Elderly Care Monitoring System

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Faculty of Computing
Riphah International University, Islamabad
Fall 2023

A Dissertation Submitted To

Faculty of Computing,

Riphah International University, Islamabad

As a Partial Fulfillment of the Requirement for the Course

Software Requirements Engineering

Bachelors of Science in Software Engineering

عنایت سے جڑیں، زندگی میں نئے رنگ

Faculty of Computing
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Dedication/Acknowledgment

Thanks to Allah Almighty who made us able to complete this final project report. Also, our course teacher who guided us in this project. All the members of the team who worked hard and diligently to complete this project.

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Abstract

For developing a software, it is important to do documentation of all the aspects of software. It is the most efficient way to develop a well-organized software. It is the rough idea of what we are supposed to build. By documenting, we ensure consistency, efficiency and peace of mind for everyone involved. In this report, we mentioned all important and major documents so that stakeholders can understand it easily.

This report is based on seven major artifacts. One section of report is Vision Document. It includes purpose, scope, user profiles, product features, system's risk, precedence and priorities. We categorized the risk (high, medium & low) on the basis of their dependencies. This report also has the portion of Use-case Modelling. So that stakeholders get clear picture of system by visualizing use case diagram, as it is from user's perspective. Traceability Matrix is an important part of building software's. It helps testing team to understand the level of testing they are supposed to perform. So, in this report, we have made Requirement Traceability Matrix and mapped all the software requirements with use cases. We also have a separate portion of Business Modeling, as activity diagrams are used to describe business processes.

The last section of report includes Supplementary Specification Document. It includes all the quality attributes and design constraints (software languages, development tools, design tools).

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Artifact-1

Problem Statement/Project Proposal

Project Proposal:

Title: Senior Care-Elderly Care Monitoring System

Description: In the realm of elderly care, a multitude of challenges arises as individuals age, encompassing the necessity for regular health check-ups, efficient medication management, and swift access to assistance during emergencies. Additionally, concerns about engaging in activities and safeguarding data privacy compound the complexities faced by older individuals.

The aging population confronts a myriad of daily challenges, from managing health conditions to navigating medication schedules, all while seeking immediate assistance during emergencies. Furthermore, the desire for active engagement in daily life activities is hindered by these hurdles. The need for a comprehensive solution that addresses these challenges is evident, requiring a system that not only monitors health in real-time but also facilitates timely medication reminders. Additionally, a solution must track the whereabouts of the elderly and offer quick emergency response capabilities. It should strive to encourage social interaction, stimulate cognitive functions, and provide tools for nutritional management.

To tackle the multifaceted challenges faced by older individuals, we propose the development of an Elderly Care Monitoring System. This system leverages advanced technology to provide a holistic solution, fostering a better quality of life for the elderly. By incorporating features such as real-time health monitoring, medication management, fall detection, location tracking, and an emergency response system, our solution ensures the safety and well-being of older individuals. Moreover, it promotes social engagement and cognitive stimulation while offering tools for efficient nutrition management. The system's emphasis on privacy, data security, and personalized features like language support and medication interaction checking aims to create a worry-free and graceful journey through aging for our elderly population.

Literature Survey:

Existing Features Description:

ID	Feature Name	Description
F-1	Manage Accounts	The app ensured a secure sign-up process, verifying their phone numbers and employing password authentication. Now, with distinct roles assigned, Doctor logged in as a doctor, while Caregiver logged in as a caregiver.
F-2	Manage profile	This feature empowers Doctor meticulously filled in his professional details, showcasing his specialization and degrees, while Caregiver/elder (when there is no caregiver) created a detailed profile for Senior, specifying his unique elder issues. The app's Manage Profile feature allowed them to tailor the information for comprehensive care monitoring.
F-3	Remotely Adjustable Settings	Allows caregivers/elder to remotely adjust app settings for the senior user.
F-4	Location Tracking	A caregiver can track the whereabouts of Senior through the elderly care monitoring app when the location feature is enabled, ensuring better care and safety.
F-5	Location History	Provides a history of the Senior's location over a specified period. It provided peace of mind to Caregiver, knowing his whereabouts were always within reach.
F-6	Daily Activity Monitoring	Daily Activity Monitoring feature detected any unusual patterns or changes in Senior's routine. This proactive approach allowed Caregiver to address potential health concerns promptly.
F-7	Health Data Tracking	Doctor, utilizing the Health Data Tracking feature, monitored Senior's health metrics. From heart rate to sleep patterns, including hydration levels, blood pressure, sugar levels, steps taken, and sleep patterns.

		The app provided a comprehensive overview, facilitating better medical decisions
F-8	Reminders for Self-Care	This feature in app sent timely reminders for Senior's self-care activities, ensuring he stick to his medication schedule and other health-related tasks.
F-9	Appointment Booking	Caregivers can use the Appointment Booking feature to arrange regular check-ups for seniors, providing the option to choose between video or hospital appointments. In the case of hospital appointments, caregivers can specify doctors based on specialty, disease, or hospital preference. Doctors then confirm and book these appointments as assigned by caregivers, streamlining the elder care process.
F-10	In-app Chat	The In-app Chat allowed seamless communication between Doctor, Caregiver, and other healthcare professionals involved in Senior's care.
F-11	Fall Detection	The Fall Detection feature immediately alerted Caregiver and Doctor, who swiftly coordinated to ensure Senior safety as this feature automatically detects falls and alerts designated contacts or emergency services.
F-12	Compatibility and Integration	This feature seamlessly integrated with various devices, making it easy for Caregiver to monitor Senior's well-being using smartphones, tablets, and smartwatches.
F-13	Emergency Alerts	In moments of crisis, the Emergency Alerts feature played a crucial role. Senior Care used GPS and communication to assist in emergencies, sending SOS alerts and connecting with emergency services.
F-14	Manage medical records	Doctor efficiently managed Senior's medical records through the app, ensuring accurate and up-to-date information for comprehensive care.

F-15	Find nearby hospitals/doctors	Using the app's feature to find nearby hospitals and doctors, Doctor quickly located the best healthcare facilities for Senior's needs to Caregiver.
F-16	Urgent Care Access	The Urgent Care Access feature allowed Senior to connect with healthcare professionals instantly, ensuring quick assistance in emergencies.
F-17	Community Events Calendar	Features a calendar of local events for Senior to engage socially, enhancing his overall well-being.
F-18	Document and Prescription Management	Document and Prescription Management feature ensured that all important documents and medical instructions were securely stored, streamlining the care process.
F-19	Privacy and Security Safeguards	This feature employs robust privacy and security measures to protect sensitive information, ensuring that personal data, medical records, and other confidential details are kept safe and secure.
F-20	Personalized Wellbeing Plans	Senior Care crafted personalized well-being plans based on Senior's data, guiding Caregiver in improving his overall health and achieving wellness goals.
F-21	Battery Status Alerts	Caregiver received timely Battery Status Alerts, ensuring uninterrupted tracking.
F-22	Real-time Location Sharing	Allows Elder to share their real-time location with family and friends.
F-23	Geofencing Alerts	Geofencing Alerts notified Caregiver when Senior entered or left predefined locations, offering an added layer of safety.
F-24	Get help from help center	In moments of uncertainty, Caregiver utilized the Get Help from Help Center feature, contacting support for quick resolutions to any issues.
F-25	Physical Activity Tracker	Senior's Physical Activity Tracker ensured he maintained an active lifestyle, tracking steps, distance, and calories burned.

F-26	Medication Management	Senior Care supported Senior's medication management, providing reminders, dosage information, and refill alerts to caregiver in improving elder’s overall health and achieving wellness goals.
F-27	Emergency Contacts	The Emergency Contacts feature stored and provided easy access to a list of emergency contacts, ensuring immediate assistance when needed.
F-28	Health Assessment Surveys	Doctors utilize Periodic Health Assessment Surveys to monitor the overall well-being of seniors.
F-29	Weather and Air Quality Alerts	Weather and Air Quality Alerts provided Caregiver with information crucial for Senior's health. Provides alerts about local weather and air quality.
F-30	Remote Family Check-ins	Senior's family can use the Remote Family Check-ins feature, offering support and staying connected despite physical distances.
F-31	View or write reviews of doctors	Doctor, Caregiver, and other users shared their experiences through this feature, creating a community that valued and trusted each other's recommendations.
F-32	Read health blogs	Caregiver and Elder use this feature to stay informed about the latest health trends and insights.

Existing Systems:

System-ID	System Name	System Type
SYS-1	Care Penguin	Mobile Application
SYS-2	Care Zone App	Mobile Application
SYS-3	Care Giver App	Mobile Application
SYS-4	Apna Doctor	Mobile Application
SYS-5	Leap Thru	Mobile Application
SYS-6	Tetsudou	Mobile Application
SYS-7	Livinia	Web Application
SYS-8	CEN-TRACK	Web Application
SYS-9	Life 360	Both
SYS-10	Livinia	Both

Systems and Feature Mapping:

System Name /Features	F-1	F-2	F-3	F-4	F-5	F-6	F-7	F-8	F-9	F-10
Care Penguin	✔	✔	✘	✔	✘	✔	✔	✔	✘	✘
Care Zone App	✔	✔	✘	✘	✘	✔	✔	✔	✔	✘
Care Giver App	✔	✔	✘	✔	✔	✔	✔	✔	✘	✘
Apna Doctor	✔	✔	✘	✘	✘	✔	✔	✔	✔	✘
Leap Thru	✔	✔	✘	✔	✔	✔	✔	✘	✔	✔
LetsUpDoc	✔	✔	✘	✔	✘	✔	✔	✘	✔	✔
Livindi	✔	✔	✔	✘	✔	✔	✔	✔	✘	✘
CEN-TRACK	✔	✔	✔	✘	✘	✔	✔	✔	✔	✔
Life 360	✔	✔	✔	✔	✔	✘	✘	✔	✔	✔
seniorsafetyapp	✔	✔	✘	✔	✔	✘	✔	✔	✘	✘

System Name /Features	F-11	F-12	F-13	F-14	F-15	F-16	F-17	F-18	F-19	F-20

Care Penguin	✗	✗	✗	✓	✓	✗	✓	✗	✗	✓
Care Zone App	✗	✗	✓	✓	✓	✗	✗	✓	✓	✗
Care Giver App	✗	✗	✓	✓	✗	✗	✗	✓	✓	✗
Apna Doctor	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓
Leap Thru	✓	✗	✓	✓	✓	✓	✗	✗	✓	✓
Let's Up Doc	✗	✗	✗	✓	✓	✗	✓	✓	✓	✗
Livindi	✗	✓	✓	✓	✗	✓	✓	✓	✓	✓
CEN-TRACK	✓	✓	✓	✓	✓	✗	✓	✗	✓	✓
Life 360	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓
seniorsafetyapp	✓	✗	✓	✓	✗	✓	✓	✓	✓	✗

