managed their tasks efficiently using the system's task management module.* |

| **UC Name** | ***UC -24 Privacy Policy*** |
| --- | --- |
| Summary | | *This feature encompasses a set of guidelines and procedures governing the collection, use, storage, and disclosure of patient information within the system.* | | --- | |  | |
| Dependency | *medical file*  *blood donation management*  *medical prescriptions*  *home healthcare coordination*  *healthy summary report*  *allergy list*  *my tracker*  *my vaccine list*  *radiology report*  *pregnancy tracker*  *vital sign tracking*  *check up* |
| Actors | ***Patient*** |
| Preconditions | *Users must have an account on the system.* |
| Description of the Main Sequence | | *The system displays the privacy policy to the user upon request. The user can review the privacy policy and agree to its terms before proceeding to use the app.* | | --- | |  | |
| Description of the Alternative Sequence | *None* |
| Non functional requirements | *The privacy policy should be easily accessible to all users. The privacy policy should be written in clear and concise language that is easy for users to understand.* |
| Postconditions | | *The user agrees to the terms of the privacy policy or exits the app.* | | --- | |

| **UC Name** | ***UC -25 Terms & Conditions*** |
| --- | --- |
| Summary | | *This use case allows a user to review and accept the Terms & Conditions (T&Cs) associated with using the hospital management system app.* | | --- | |  | |
| Dependency | *Privacy Policy* |
| Actors | ***Patient*** |
| Preconditions | * *The user has launched the app for the first time or has not previously accepted the T&Cs.* |
| Description of the Main Sequence | 1. *The app displays a welcome screen with a button or link to access the T&Cs.* 2. *The user clicks the button/link.* 3. *The app displays the full text of the T&Cs.* 4. *The user reads and understands the T&Cs.* 5. *The user selects an option to either "Accept" or "Decline" the T&Cs.*  * ***Accept:***   + *The user clicks the "Accept" button.*   + *The app stores the user's acceptance of the T&Cs (e.g., date, timestamp).*   + *The app grants the user full access to the system's functionalities.* * ***Decline:***   + *The user clicks the "Decline" button.*   + *The app displays a message explaining the limitations of using the system without accepting the T&Cs.*   + *The app may restrict access to certain functionalities (e.g., appointment booking).*  |  | | --- | |
| Description of the Alternative Sequence | * *The user may choose to close the T&Cs screen without reading or accepting them.*   + *The app may prompt the user to review the T&Cs when attempting to access certain functionalities.* |
| Non functional requirements | * *The T&Cs document should be clear, concise, and easy to understand.* * *The T&Cs screen should be user-friendly and accessible.* * *The user's acceptance of the T&Cs should be securely stored.* |
| Postconditions | * *If the user accepts the T&Cs, they gain full access to the app's functionalities.* * *If the user declines the T&Cs, their access to the app may be limited.* |

| **UC Name** | ***UC -26 Apply for First Aid Training*** |
| --- | --- |
| Summary | | *This use case allows users to access educational resources about basic first aid and apply for a formal first aid training program offered by the hospital.* | | --- | |  | |
| Dependency | *User Authentication and Autherization* |
| Actors | ***Patient*** |
| Preconditions | * *User has a valid account on the app and is logged in* |
| Description of the Main Sequence | *1.User selects the "First Aid Training" option within the app.*  *2.The app displays educational content about basic first aid techniques (e.g., CPR, wound care, emergency response).*  *3.User reviews the information and resources.*  *4.If interested in formal training, the user selects the "Apply for Training" option.*  *5.The app presents an application form.*  *6.User fills out the application form, including any required information (e.g., preferred date/time, contact details).*  *7.User submits the completed application.*  *8.The app sends the application electronically to the hospital's training department.*  *9.The system sends an automated confirmation message to the user acknowledging their application.* |
| Description of the Alternative Sequence | 1. *User decides not to apply for training after reviewing the educational content.* 2. *User exits the "First Aid Training" section.* |
| Non functional requirements | * *The system should be user-friendly and easy to navigate.* * *The educational content should be up-to-date and accurate.* * *The application process should be efficient and secure.* * *The system should send confirmation messages promptly.* |
| Postconditions | * *User has access to educational resources about basic first aid.* * *User's application for formal training is submitted to the hospital (if applicable).* * *User receives confirmation regarding their application status.* |