System Name /Features	F-21	F-22	F-23	F-24	F-25	F-26	F-27	F-28	F-29	F-30	F-31	F-32
Care Penguin	✓	✗	✓	✗	✓	✓	✓	✓	✓	✗	✗	✗
Care Zone App	✗	✗	✗	✓	✓	✓	✓	✓	✓	✗	✗	✗
Care Giver App	✓	✗	✓	✓	✓	✓	✗	✗	✓	✗	✗	✗
Apna Doctor	✗	✗	✗	✓	✓	✓	✓	✗	✗	✓	✓	✓
Leap Thru	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✓	✗
Lets Up Doc	✗	✓	✓	✓	✗	✗	✓	✗	✓	✓	✗	✗
Livindi	✓	✓	✗	✓	✓	✗	✓	✓	✓	✗	✓	✓
CEN-TRACK	✗	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗
Life 360	✗	✓	✓	✗	✓	✓	✓	✓	✗	✓	✓	✓
seniorsafetyapp	✓	✓	✗	✓	✓	✗	✓	✓	✓	✗	✓	✗

Proposed System Features:

ID	Feature Name	Description
F-33	Digital Library for Seniors	A new feature emerged with the introduction of the Digital Library for Seniors. Driven by the desire to stimulate the minds of seniors, the app established a digital haven filled with e-books, audiobooks, and educational materials. Now, during their leisure time, seniors could immerse themselves in the world of literature and knowledge, enhancing their cognitive well-being.
F-34	Integrates voice commands	With the integration of voice commands, Seniors can effortlessly interact with the system hands-free. For instance, they can ask, 'What's my next medication reminder?' or 'Find emergency contacts,' enhancing accessibility for a more user-friendly experience.
F-35	Call Ambulance	The "call ambulance" feature is designed to assist in serious emergency situations. When the compatibility and integration devices detected that Senior was alone and in need of urgent medical assistance, the app automatically contacted hospital management to request an ambulance. This lifesaving feature brought an additional layer of security to the elderly care monitoring system.
F-36	Nutrition and Diet	For Senior, maintaining a healthy lifestyle extended beyond medical care. The Nutrition and Diet feature allowed him to track and analyze his dietary habits, offering insights into nutritional intake and meal planning. Caregiver found this particularly helpful in ensuring that Senior’s diet complemented his overall well-being.

F-37	Activity and Engagement Planner	This innovative feature empowered caregivers to plan and schedule personalized activities based on the senior's interests and abilities. The app offered suggestions for physical exercises, mental stimulation activities, and social interactions, enhancing Senior’s overall well-being.
F-38	Remote Home Surveillance	Integrating with home security cameras, Senior Care introduced Remote Home Surveillance. Caregiver could now monitor Senior's well-being even when Caregiver was not physically present. This feature provided an extra layer of reassurance, ensuring that his living environment remained safe and secure.
F-39	Calendar Integration	Senior Care seamlessly integrated with calendars, streamlining the coordination of appointments, medication reminders, and caregiving tasks. Doctor and Caregiver found this Calendar Integration feature invaluable as they synchronized their schedules, ensuring a well-organized and efficient care routine for Senior.

Artifact-2
Vision Document

Table of Contents

1. Introduction

This vision document provides an overview of the proposed system Elderly Care monitoring System (ECMS). It explains the system's goals, functional requirements, and the justification for the intended software. It will be divided into categories such as purpose, scope, definitions, acronyms and abbreviations, references, and an overview.

1.1 Purpose

The purpose of the document is to serve as a means of communication between the management, marketing, and project teams. This will aid in comprehending the upcoming Elderly Care monitoring System (ECMS). The use-case and additional specifications specify the details of how the Elderly Care Monitoring System (ECMS) meets the needs. It will serve as a high-level foundation for more detailed technical requirements, an input to the project-approval process (and thus is inextricably linked to the business case), a vehicle for eliciting preliminary customer feedback, and a means of determining the scope and priority of product features.

1.2 Scope

The vision document relates to the Elderly Care Monstering System (ECMS), which will be developed by Group E. It provides real-time health and location tracking, allowing remote caregivers to monitor seniors' well-being. The system promotes safety and provides peace of mind for both senior people and their families by including features such as emergency alarms, medication management, and personalized wellness plans.

Definitions, Acronyms, and Abbreviations

1.3.1. Acronyms

ECMS --- Elderly Care Monstering System

1.3.2. Definitions

1. **Microsoft windows**: A group of several proprietary graphical operating system families.
2. **Linux**: A family of open-source Unix-like operating systems based on the Linux kernel.
3. **macOS**: An operating system that runs on Macintosh computers.
4. **SQL**: A programming language that is used in relational database or data stream management systems.
5. **CSS**: Style sheet language used for describing the presentation of document written in a markup language.

6. **Python**: An interpreted high-level general-purpose programming language.

1.3 References

Tazzaina Malik. (2022, April 9). How to write Vision Document | RUP Template with Example | Step by Step Guide in Urdu | Hindi [Video file]. YouTube.

https://www.youtube.com/watch?v=rdobvvs56A4&t=409s

1.4 Overview

This vision document inclines all the competencies of ECMS. The system is developed to automate all the manual process i.e. consultation with doctor, Health data tracking, manage medical record, Appointments booking and Report family check-ins, set reminders etc. The system is considered to be easily installed on any Android based phone and perform its tasks efficiently.

Positioning

2.1 Problem Statement for Admin

The problem of	Records managements i.e. doctors, elders, caregiver and hospitals.
Affects	Admin
the impact of which is	All the records are not properly managed.
a successful solution would be	The updated system will increase accuracy. The system will facilitate the admin to manage medical records and daily activities of elders, record of doctors and nearby hospitals in a sufficient way. The system will increase safety, comfort and convenience, and provides fast, manageable and reliable working for admin.

2.2 Problem Statement for Doctor

The problem of	No proper appointments schedule, wastage of time.
Affects	Doctor
the impact of which is	Mismanage of appointments slots, increase wait time and decrease satisfaction.
a successful solution would be	The new system will make things faster and more reliable when scheduling appointments. It lets doctors talk to older people using video calls, chat with caregivers about the older person's issues in private, give prescriptions to caregivers, and answer

	questions about the elderly in a health forum.

2.1 Problem Statement for Caregiver

The problem of	Caregiver overload from managing an elder's care which leads to heightened stress, fatigue, and potential burnout.
Affects	Caregiver
the impact of which is	Overload is substantial, leading to compromised quality of care for the elder, potential health issues for the caregiver, strained communication with healthcare professionals, and an increased likelihood of medication errors or missed doses.
a successful solution would be	A successful solution is to create an online app for elder care that makes caregiving easier. This app should have simple menus, reminders for medications, meal plans, easy ways to talk to doctors, and tools to track the elder's health. It should also have support for caregivers, like helpful information and a place to connect with doctors, family members and nearby hospitals in similar situations.

2.2 Problem Statement for Elders

The problem of	Limited functionality, wastage of time, data is unsecured.
Affects	Elders
the impact of which is	Elders are dissatisfied and their personal data is not much secured, the system doesn’t provide a lot of functionalities.
a successful solution would be	The system offers a wide array of features for elders to enhance safety, comfort, and convenience. Elders can access their medical records, set reminders, locate and reserve nearby hospital beds, order medication, browse health blogs, view lab prescription, check upcoming events, schedule appointments, provide feedback, book appointments with preferred doctors, ask questions via chat forums, emergency alerts services, and set

	medication reminders. These features ensure that elders can efficiently reach their emergency contacts, providing a fast, manageable, and reliable system.

2.3 Product Position Statement

For	The elders, doctor, caregiver and admin.
Who	Elder manages health and activities, accesses records; Doctor offers remote consultations, reviews data; Caregiver oversees meds, health, appointments; Admin manages system, user access.
The Elderly Care Monitoring Management System (Senior Care)	It is a Mobile Application
That	Our elder care app integrates essential features such as location tracking, health data monitoring, appointment reminders, and emergency alerts. It facilitates easy communication through in-app chat and offers access to medical records. Additionally, it provides resources like doctor reviews, health blogs, and weather alerts, ensuring comprehensive support for elders and caregivers in a user-friendly platform.
Unlike	Existing system doesn't manage data properly and provides limited functionality. The current system lacks several essential functionalities crucial for elder care, notably missing features such as a Digital Library tailored for seniors, integration of voice commands for ease of use, Emergency Evacuation Plans, Nutrition and Diet management tools, an Activity and Engagement Planner, Remote Home Surveillance capabilities, and Calendar Integration. These omissions limit the system's ability to provide comprehensive and effective support for elders in various aspects of their well-being and safety.
Our product	Allowing caregivers to register, our system facilitates comprehensive support for elders, doctors, and caregivers: managing health, doctor consultations, caregiver oversight, contacting nearby hospitals, and admin control. Integrated features like tracking, health monitoring, reminders, and communication, alongside resources such as reviews, blogs, and alerts, provide holistic elder and

	caregiver support, addressing limitations in the existing system by introducing vital functionalities crucial for elder care.

3. Stakeholder and User Descriptions

The system has a total of 9 stakeholders, including 4 system users. The following is a detailed analysis of these stakeholders.

3.1 Stakeholder Summary

Name	Description	Responsibilities
System Analyst	The system analyst is a pivotal stakeholder collaborating with other project stakeholders to ensure the successful realization of their needs.	Guides the modeling of use cases, allowing for a detailed exploration of system functionality. For example, the System Analyst identifies actors within the system and delineates the specific use cases relevant to their interactions. Through collaboration and coordination, the System Analyst contributes to the development of a robust and aligned system that meets the expectations of all stakeholders.
Requirements Specifier	Typically refers to an individual or a role responsible for specifying, documenting, and managing the requirements of a system or a project. Through methods like interviews and workshops, they gather information from both technical and non-technical stakeholders.	From elicitation and documentation to validation, change management, and collaboration, Requirements Specifier ultimately contribute to the successful realization of project goals and documents functional and non-functional requirements.
Technical Reviewer	A technical reviewer serves as a critical gatekeeper in the development process, ensuring that technical artifacts meet the highest standards of quality, efficiency, and compliance with	This individual is responsible for assessing and evaluating technical documents, code, designs, or other artifacts to ensure they meet quality standards, adhere to best practices, and align with project requirements.

	established best practices.	
Software Architecture	Key stakeholder in guiding the development of software system	Responsible for software architecture, including key technical decisions that constrain the overall design and implementation of the project.
Project Manager	A professional responsible for planning, executing, and closing projects. A project managers play a crucial role in ensuring that projects are completed successfully, on time, and within budget.	The Software Project Manager is responsible for overseeing the entire lifecycle of software projects. They lead project planning, defining scope and objectives, and managing resources and budgets.

3.2 User Summary

Name	Description	Responsibilities	Stakeholder
Admin	They are the end users of the system.	Help to manage users (patient, doctor), medicines, labs, and hospital data updating when necessary. Admin helps in managing records of appointments. Admin also makes sure that the system provides ease in the payment procedure.	Self-representative
Seniors	Proposed system's end user.	The seniors use the system for maintaining their daily life-activities such as receiving notifications for medication, calling for help in case if any emergency, appointments for check-ups, other health and social activities.	Self-representative
Doctor	End user of the system to be developed.	Doctor confirms that the system will allow them to register as doctor by providing information like PMDC number, name and contact number.	Self-representative
Care	Proposed	The care givers confirm and	Senior-representative

givers	system's end users.	keep the track of all the activities of seniors i.e., taking medicines on time, reviewing the report and consulting the doctors.	

3.3 User Environment

ESCMS users (i.e. seniors, admin, care givers and doctor) who access the system. For accessing ECMS users must have an internet connection. Admin is responsible for maintaining system problems such as security issues, app crashes or freeze. ECMS will operate on operating systems such as Apple macOS, Microsoft Windows, Google's Android OS, Linux Operating System, IBM's OS/2, and Apple iOS, SQL, CSS, and Python programming languages are used in implementation. E-HMS app must work on smartphones (i.e. Android and Apple's iOS). It also able to work on PC (i.e. Microsoft Windows, Apple macOS).

3.4 Stakeholder Profiles

3.4.1 System Analyst

Representative	Mr. Hameed Ali
Description	The system analyst is a pivotal stakeholder collaborating with other project stakeholders to ensure the successful realization of their needs.
Type	The systems analyst is consultant, supporting expert, and agent of change.
Responsibilities	The System Analyst identifies actors within the system and delineates the specific use cases relevant to their interactions.
Success Criteria	Success criteria are fulfilled by achieving financial performance. The system should meet customer needs and produce quality products and services. Success criteria is mainly fulfilled when the system works according to the user requirements.
Involvement	A system analyst solves business problems by using analysis and design techniques. System analyst may serve as change agents who identify the organizational improvements needed, design system to implement those changes, and train and motivate others to use the systems.
Deliverables	None
Comments / Issues	None

3.4.2 Requirements Specifier

Representative	Mr. Ahmer
Description	Typically refers to an individual or a role responsible for specifying, documenting, and managing the requirements of a system or a

	project.
Type	Requirement Specifier is an expert in specifying all details requirements of the system functionality in order to satisfy the user needs.
Responsibilities	From elicitation and documentation to validation, change management, and collaboration, Requirements Specifier ultimately contribute to the successful realization of project goals and documents functional and non-functional requirements.
Success Criteria	Success criteria is fulfilled when requirement specifier details all quality requirements of the system functionality and all these detail requirements fulfill the user needs.
Involvement	Involved in specifying all the features, functional and non-functional requirements of the system.
Deliverables	None
Comments / Issues	None

3.4.3 *Technical Reviewer*

Representative	Miss Aleena Amjad
Description	A technical reviewer ensures that the technical artifacts meet the highest standards of quality, efficiency, and compliance with established best practices.
Type	Involved in expert inspection in order to provide feedback that enables improvement. Although specific to software, research into each of these items is more general.
Responsibilities	This individual is responsible for assessing and evaluating technical documents, code, designs, or other artifacts to ensure they meet quality standards, adhere to best practices, and align with project requirements.
Success Criteria	Success criteria is fulfilled when technical reviewer provide feedback on project modeling on time and approved the project.
Involvement	Technical Reviewer discusses the technical approach, analysis, results, conclusions, and reference. She suggests improvements in project. The main point of the review is to tell what they or need to do in order to maintain the project into something acceptable. She must be involved regularly to maintain the growth cycle of the system.
Deliverables	None
Comments / Issues	None

3.4.4 Software Architecture

Representative	Mr. Raza Mubarak
Description	Key stakeholder in guiding the development of software system.
Type	Software development specialist who chooses high quality designs and tries to implement technical standards.
Responsibilities	Responsible for software architecture, including key technical decisions that constrain the overall design and implementation of the project.
Success Criteria	Success is mainly depending upon improving the overall design and implementation standards of the system.
Involvement	Involved in evaluating, identifying and developing software solutions and making high level decisions about each stage of the process. Also in planning, documenting and recording every aspect of a software.
Deliverables	None
Comments / Issues	None

3.4.5 Project Manager

Representative	Mr. Hamza Mukhtar
Description	A professional responsible for planning, executing, and closing projects. A project managers play a crucial role in ensuring that projects are completed successfully, on time, and within budget.
Type	A project manager is an experienced person who is well versed in all stages of project development and project management. Project manager is responsible for project planning, procurement and implementation
Responsibilities	The Software Project Manager is responsible for overseeing the entire lifecycle of software projects. They lead project planning, defining scope and objectives, and managing resources and budgets.
Success Criteria	Ensure the completion of all software productions and oversee the people working on them. Success criteria of a project are fulfilled when the project manager is satisfied with the cost, scope, and time of the system.
Involvement	Project managers play a key role in planning, executing, monitoring, controlling and closing projects. He is responsible for the scope of the entire project, the project team and resources, the budget of the project, and the success or failure of the project.
Deliverables	None

Comments / Issues	None

3.5 User Profiles

3.5.1 Admin

Representative	Uswa Baloch
Description	Admin managing data of system such as seniors, doctor, care givers, medicine, billing, appointments and reports.
Type	This is an advanced user with experience in technology.
Responsibilities	Help to manage user (i.e. senior, care giver, doctor) information, medicines, activities and health reports data updating as and when necessary. He helps in managing records of appointments. He also makes sure that the system provides ease in access and meet the needs of the seniors. Ensure that the system can provide the necessary comforts and security to satisfy the customer needs.
Success Criteria	The success is completely defined by the ability of the admin to eliminate negative customer complaints about getting support while using our system. Also, the administrator easily uses the system to successfully maintain all the data.
Involvement	She helps in maintaining the data, appointing the doctors as per senior need, managing appointments and verifying accounts of users.
Deliverables	None
Comments / Issues	None

2.5.2 Senior

Representative	Sara Khan
Description	Senior can make appointments for check-ups and get notifications for their medication and other daily activities i.e., exercise, diet, chat directly with-in app with the doctor and care giver and enter personal information for accessing the system.
Type	This is a casual user, possibly may not be aware of the technology or may be familiar with it.
Responsibilities	The seniors confirms that the system will help them maintain their physical and mental health, fitness, tracking their daily–life activities and sending help in case of emergency, consulting doctor of their choice, maintaining their reports and getting notification for their medications and alarms from time to time. Also ensure that the system is secured their personal information such as name, contact

	number, which is required for accessing their own record.
Success Criteria	Key to success is seniors trust and satisfaction with the system. The seniors will be facilitated to easily contact his/her doctor online, contact with the care giver, receive notifications and alarms on time and the details will be secure.
Involvement	We will have them to help evaluate our design and health research results will also guide our vision, help in reviewing, appointing doctors, care givers and getting appointments for check-ups.
Deliverables	None
Comments / Issues	None

2.5.3 *Doctor*

Representative	Sana Khan
Description	Doctor registers themselves for consulting their patients (seniors).
Type	This is a casual user, may not be aware of the technology or may be familiar with it.
Responsibilities	They confirm that the system will allow them to register their information such as registration number, name, and contact number.
Success Criteria	Key to success is doctor trust and satisfaction with the system. The doctor will be facilitated to get easily contacted with his patient online without facing any problem. Also, the system will secure their personal details.
Involvement	We will have them to help evaluate our design and health research results will also guide our vision and help in reviewing making appointments.
Deliverables	None
Comments / Issues	None

2.5.4 *Care giver*

Representative	Ahmed Ali
Description	Care giver may be family member of the senior or seniors may appoint them as per their need.
Type	This is a casual user, possibly may not be aware of the technology or may be familiar with it.
Responsibilities	He confirms that the system will allow them to register their information such as registration number, name, senior name they are appointed for and contact number.

Success Criteria	Key to success is care giver trust and satisfaction with the system. The senior will facilitate the senior to get easily contacted with his doctor online without facing any problem. Also, the system secures their personal details.
Involvement	We will have them to help evaluate our design and guide our vision and help in making proper appointments of check-ups for seniors.
Deliverables	None
Comments / Issues	None

2.6 Key Stakeholder or User Needs

Need	Priority	Concerns	Current Solution	Proposed Solutions
Safe and secured access	High	Personal record is not properly maintained manually.	None	User access the system with authorized code. Personal data of user should be secured and no one can access user personal data.
User friendly interface	High	Difficulty of understanding procedures i.e. booking appointments for check-ups and appointing care givers.	None	Provide highly user-friendly interfaces. User should be able to use and understand the system easily.
Productive	High	No proper way of notifying the seniors about their medications and check-ups.	Text messages appear one time only but the seniors don't get to know about it. This can be alarming as it is crucial for them to take medicines on time.	Care givers and the seniors both can confirm that the message has been read about the notification.
User feedback	Modera	User feedback	Feedback is	User can provide feedback

	te	and complaints are not properly considered. And it's not easy to identify what kind of services they want and what services they want to improve.	conducting through survey forms. This process is time consuming. And customers are not willingly giving feedback.	through online survey forms. It will be easy for a manager to recognize most common complaints of users.

2.7 Alternatives and Competition

ECMS alternatives and competitors are following:

2.7.1 ***Care Zone App:*** It provides a worry-free way to access vital health services and keep track of important health information. With the app, users can scan their pill bottles to instantly create a detailed list of medications that they can share with doctors. The app also sends automatic reminders to take medications, refill prescriptions, or track health information like blood glucose or blood pressure . Additionally, Care Zone offers free delivery of medications to the user's doorstep every month. The app appears focused on individual self-management, but it may lack features for seamless integration with healthcare professionals. Some users may desire a more collaborative approach that involves sharing data with their healthcare providers.

2.7.2 ***Apna Doctor***: Apna Doctor will help you to connect with local doctors and labs**.** Also, Apna Doctor's users can check how many calories he/she burned. How many steps you covered daily and weekly along with the total distance on just one tap. This app does not provide solution in case of emergency situations and lack ambulance availability. The app's focus on connecting with local doctors and labs does not include comprehensive health education resources. For users in need of urgent medical transport, the app's lack of information regarding ambulance availability is a limitation.