| **UC Name** | ***UC -27 Apply for Medication Refill with Reimbursement*** |
| --- | --- |
| Summary | | *This use case allows a patient to request a refill for a prescribed medication and indicate they would like to be reimbursed for the cost by their insurance provider.* | | --- | |  | |
| Dependency | *Medical Prescriptions, User Authentication and Authorization, Health Card* |
| Actors | ***Patient*** |
| Preconditions | * *The patient has a registered account on the app.* * *The patient has a valid prescription for the medication they are requesting a refill for.* * *(Optional) The patient has a linked health card with valid insurance information.* |
| Description of the Main Sequence | 1. *The patient logs in to the app using their credentials (Use Case 13).* 2. *The patient navigates to the section for medication refills.* 3. *The patient selects the medication they need a refill for from their prescription history (Use Case 6).* 4. *The patient chooses the desired quantity for the refill.* 5. *The patient selects the option to request reimbursement for the medication cost.* 6. *(Optional) The app prompts the patient to link their health card information if not already done (Use Case 23).* 7. *(Optional) The app retrieves the patient's insurance information from the linked health card.* 8. *The app displays an estimated cost for the medication and potential co-pay based on insurance coverage (if applicable).* 9. *The patient confirms the refill request with reimbursement.* 10. *The app transmits the refill request and reimbursement claim to the healthcare provider's system.* 11. *The healthcare provider processes the request and sends the medication to the patient's preferred pharmacy.* 12. *The healthcare provider initiates the reimbursement claim with the patient's insurance provider (if applicable).* 13. *The patient receives a notification from the app confirming their medication refill request and estimated timeframe for fulfillment.* |
| Description of the Alternative Sequence | 1. *If the patient does not have a valid prescription for the medication, the app informs them and suggests scheduling an appointment (Use Case 1).* 2. *If the patient encounters any errors during the process, the app provides clear error messages and instructions for troubleshooting.* |
| Non functional requirements | * *The system should be secure and protect patient privacy (refer to Privacy Policy).* * *The system should be responsive and provide timely feedback to the user.* * *The reimbursement claim process should be clear and transparent.* |
| Postconditions | * *The patient has a medication refill request submitted with a request for reimbursement.* * *The healthcare provider has received the refill request and reimbursement claim (if applicable).* * *The patient has received confirmation and estimated timeframe for their medication refill.* |

| **UC Name** | ***UC -28 Health Card*** |
| --- | --- |
| Summary | | *This use case describes the functionality of the app's health card feature, which provides users with a digital representation of their medical information.* | | --- | |
| Dependency | *User Authentication and Authorization* |
| Actors | ***Patient*** |
| Preconditions | * *The patient has successfully logged in to the app (UC #13).* * *The patient has a medical file created in the system (UC #2).* |
| Description of the Main Sequence | ***:***   1. *The patient selects the "Health Card" option within the app.* 2. *The app retrieves the patient's medical information from their medical file.* 3. *The patient can view and navigate the different sections of their health card.* |
| Description of the Alternative Sequence | *The patient selects the "Health Card" option.*  *The system detects an incomplete medical file and prompts the patient to complete it* |
| Non functional requirements | * *The health card information should be displayed clearly and concisely.* * *The app should ensure secure access and display of health information according to privacy policies (UC #28, UC #29).* * *The health card should be easily accessible within the app.* |
| Postconditions | * *The patient has accessed and reviewed their health card information.* * *The patient may choose to navigate to other functionalities of the app based on the information displayed on the health card (e.g., schedule an appointment based on a medical history entry)* |

| **UC Name** | ***UC -29 Pregnancy Tracker*** |
| --- | --- |
| Summary | | *This feature allows expecting mothers to monitor and track various aspects of their pregnancy journey within the hospital app.* | | --- | |
| Dependency | *Medical File, Appointment Scheduling, Lab Result Management* |
| Actors | ***Patient(Pregnant)*** |
| Preconditions | * *The user is a registered user of the hospital app.* * *The user has logged in and their identity is verified.* |
| Description of the Main Sequence | 1. *The user opens the pregnancy tracker within the app.* 2. *The app displays a dashboard with options for tracking various pregnancy data points (e.g., weight, fetal movement, symptoms).* 3. *The user selects a data point to track and enters the relevant information.* 4. *The app stores the entered data in the user's medical file.* |
| Description of the Alternative Sequence | 1. *The user encounters an error message while trying to access the pregnancy tracker (e.g., due to internet connectivity issues).* 2. *The app provides options to contact app support or retry later.* |
| Non functional requirements | * *The pregnancy tracker should be user-friendly and easy to navigate.* * *The app should securely store all pregnancy data in accordance with privacy policies.*   *The data visualization should be clear and easy to understand.* |
| Postconditions | * *The patient has accessed and reviewed their health card information.* * *The patient may choose to navigate to other functionalities of the app based on the information displayed on the health card (e.g., schedule an appointment based on a medical history entry)* |

| **UC Name** | ***UC -30 Applying for voluntary work*** |
| --- | --- |
| Summary | | *This use case allows users to apply for voluntary work opportunities within the healthcare system or related community service programs.* | | --- | |
| Dependency | *User Authentication and Autherization* |
| Actors | ***Patient*** |
| Preconditions | * *The user has a registered account on the app.* * *The app has a listing of available voluntary work opportunities.* |
| Description of the Main Sequence | 1. *The user logs in to the app.* 2. *The user navigates to a section for volunteering opportunities.* 3. *The app displays a list of available voluntary positions with descriptions and requirements.* 4. *The user selects a volunteer opportunity they are interested in.* 5. *The app presents a detailed description of the position, including time commitment, responsibilities, and any training involved.* 6. *The user fills out an application form, potentially including contact information, availability, skills, and a motivation statement.* 7. *The user submits the application electronically.* 8. *The system sends an electronic notification to the hospital or program responsible for managing volunteers.* |
| Description of the Alternative Sequence | 1. *The user follows steps 1-3 from the main sequence.* 2. *The user decides not to apply for any of the opportunities presented.* 3. *The user exits the volunteer opportunities section.* |
| Non functional requirements | * *The system should be user-friendly and easy to navigate for users applying for volunteer positions.* * *The application process should be efficient and allow for quick submissions.* * *The system should securely store user data collected during the application.* |
| Postconditions | * *The user has submitted an application for a volunteer opportunity.* * *The hospital or program responsible for managing volunteers is notified about the application.* |