2.7.3 ***LeapThru:*** LeapThru's patented LeapConnect software helps you maintain a loved one's independence while more closely connecting families and care teams. It keeps you aware and in-the-know with monitoring tools that help catch issues early on before they become bigger problems. Although this app has a user-friendly interface but it also lacks providing solution to emergency situations on the affected door step. While the software may enhance monitoring, it may not address the need for social interaction and companionship, which is crucial for the overall well-being of individuals. A holistic approach to care should include opportunities for social engagement.

2.7.4 ***Livindi:*** Livindi lets seniors make video calls even if they can't use a phone or computer. And when they aren't making video calls, the tablet is a digital

picture frame that displays photos and videos the family has shared. This apps usability comes with buying a lot of other devices that fulfil its functionality. It can become costly for users with tight budget causing limited entertaining audience.

2.7.5 ***Seniorsafetyapp***: Senior Safety App helps Seniors get attention quickly**,** with alerts for emergency help requests, malicious apps, phone falling, phone being inactive for a long time, app installs or uninstalls, entry/exit from geo-locations (buildings, streets, cities or neighborhoods), network changes (sim card change) and low battery alerts. But continuous monitoring and alert systems may consume significant battery life and data, potentially affecting the overall performance of the senior's device. This could be particularly concerning if the senior forgets to charge their device regularly. Additionally, the app's ability to detect emergency situations, phone falls, or malicious apps may result in false alarms. This could lead to unnecessary stress for both seniors and their caregivers, potentially causing a lack of trust in the app.

2.7.6 ***Life 360:*** Life360 is a family social networking app that provides location-based services. It is designed to help families stay connected and safe by tracking loved ones, receiving notifications if they need help, and even finding them if they get lost. The app uses real-time GPS data to share the location of the device with other family who have installed the app. While Life360 offers a free version, certain advanced features may require a subscription. The cost of these subscriptions could be a drawback for some users, especially those on a tight budget. Relying solely on a location-based app may create a false sense of security. Users should be aware that the app cannot prevent all potential risks, and it is not a substitute for comprehensive safety measures.

2.7.7 ***Care Penguin:*** Care Penguin tracks water use for the purpose of ensuring a senior citizen is up and active. All of these activities indicate a water usage event that’s detectable by Care Penguin and patterns become obvious quickly. This application can only be used by iPhone users limiting its accessibility. Moreover, it just informs us about the alarming situation but does not have solution to the emergency case. It is costly limiting its accessibility for users with tight budgets.

2 Product Overview

This section will consist of three subsections i.e. Product perspective, Product functions, Assumptions and dependencies.

2.7 Product Perspective

With real-time monitoring, medical report management, and simple doctor appointment booking, our Elderly Care System App prioritizes senior health. Medication adherence is ensured via automated reminders, and tracking social and physical activity promotes an active lifestyle. In an emergency, users can call an ambulance or contact predetermined emergency contacts. This comprehensive solution provides care givers and seniors with an easy-to-use platform to improve overall well-being and peace of mind. (Diagram 4.1)

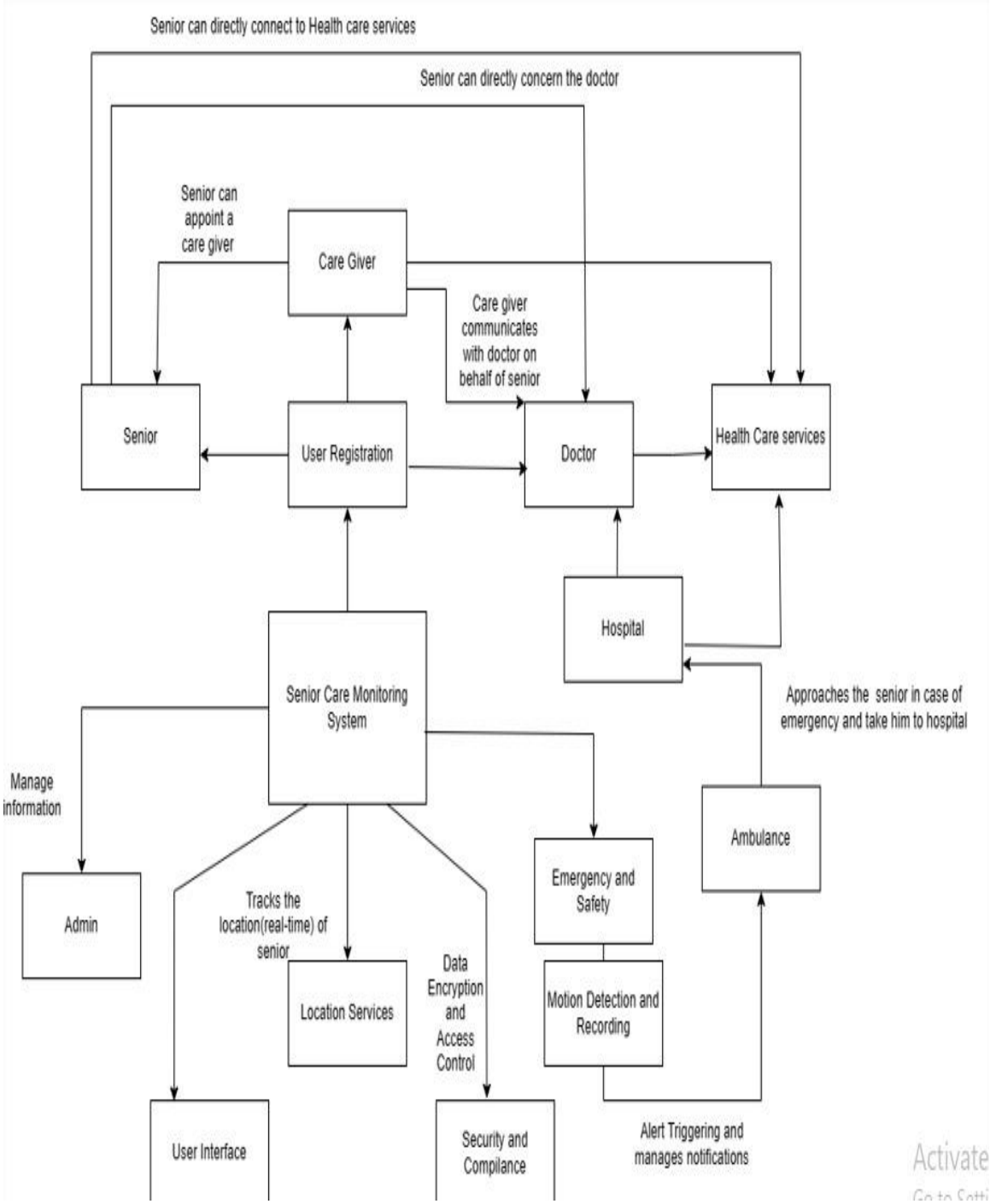


Diagram 4.1. A block diagram that shows major components of the system and their relationships.

3.6 Summary of Capabilities

Table 4-1 Customer Support System

Customer Benefit	Supporting Features
Enhanced data security.	Our system only allows authorized user access only. It authenticates the subject to the services by using unique login credentials.
Smooth customer service.	This system to be built allows the user (Seniors) to effortlessly interact with the system hands-free with the integration of voice commands, resulting in saving their time.
Increased system efficiency.	This online system is less time consuming and has less chances of errors due to advanced management and improved technology.
Improved healthcare quality.	The system to be built will use databases to keep track of senior data and history for better medical decision-making.
Improved customer activity	The system to be built allows to plan and schedule personalized activities and engagements for seniors based on their interests and abilities.

3.7 Assumptions and Dependencies

Following is a list of assumptions and dependencies of the system to be developed i.e. Senior Care.

- It is assumed that the users can access the system on a variety of devices, such as tablets or smartphones, and that it accommodates any potential physical limitations they may have.
- User is assumed to easily understand the system interface and features' functions.
- It is assumed that the database system has sufficient storage capacity.
- It is assumed that the users will possess decent internet connections for the smooth usage of the system.
- The server is required to support the intended user load and back up data.

4. Product Features

4.1 Manage account

4.2 Manage profile

4.3 Remotely Adjustable Settings

4.4 Location History

4.5 Daily Activity Monitoring

4.6 Health Data Tracking

4.7 Reminders for Self-Care

4.8 Appointment Booking

4.9 In-app Chat

4.10 Fall Detection

4.11 Compatibility and Integration

4.12 Emergency Alerts

4.13 Manage medical records

4.14 Find nearby hospitals/doctors

4.15 Urgent Care Access

4.16 Community Events Calendar

4.17 Document and Prescription Management

4.18 Privacy and Security Safeguards

4.19 Personalized Wellbeing Plans

4.20 Battery Status Alerts

4.21 Real-time Location Sharing

4.22 Geo-fencing Alerts

4.23 Get help from help center

4.24 Digital library for seniors

4.25 Physical Activity Tracker

4.26 Medication Management

4.27 Emergency Contacts

4.28 Health Assessment Surveys

4.29 Weather and Air Quality Alerts

4.30 Remote Family Check-ins

4.31 View or write reviews of doctors

4.32 Digital Library for seniors

4.33 Integrates voice commands

4.34 Call ambulance

4.35 Nutrition and Diet

4.36 Activity and Engagement Planner

4.37 Remote Home Surveillance

4.38 Calendar Integration

5. Constraints

Users who are authorized can only access the system. Only the administrator has access to his data. If a user repeatedly logs into the system with an invalid OTP code, the user will be prompted by the system to provide a valid code. The user will have 10 minutes to log in again after 3 unsuccessful attempts.

Quality Ranges

5.1 Security

The system gives the system security. The system can only be accessed by authorized users. Only those who have registered or logged in using their personal phone number will be able to utilize the system.

5.2 Availability

The system is accessible online 7 days a week and 365 days a year.

5.3 Usability

The proposed system is extremely simple to use. The system is also user friendly. Within 5 seconds of the user's request, the system will respond.

5.4 Efficiency

The systems design prioritizes the unique needs of elderly users and facilitate connectivity with caregivers and healthcare providers. This system is cost effective and provides security of user data.

Precedence and Priority

Features	Priority
F-1: Manage account F-11: Fall detection F-13: Emergency alerts F-16: Urgent care access F-19: Privacy and security safeguards F-27: Emergency contacts F-35: Call ambulance	Critical

F-2: Manage profile F-4: Location tracking F-6: Daily activity monitoring F-7: Health data tracking F-9: Appointment booking F-10: In-app chat F-14: Manage medical records F-15: Find nearby hospitals/Doctors F-25: Physical activity tracker F-26: Medication management F-28: Health assessment surveys F-36: Nutrition and diet	Important
F-3: Remotely adjustable settings F-5: Location history F-8: Reminders for self-care F-12: Compatibility and integration F-17: Community events calendar F-18: Document and prescription management F-20: Personalized wellbeing plans F-21: Battery status alert F-22: Real-time location sharing F-23: Geo-fencing alerts F-24: Get help from help center F-29: Weather and air quality alerts F-30: Remote family check-ins F-31: View or write reviews of doctors F-32: Read health blogs F-33: Digital library for seniors F-34: Integrates voice commands F-37: Activity and engagement planner F-38: Remote home surveillance	Useful

F-39: Calendar integration	

6. Documentation Requirements

6.1 User Manual

The user handbook will define the system's functionality from both the administrator's and the users' perspectives. The manual contains the following sections:

Manage account

Daily activity monitoring.

Medication management.

Emergency contacts and alerts.

Activity and engagement planning and all other features of the system.

6.2 Online Help

It would be used to help users with online queries. It would cover all of the topics specified in the user manual.

6.3 Installation Guides, Configuration, and Read Me File

It includes helpful reference guide and interactive tutorial. It helps the user that what has been going to be build. It also includes road map of our management system. It also guides the user how it can be installed in your pc or mobile phones.

A Feature Attributes

It comes with an interactive lesson and a useful reference guide. The user benefits from knowing what is planned to be built. Our management system's road map is also included. It also provides instructions on how to install it on a computer or mobile device.

A. Status

Proposed	F-33: Digital Library for seniors
	F-34: Integrates voice commands
	F-35: Call ambulance
	F-37: Activity and Engagement Planner
	F-38: Remote Home Surveillance
	F-39: Calendar Integration

Approved	F-1: Sign up or Login F-4: Location tracking F-6: Daily activity monitoring F-10: In-app chat F-11: Fall detection F-13: Emergency alerts F-16: Urgent care access F-25: Physical activity tracker F-27: Emergency contacts F-28: Health assessment surveys F-35: Emergency evacuation plans F-36: Nutrition and diet
Incorporated	All features of Senior Care

A.2 Benefit

Critical	F-1: Manage account F-7: Health data tracking F-9: Appointment booking F-14: Manage medical records F-15: Find nearby hospitals and Doctors F-16: Urgent care access F-19: Privacy and security safeguards F-26: Medication management F-35: Call ambulance

Important	F-2: Manage profile F-4: Location tracking F-6: Daily activity monitoring F-10: In-app chat F-11: Fall detection F-13: Emergency alerts F-25: Physical activity tracker F-27: Emergency contacts F-28: Health assessment surveys F-36: Nutrition and diet
Useful	F-3: Remotely adjustable settings F-5: Location history F-8: Reminders for self-care F-12: Compatibility and integration F-17: Community events calendar F-18: Document and prescription management F-20: Personalized wellbeing plans F-21: Battery status alert F-22: Real-time location sharing F-23: Geo-fencing alerts F-24: Get help from help center F-29: Weather and air quality alerts F-30: Remote family check-ins F-31: View or write reviews of doctors F-32: Read health blogs F-33: Digital library for seniors F-34: Integrates voice commands F-37: Activity and engagement planner F-38: Remote home surveillance F-39: Calendar integration

High	F-1: Manage account F-4: Location tracking F-6: Daily activity monitoring F-7: Health data tracking F-16: Urgent Care Access F-19: Privacy and safeguard settings F-25: Physical activity tracker F-28: Health assessment surveys F-36: Nutrition and diet

Medium	F-2: Manage profile F-4: Real-time location sharing F-9: Appointment booking F-10: In-app Chat F-11: Fall Detection F-12: Compatibility and Integration F-13: Emergency Alerts F-14: Manage Medical Records F-20: Personalized wellbeing plans F-34: Integrates voice commands F-38: Remote home surveillance
Low	F-5: Location History F-8: Reminders for Self-Care F-15: Find nearby hospitals/doctors F-17: Community events calendar F-18-: Document and prescription management F-21: Battery Status Alerts F-23-: Geo-fencing alerts F-24: Get help from help center F-26: Medication management F-27: Emergency contacts F-29: Weather and air quality alerts F-30: Remote family check-ins F-31: view or write reviews of doctors F-32: Read health blogs F-33: Digital Library for Seniors F-35: Call ambulance F-37: Activity and engagement planner F-38: Remotely adjustable setting F-39: Calendar integration

A.4 Risk

We categorized the risk as high, medium as low. It is divided on the basis of their dependencies.

High	F-7: Health Data Tracking F-11: Fall Detection F-13: Emergency Alerts F-26: Medication management F-35: Call ambulance
Medium	F-4: Location tracking F-6: Daily activity monitoring F-10: In-app Chat F-12: Compatibility and Integration F-14: Manage Medical Records F-16: Urgent care access F-19: Privacy and Security Safeguards F-22: Real-time Location Sharing F-23: Geo-fencing alerts F-25: Physical activity tracker

Low	F-1: Manage account
	F-2: Manage profile
	F-3: Remotely Adjustable Settings
	F-4: Nutrition and Diet
	F-5: Location History
	F-8: Reminders for Self-Care
	F-9: Appointment Reminders
	F-15: find nearby hospitals/doctors
	F-17: Community events calendar
	F-18: Document and Prescription Management
	F-20: Personalized Wellbeing Plans
	F-21: Battery Status Alerts
	F-24: Get Help from Help Center
	F-27: Emergency Contacts
	F-28: Health assessment surveys
	F-29: Weather and Air Quality Alerts
	F-30: Remote Family Check-ins
	F-31: View or Write Reviews of Doctors
	F-32: Read health blogs
	F-33: Digital Library for Seniors
	F-34: Integrates Voice Commands
	F-37: Activity and Engagement Planner
	F-38: Remote Home Surveillance
	F-39: Calendar Integration

A.5 Stability

Stability of system is dependent on these features:

F-1: Manage account

F-4: Location tracking

F-6: Daily activity monitoring

F-7: Health data tracking.

F-13: Emergency alerts

F-19: privacy and security safeguards

F-26: Medication management

Changing in any of these features will affect the stability of system

A.6 Target Release

We will release the features in first version which are of critical priority i.e. F1, F9, F19, F7, F26, F14, F15F17, F18. Other important will be included in second version i.e. F4, F6, F25, F10, F11, F13, F26, F27, F28, F35and F36. Rest of the useful features will be included in next version.

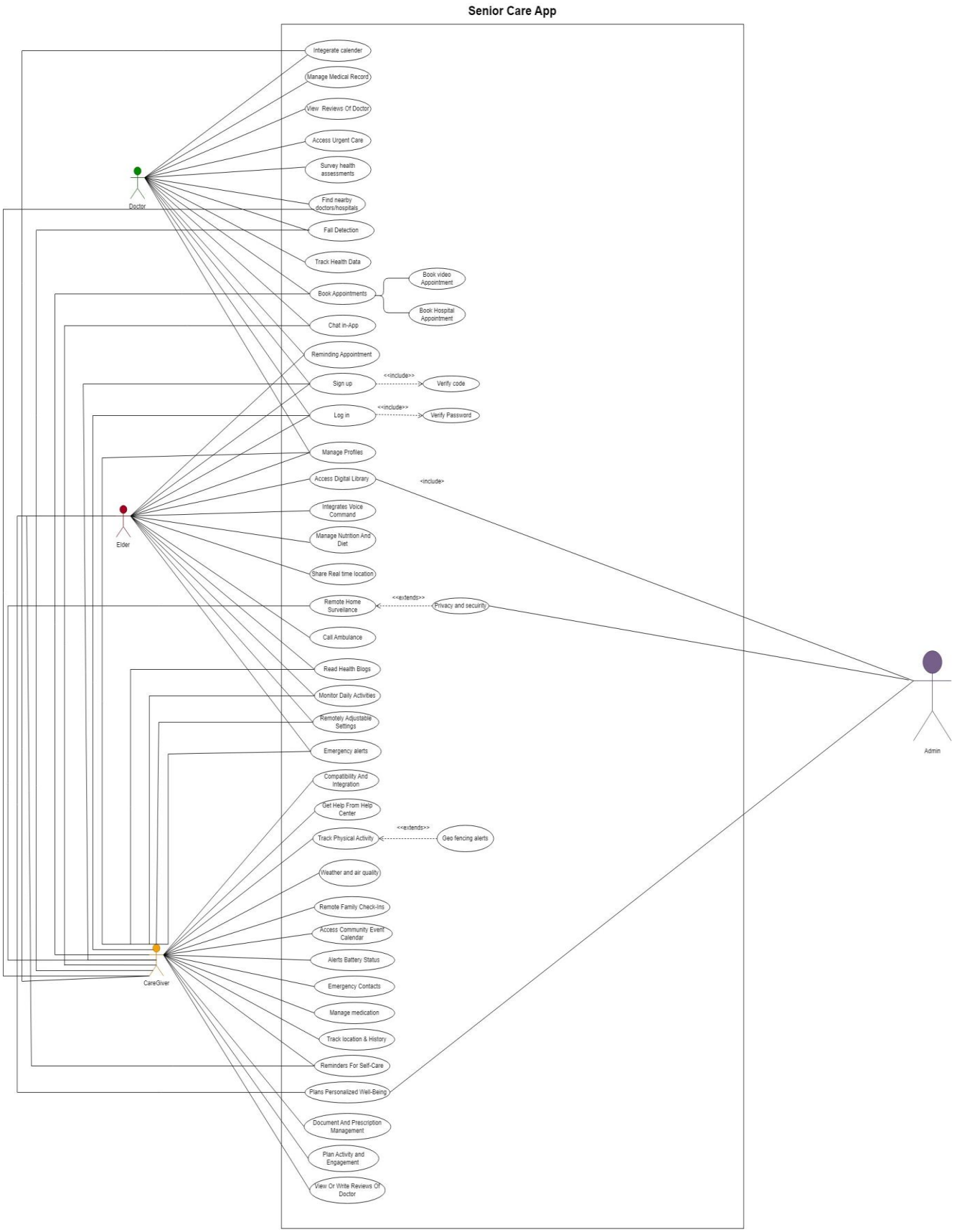
A.7 Assigned To

Features ID	Members
F1, F2, F3, F4, F16, F21, F24, F30, F38	Hajra Rizwan
F6, F7, F9, F12, F17, F28, F31, F32, F34	Mahnoor Asif
F10, F11, F14, F15, F18, F33, F36,F37	Azka Humayon
F5, F8, F13, F16, F19, F25, F27, F35, F39	Aleeha Akhlaq
F26, F22, F13, F20, F23, F25, F26, F29	Zainab Sajid

A.8 Reason

The Features included in the vision document are arranged following stakeholder workshops with customers, investors, and other relevant parties. This system's purpose is to automate the manual system that currently exists. Senior Care will work efficiently, automate the system, and save time.

Artifact-3
Use Case Modeling


Senior Care App
Integerate calender
Manage Medical Record
View Reviews Of Doctor
Access Urgent Care
Survey health assessments
Find nearby doctors/hospitals
Fall Detection
Track Health Data
Book Appointments
Book video Appointment
Book Hospital Appointment
Chat in-App
Reminding Appointment
Sign up
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Verify code
Log in
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Verify Password
Manage Profiles
Access Digital Library
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Integrates Voice Command
Manage Nutrition And Diet
Share Real time location
Remote Home Surveillance
<<extends>>
Privacy and security
Call Ambulance
Read Health Blogs
Monitor Daily Activities
Remotely Adjustable Settings
Emergency alerts
Compatibility And Integration
Get Help From Help Center
Track Physical Activity
<<extends>>
Geo fencing alerts
Weather and air quality
Remote Family Check-Ins
Access Community Event Calendar
Alerts Battery Status
Emergency Contacts
Manage medication
Track location & History
Reminders For Self-Care
Plans Personalized Well-Being
Document And Prescription Management
Plan Activity and Engagement
View Or Write Reviews Of Doctor
Doctor
Elder
CareGiver
Admin

Table of Contents

26. ID: UC-26

27. ID: UC-27

28. ID: UC-28

29. ID: UC-29

30. ID: UC-30

31. ID: UC-31

32. ID: UC-32

33. ID: UC-33

34. ID: UC-34.

35. ID: UC-35

36. ID: UC-36

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48. ID: UC-48

49. ID: UC-49

UC-001 Sign Up

Section	Content
Designation	**UC-001**
Name	Sign Up
Authors	Hajra Rizwan
Priority	High
Criticality	Medium
Source	User Requirement
Responsible	Development Team
Description	User can sign up themselves through a phone number
Trigger event	User decides to sign up for the platform
Actors	Unregistered User, System, Verification Service (for phone number verification)
Precondition	User has a stable internet connection.
Postcondition	User successfully registered and logged in.
Result	User account created and accessible.
Main Scenario	1. User selects "Sign Up" option. 2. User provides required information (name, phone number, role). 3. System validates the information. 4. Verification Service sends a verification code to the provided phone number. 5. User enters the verification code. 6. System verifies the code. 7. User account is created, and the user is logged in.
Alternative Scenario	1. If verification fails: a. User is notified. b. User can request a new verification code. 2. If user decides to cancel the sign-up process: a. User is redirected to the home page.

UC-002 Log In

Section	Content
Designation	UC-002
Name	Log In
Authors	Hajra Rizwan
Priority	High
Criticality	High
Source	User Requirement
Responsible	Development Team
Description	This feature enables password authentication, allowing both doctors and caregivers to log in with distinct roles.
Trigger event	User attempts to log in.
Actors	Doctor Caregiver Elder System
Precondition	User account exists.
Postcondition	User successfully logs in.
Result	User gains access to the system.
Main Scenario	1. User navigates to the login page. 2. User enters their username (email or phone number) and password. 3. System validates the entered credentials. 4. If credentials are valid, the user is granted access to the system. 5. If credentials are invalid, the user is notified and given the option to reset the password.
Alternative Scenario	1. If the user forgets the password: a. User selects the "Forgot Password" option. b. System sends a password reset link to the user's registered email. c. User follows the link to reset the password. 2. If there are multiple failed login attempts: a. User account may be temporarily locked for security reasons. b. User is notified about the account lock and provided instructions to unlock.

UC-003 Manage Profile

Section	Content
Designation	UC-003
Name	Manage Profile
Authors	Hajra Rizwan
Priority	High
Criticality	Medium
Source	User Requirement
Responsible	Development Team
Description	This feature empowers Doctors to meticulously fill in their professional details, showcasing their specialization and degrees. Caregivers/Elders, when there is no caregiver, can create a detailed profile for the Senior, specifying unique elder issues. The app's Manage Profile feature allows them to tailor the information for comprehensive care monitoring.
Trigger event	User decides to manage or update their profile information.
Actors	Doctor Caregiver Elder System
Precondition	User has a stable internet connection and user is logged into the system.
Postcondition	User successfully updates their profile information.
Result	User profile is updated with new information.
Main Scenario	1. User navigates to the "Manage Profile" section. 2. Doctor provides professional details, including specialization and degrees. Caregiver/Elder provides detailed information about the Elder's unique issues. 3. System validates and saves the updated profile information.
Alternative Scenario	1. If there are validation errors: a. User is notified of the errors. b. User corrects the errors and resubmits. 2. If user decides to cancel the profile update: a. No changes are made, and the user is redirected to the profile overview.

UC-04 Verify Code

Section	Content
Designation	UC-004
Name	Verify Code
Authors	Hajra Rizwan
Priority	High
Criticality	Medium
Source	User Requirement
Responsible	Development Team
Description	This feature enables users to secure their sign-up by verifying their phone numbers through a valid verification code. Both doctors and caregivers/elders can sign up with distinct roles.
Trigger event	User decides to sign up for the platform and provides necessary details.
Actors	Unregistered User, System, Verification Service (for phone number verification)
Precondition	1. User has a stable internet connection. 2. User has provided valid sign-up information.
Postcondition	1. User signup to the system. 2. System displays the homepage.
Result	User account created and accessible.
Main Scenario	1. User provides necessary sign-up information. 2. System sends a verification code to the provided phone number. 3. User enters the received verification code. 4. System verifies the entered code. 5. If the code is valid, the user account is created, and the user is logged in. 6. If the code is invalid, the user is notified, and the sign-up process is halted.
Alternative Scenario	1. If the user doesn't receive the verification code: a. User can request a new verification code. b. System re-sends the verification code to the provided phone number. 2. If the user enters an incorrect verification code: a. User is notified of the error. b. User can re-enter the correct code. 3. If the user decides to cancel the sign-up process: a. User is redirected to the home page.

UC-005 Verify Password

Section	Content
Designation	UC-005
Name	Verify Password
Authors	Hajra Rizwan
Priority	High
Criticality	Medium
Source	User Requirement
Responsible	Development Team
Description	This feature allows users to verify their password during the login process.
Trigger event	User attempts to log in.
Actors	Doctor Caregiver Elder System
Precondition	User account exists.
Postcondition	User successfully verifies the entered password and gains access to the system.
Result	User is logged into the system.
Main Scenario	1. User navigates to the login page. 2. User enters their username (email or phone number) and password. 3. System validates the entered credentials. 4. If the password is valid, the user is granted access to the system. 5. If the password is invalid, the user is notified and given the option to reset the password.
Alternative Scenario	1. If the user forgets the password: a. User selects the "Forgot Password" option. b. System sends a password reset link to the user's registered email. c. User follows the link to reset the password. 2. If there are multiple failed login attempts: a. User account may be temporarily locked for security reasons. b. User is notified about the account lock and provided instructions to unlock.

UC-006 Book Video Appointments

Section	Content
Designation	UC-006
Name	Book Video Appointments
Authors	Hajra Rizwan
Priority	High
Criticality	Medium
Source	User Requirement
Responsible	Development Team
Description	This feature enables caregivers to book online video appointments on behalf of elders.
Trigger event	Caregiver initiates the process of scheduling a video appointment for the elder.
Actors	Caregiver, Doctor, System
Precondition	Caregiver is logged into the system and has necessary authorization.
Postcondition	Video appointment is successfully scheduled, and notifications are sent to the Caregiver and Doctor.
Result	Video appointment is booked and confirmed.
Main Scenario	1. Caregiver navigates to the "Book Video Appointment" section. 2. Caregiver selects the elder for whom the appointment is to be scheduled. 3. Caregiver chooses the preferred date and time for the video appointment. 4. Caregiver selects a healthcare provider or specialist from the available options. 5. System validates the selected date, time, and healthcare provider availability. 6. If validation is successful, the system confirms the appointment. 7. Notifications are sent to the caregiver, elder, and healthcare provider with details of the scheduled video appointment.
Alternative Scenario	1. If the selected date, time, or healthcare provider is not available: a. Caregiver is notified and prompted to choose an alternative. 2. If there are issues with the booking process: a. Caregiver is provided with assistance options or customer support contact.

UC-007 Book Hospital Appointments

Section	Content
Designation	UC-007
Name	Book Hospital Appointments
Authors	Hajra Rizwan
Priority	High
Criticality	Medium
Source	User Requirement
Responsible	Development Team
Description	This feature enables caregivers to book hospital appointments on behalf of elders.
Trigger event	Caregiver initiates the process of scheduling a hospital appointment for the elder.
Actors	Caregiver, Elder, Doctors available at hospital System
Precondition	Caregiver is logged into the system and has necessary authorization.
Postcondition	Hospital appointment is successfully scheduled, and notifications are sent to the caregiver, elder, and hospital.
Result	Hospital appointment is booked and confirmed.
Main Scenario	1. Caregiver navigates to the "Book Hospital Appointment" section. 2. Caregiver selects the elder for whom the appointment is to be scheduled. 3. Caregiver provides details such as the preferred date, time, and reason for the hospital appointment. 4. System validates the entered information. 5. Caregiver selects a hospital or clinic from the available options. 6. System checks the hospital's availability and confirms the appointment. 7. Notifications are sent to the caregiver, elder, and hospital with details of the scheduled hospital appointment.

UC-008 Integrate Calendar on Elderly Care Application

Section	Content
Designation	UC-008
Name	Integrate Calendar on Elderly Care Application
Authors	Zainab Sajid
Priority	High
Criticality	High
Source	Stakeholder Requirements
Responsible	Development Team
Description	This use case involves integrating a calendar feature into the elderly care application, allowing users to schedule and manage appointments, events, and medication reminders. The integration aims to enhance the application's functionality and user experience, providing a centralized tool for organizing and tracking essential activities.
Trigger event	User selects the "Calendar" feature within the application.
Actors	Primary Actor: Elderly Care Application User Secondary Actor: Calendar API
Precondition	The user has a valid account on the elderly care application. The device has an active internet connection.
Postcondition	The calendar feature is accessible and functional within the elderly care application.
Result	Users can view, create, and manage events on the integrated calendar directly from the elderly care application.
Main Scenario	1. User navigates to the "Calendar" section in the application. 2. The application sends a request to the Calendar API to retrieve existing events. 3. The Calendar API responds with the user's calendar data. 4. The application displays the calendar with existing events. 5. User can create, edit, or delete events through the application, triggering corresponding requests to the Calendar API. 6. The Calendar API updates the calendar data accordingly.
Alternative Scenario	3a. If the Calendar API is unreachable or responds with an error: The application displays a notification to the user about the connectivity issue. The user can choose to retry or access the calendar feature later.

UC-009 Manage Medical Record

Section	Content
Designation	UC-009
Name	Manage Medical Record
Authors	Zainab Sajid
Priority	High
Criticality	High
Source	Healthcare Regulatory Requirements
Responsible	Development Team
Description	This use case involves managing medical records within the healthcare application. Users, including healthcare professionals and patients, can create, update, and view medical records. The purpose is to maintain accurate and up-to-date health information for effective healthcare management.
Trigger event	User selects the "Medical Records" feature within the application.
Actors	Primary Actor: Healthcare Professional or Patient Secondary Actor: Database System
Precondition	The user has a valid account on the healthcare application. The application has access to the necessary medical record database.
Postcondition	The medical record is successfully created, updated, or viewed within the application.
Result	Users can manage health information, including adding new records, updating existing records, and viewing a comprehensive medical history.
Main Scenario	1. User navigates to the "Medical Records" section in the application. 2. The application displays a summary of the user's medical records. 3. User selects an option to create a new medical record or update an existing one. 4. The application prompts the user to input or modify relevant health information (e.g., symptoms, diagnoses, medications). 5. User submits the information, and the application sends a request to the Database System to update the medical record.
Alternative Scenario	1a. If there is an issue with the database connection or the request fails: The application displays an error message. 1b. The user can choose to retry the operation or access the medical records feature later.

UC-010 Urgent Care Access

Section	Content
Designation	UC-010
Name	Urgent Care Access
Authors	Zainab Sajid
Priority	High
Criticality	High
Source	Emergency Services
Responsible	Development Team
Description	This use case involves providing users with swift access to urgent care services through the healthcare application. In emergency situations, patients can quickly locate and connect with nearby urgent care facilities, ensuring timely medical assistance.
Trigger event	User selects the "Urgent Care Access" feature within the application.
Actors	Primary Actor: Patient Secondary Actor: Geolocation Services, Urgent Care Database
Precondition	The user has a valid account on the healthcare application. The application has access to geolocation services.
Postcondition	The user successfully accesses information about nearby urgent care facilities and initiates necessary actions.
Result	Users can quickly and efficiently locate and connect with urgent care services during emergency situations.
Main Scenario	1. User activates the "Urgent Care Access" feature in the application. 2. The application utilizes geolocation services to determine the user's current location. 3. The application sends a request to the Urgent Care Database to retrieve information about nearby urgent care facilities. 4. The Urgent Care Database responds with a list of available urgent care centers, including their locations, contact information, and availability status. 5. The application provides options to call the urgent care facility, get directions, or request emergency services.
Alternative Scenario	1a. If there are no nearby urgent care facilities: The application informs the user that no urgent care facilities are available in the vicinity. 5a. The user is encouraged to seek immediate medical attention at the nearest hospital.

UC-011 View Reviews of Doctor

Section	Content
Designation	UC-011
Name	View Reviews of Doctor
Authors	Zainab Sajid
Priority	Medium
Criticality	Low
Source	User Feedback
Responsible	Development Team
Description	This use case involves allowing users of the healthcare application to view reviews and ratings for a specific doctor. Patients can make informed decisions about choosing healthcare providers based on the experiences and feedback shared by other users.
Trigger event	User selects the "Doctor Reviews" feature within the application.
Actors	Primary Actor: Patient Secondary Actor: Review Database
Precondition	The user has a valid account on the healthcare application. The application has access to the Review Database.
Post condition	The user successfully views reviews and ratings for the selected doctor.
Result	Users can make informed decisions about choosing a doctor based on the experiences shared by other patients.
Main Scenario	1. User navigates to the "Doctor Reviews" section in the application. 2. The application displays a list of doctors available for review. 3. User selects a specific doctor. 4. The application sends a request to the Review Database to retrieve reviews and ratings for the selected doctor. 5. The Review Database responds with the relevant information. 6. The application displays reviews, ratings, and any additional details about the selected doctor. 7. User has the option to filter or sort reviews based on various criteria.
Alternative Scenario	1a. If there are no reviews available for the selected doctor: The application informs the user that there are no reviews at the moment. 1b. The user can choose to submit their own review or proceed with other actions.

UC-012 Surveys of Health Assessments

Section	Content
Designation	UC-012
Name	Surveys of Health Assessments
Authors	Zainab Sajid
Priority	Medium
Criticality	Low
Source	Healthcare Providers
Responsible	Development Team
Description	This use case involves facilitating health assessments through surveys within the healthcare application. Patients receive and complete health-related surveys provided by healthcare providers, enabling the collection of valuable health data for personalized care and treatment plans.
Trigger event	User receives a notification or selects the "Health Surveys" feature within the application.
Actors	Primary Actor: Patient Secondary Actor: Healthcare Providers, Survey Management System
Precondition	The user has a valid account on the healthcare application. The application has access to the Survey Management System.
Postcondition	The user successfully completes health assessments through surveys, and the collected data is stored securely.
Result	Healthcare providers can access valuable health information to enhance personalized patient care.
Main Scenario	1. User receives a notification or navigates to the "Health Surveys" section in the application. 2. The application retrieves available health surveys from the Survey Management System. 3. User selects a specific health survey to complete. 4. The application presents the survey questions to the user. 5. User completes the survey by providing relevant health information. 6. The application sends the completed survey data securely to the Survey Management System. 7. The Survey Management System acknowledges the successful submission.
Alternative Scenario	3a. If the user chooses not to complete a survey: 4a. The application provides an option to complete the survey later. The user can access and complete pending surveys at their convenience.

UC-013 In-App Chat

Section	Content
Designation	UC-013
Name	In-App Chat
Authors	Zainab Sajid
Priority	High
Criticality	Low
Source	User Interaction
Responsible	Development Team
Description	This use case involves enabling users to engage in real-time chat within the mobile application. Users can communicate with customer support, healthcare professionals, or other users for inquiries, support, or collaborative discussions.
Trigger event	User selects the "Chat" feature within the application.
Actors	Primary Actor: Application User Secondary Actor: Customer Support, Healthcare Professionals
Precondition	The user has a valid account on the mobile application. The application has access to the necessary chat infrastructure.
Postcondition	The user successfully engages in real-time chat with the intended recipient, and the chat history is stored securely.
Result	Users can communicate seamlessly, fostering better user support and collaboration.
Main Scenario	1. User selects the "Chat" feature in the application. 2. The application presents a list of available chat options, such as customer support or healthcare professionals. 3. User selects a specific chat option or recipient. 4. The application establishes a real-time connection to the chat server. 5. User sends and receives messages in real-time. 6. The chat history is stored securely for future reference. 7. The user can attach files, images, or other media to enhance communication.
Alternative Scenario	2a. If the user encounters technical issues with the chat feature: The application prompts the user to check their internet connection. 2b. If issues persist, the user is provided with alternative contact options (e.g., email, phone).

UC-014 Digital Library

Section	Content
Designation	UC-014
Name	Digital Library
Authors	Zainab Sajid
Priority	High
Criticality	Low
Source	User Interaction
Responsible	Development Team
Description	This use case involves providing users with access to a digital library within the application. Users can browse, search, and access a variety of digital content, including e-books, documents, and multimedia resources.
Trigger event	User selects the "Digital Library" feature within the application.
Actors	Primary Actor: Application User Secondary Actor: Digital Content Management System
Precondition	The user has a valid account on the application. The application has access to the Digital Content Management System.
Post condition	The user successfully engages in real-time chat with the intended recipient, and the chat history is stored securely.
Result	Users can explore and engage with a diverse range of digital resources available in the digital library.
Main Scenario	1. User navigates to the "Digital Library" feature in the application. 2. The application retrieves a list of available digital content from the Digital Content Management System. 3. User browses or searches for specific content. 4. User selects a digital resource to view or download. 5. The application fetches and displays the content to the user. 6. User can read, watch, or listen to the digital content as per the content type. 7. The application provides options to bookmark, share, or provide feedback on the content.
Alternative Scenario	2a. If the user encounters issues accessing digital content: 2b. The application provides troubleshooting tips. If issues persist, the user is encouraged to contact customer support for assistance.

UC-015 Integrating Voice Commands

Section	Content
Designation	UC-015
Name	Integrating Voice Commands
Authors	Zainab Sajid
Priority	High
Criticality	Low
Source	User Interaction
Responsible	Development Team
Description	This use case involves integrating voice command functionality into the mobile application, allowing users to interact with the application using voice prompts for a hands-free and user-friendly experience.
Trigger event	User activates the voice command feature within the application.
Actors	Primary Actor: Application User Secondary Actor: Voice Recognition System
Precondition	The user has a valid account on the mobile application. The application has access to the necessary voice recognition system.
Postcondition	The user successfully interacts with the application using voice commands, triggering the intended actions.
Result	Users can perform various tasks within the application using voice commands, enhancing accessibility and user experience.
Main Scenario	1. User activates the voice command feature within the application. 2. The application prompts the user to speak a command. 3. The voice recognition system processes the user's command. 4. The application interprets the command and performs the corresponding action. 5. User receives feedback or confirmation based on the executed command. 6. The application can handle voice commands for tasks like navigation, searching, or initiating specific features.
Alternative Scenario	1a. If the voice recognition system encounters difficulty understanding a command: 1b. The application prompts the user to repeat or rephrase the command. If issues persist, the user is provided with alternative interaction methods (e.g., touch controls).

UC-016 Activity and Engagement Planner

Section	Content
Designation	UC-016
Name	Activity and Engagement Planner
Authors	Zainab Sajid
Priority	High
Criticality	Low
Source	User Interaction
Responsible	Development Team
Description	This use case involves providing users with an activity and engagement planner within the application. Users can plan, schedule, and participate in various activities and engagements based on their preferences and interests.
Trigger event	User selects the "Activity Planner" feature within the application.
Actors	Primary Actor: Application User Secondary Actor: Activity Management System
Precondition	The user has a valid account on the application. The application has access to the Activity Management System.
Postcondition	The user successfully plans and schedules activities using the planner, and relevant notifications are set.
Result	Users can manage their time effectively, plan engaging activities, and receive timely reminders for scheduled events.
Main Scenario	1. User navigates to the "Activity Planner" feature in the application. 2. The application presents a calendar or planner interface with available time slots. 3. User selects a date and time for a new activity or engagement. 4. The application prompts the user to choose from a list of available activities or allows manual input. 5. User confirms the selected activity and sets relevant details (e.g., location, participants). 6. The application stores the planned activity in the Activity Management System. 7. User receives a notification or reminder before the scheduled activity.
Alternative Scenario	1a. If the user needs to modify or cancel a planned activity: 1b. User navigates to the "Planned Activities" section. The application allows the user to edit or cancel the selected activity. The Activity Management System is updated accordingly, and notifications are adjusted.

UC-017 Remotely Adjustable Settings

Section	Content
Designation	UC-017
Name	Remotely Adjustable Settings
Authors	Zainab Sajid
Priority	High
Criticality	High
Source	User Interaction
Responsible	Development Team
Description	This use case involves providing users with the capability to remotely adjust settings in a system or application. Users can modify various configurations and preferences from a remote location, enhancing flexibility and convenience.
Trigger event	User accesses the "Remote Settings" feature within the application or system.
Actors	Primary Actor: Application User Secondary Actor: System Configuration Module
Precondition	The user has a valid account on the application or system. The application or system is connected to the internet.
Postcondition	The user successfully adjusts settings remotely, and the changes are reflected in the system.
Result	Users can tailor settings and configurations without direct physical access to the system, providing convenience and adaptability.
Main Scenario	1. User opens the application or system and navigates to the "Remote Settings" section. 2. The application or system establishes a secure connection to the System Configuration Module. 3. User views a list of adjustable settings, such as preferences, notifications, or system configurations. 4. User selects a specific setting to modify and adjusts it according to their preferences. 5. The application or system sends a request to the System Configuration Module to apply the changes. 6. The System Configuration Module processes the request and updates the system settings accordingly. 7. User receives a confirmation that the settings have been adjusted remotely.

UC-018 History Of Location

Section	Content
Designation	UC- 018
Name	History Of Location
Authors	Aleeha Akhlaq
Priority	Low
Criticality	Medium
Source	User Requirement
Responsible	Development team
Description	It offers caregivers a historical record of seniors' positions over time, aiding in monitoring, ensuring safety, and providing insights.
Trigger event	- Caregiver initiates a request for location history. - Scheduled automatic location tracking updates.
Actors	System Administrator
Precondition	Location tracking is enabled and configured.
Post condition	- Caregiver has access to the historical location data. - Elder's privacy and security are maintained.
Result	Improved safety and security for the elderly, as well as vital information for carers.
Main Scenario	1. Caregiver requests historical location data from the system. 2. System compiles and presents elderly individual's location history. 3. Caregiver reviews historical location data for insights. 4. Caregiver uses information for ensuring well-being and identifying concerns. 5. Elderly individual may be informed about location history if agreed upon.
Alternative Scenario	1a. If the carer has trouble accessing the location history, the system sends an alert to the administrator of the system or prompts the carer to verify the system settings.

UC-019 Monitoring Daily activities

Section	Content
Designation	UC-019
Name	Monitoring Daily activities
Authors	Mahnoor Asif
Priority	High
Criticality	Medium
Source	User Requirement
Responsible	Development team
Description	System tracks and analyzes the daily activities of elderly individuals to ensure their well-being and safety.
Trigger event	Real-time monitoring of health parameters (heart rate, blood pressure) and triggering alerts if readings exceed or fall below specified ranges.
Actors	Elderly Individual Caregiver /Healthcare Providers
Precondition	1. Elderly residents are registered in the system. **2.** Monitoring devices (sensors, cameras, etc.) are functional and placed appropriately.
Postcondition	1. Alerts are addressed appropriately by the Caregiver/Administrator, ensuring the well-being of the elderly person. **2.** System may adjust monitoring parameters or sensitivity levels based on the detected irregularities to improve accuracy
Result	Accurate and real-time monitoring of daily activities of elderly residents, allowing timely intervention in case of emergencies or irregularities.
Main Scenario	1. Caregiver/Nurse logs into the system dashboard. 2. Caregiver selects the desired resident or room for monitoring. 3. The system displays real-time data from monitoring devices (e.g., motion sensors, cameras). 4. Caregiver observes regular daily activities (e.g., movements, sleeping patterns, bathroom usage). Any anomalies or irregularities trigger alerts or notifications for immediate attention. 5. Caregiver responds accordingly, either by physically checking the resident or contacting them through the system.
Alternate Scenario	3a. If there's a technical issue preventing the display of real-time data, provide troubleshooting guidance or alert system administrators. 5a. If unusual patterns or lack of activity persist, escalate the alert to higher authorities or emergency services.

UC-020 Track Health Data

Section	Content
Designation	UC-020
Name	Track Health Data
Authors	Mahnoor Asif
Priority	High
Criticality	Medium
Source	User Requirement
Responsible	Development team
Description	This outlines the process of tracking and managing health data of elderly individuals to monitor their well-being and health status.
Trigger event	Real-time monitoring of health parameters (heart rate, blood pressure) triggering alerts to record and analyze health metrics during these periods.
Actors	Caregiver/Nurse.
Precondition	Elderly residents are registered in the system. Health monitoring devices (e.g., wearable health trackers, vital sign monitors) are connected and functional.
Postcondition	1. Caregiver takes appropriate actions based on health data analysis to maintain or improve the elderly person's health. 2. The system continues to collect and track health data for ongoing monitoring and evaluation.
Result	Accurate and continuous tracking of health parameters, providing insights for personalized care plans and timely interventions.
Main Scenario	1. Caregiver/Nurse accesses the health data monitoring section in the system. Caregiver selects the desired resident's profile or room for health data tracking. 2. System displays real-time health parameters (e.g., heart rate, blood pressure, temperature) captured by monitoring devices. 3. Caregiver monitors and records health data at scheduled intervals or upon resident request. 4. Caregiver documents the health data readings and any actions taken for future reference and care planning.
Alternate Scenario	**3a.** If there's a technical issue preventing the display of real-time data, provide troubleshooting guidance or alert system administrators. **4a.** If health parameters exceed or fall below predefined thresholds, escalate the alert to higher authorities or healthcare professionals for further assessment.

UC-021 Reminders for self-care

Section	Content
Designation	UC-021
Name	Reminders for self-care
Authors	Mahnoor Asif
Priority	Medium
Criticality	Low
Source	User Requirement
Responsible	Development team
Description	This use case details the process of setting and receiving self-care reminders to assist elderly individuals in managing their self-care routines.
Trigger event	Predetermined time slots or intervals set for specific self-care activities (e.g., medication, hydration, meals) that automatically trigger reminder notifications at the scheduled times
Actors	Elderly Person
Precondition	1. Elderly residents have individual profiles set up in the system. 2. Self-care activities and their schedules are configured in the system.
Postcondition	1. The system tracks adherence to self-care reminders, providing insight into the Elderly Person's compliance with the set routines. 2. Based on adherence data, Caregiver/Administrator can make adjustments to reminders or offer additional support as needed.
Result	Consistent and timely reminders for self-care activities, promoting the well-being and health maintenance of elderly residents.
Main Scenario	1. Elderly accesses their profile or designated section for self-care reminders in the system. 2. Elderly views the scheduled self-care activities (e.g., medication, hydration, exercise) and associated timings. 3. The system displays a reminder notification for upcoming self-care activities at scheduled intervals. 4. Resident acknowledges or confirms completion of the self-care task within the system.
Alternate Scenario	3a. If the resident misses acknowledging the reminder, escalate the alert to caregivers or family members for manual follow-up. 4a. If the resident confirms inability to perform the self-care task, provide guidance or options for assistance from caregivers.

UC-022 Fall Detection

Section	Content
Designation	UC-022
Name	Fall Detection
Authors	Mahnoor Asif
Priority	High
Criticality	High
Source	User Requirement
Responsible	Development team
Description	The system is designed to promptly detect and notify caregivers or emergency services in the event of an elderly individual experiencing a fall.
Trigger event	System detects sudden changes in acceleration or orientation detected by motion sensors, prompting immediate analysis and alert generation to signal a potential fall.
Actors	Elderly Individual and Caregiver
Precondition	1. Elderly residents are equipped with fall detection sensors or wearable devices. 2. Monitoring system has access to real-time sensor data.
Postcondition	1. The system logs the fall event, including timestamps and any follow-up actions taken by the caregiver or emergency services. 2. The Elderly Individual receives appropriate assistance following the fall incident.
Result	Timely and accurate detection of falls, triggering immediate alerts for prompt assistance.
Main Scenario	1. Monitoring system continuously monitors data from fall detection sensors or wearables worn by residents. 2. Sensor detects a sudden change in orientation or impact consistent with a fall. 3. System analyzes the data and confirms a potential fall event. System triggers an immediate alert to caregivers or nurses, indicating resident's name and location. 4. Caregiver or nurse responds promptly to the alert and provides assistance to the fallen resident.
Alternate Scenario	3a. If the sensor detects an impact but is unsure if it's a fall, provide a warning alert for possible fall detection, allowing further confirmation. 4a. If there's no response from caregivers or nurses within a set time frame, escalate the alert to higher authorities or emergency services.

UC-023 Compatibility and Integrations

Section	Content
Designation	UC-023
Name	Compatibility and Integrations
Authors	Mahnoor Asif
Priority	High
Criticality	Medium
Source	User Requirement
Responsible	Development team
Description	It focuses on ensuring seamless interactions, data exchange, and interoperability with external systems or devices.
Trigger event	User decides to integrate new devices for the system.
Actors	Elderly Individual Caregiver Emergency Services Dispatcher
Precondition	1. Various monitoring devices (e.g., sensors, health trackers) and software applications are in use within the system. 2. System architecture and interfaces are designed for potential integration.
Postcondition	1. Elderly person successfully books appointment. 2. Elderly person can consult with doctor.
Result	Efficient scheduling and management of medical appointments within the elderly care monitoring system.
Main Scenario	1. Elderly resident or caregiver accesses the appointment scheduling section in the system. 2. Available healthcare providers and appointment slots are displayed based on resident's preferences or care requirements. 3. Resident or caregiver selects the desired provider, appointment type, and available time slot. System confirms the booking and sends an appointment confirmation to the resident/caregiver and the healthcare provider. Reminder notifications are set up for the upcoming appointment to ensure resident preparedness.
Alternate Scenario	2a. If the preferred provider or time slot is not available, the system provides alternative options or suggests the earliest available appointment. 3a. If the appointment confirmation fails due to technical issues, the system resends the confirmation or alerts system administrators for manual resolution.

UC-024 Book Appointment

Section	Content
Designation	UC-024
Name	Book Appointment
Authors	Mahnoor Asif
Priority	High
Criticality	Medium
Source	User Requirement
Responsible	Development team
Description	Elderly User can book any doctor's appointment according to their time, fee and disease.
Trigger event	Caregiver initiates the process of scheduling appointment for the elder.
Actors	Elderly User
Precondition	1. Elderly residents are registered in the system with their medical profiles. 2. Healthcare providers' schedules and available slots are integrated into the system.
Postcondition	1. Elderly person successfully books appointment. 2. Elderly person can consult with doctor.
Result	Efficient scheduling and management of medical appointments within the elderly care monitoring system.
Main Scenario	1. Elderly resident or caregiver accesses the appointment scheduling section in the system. 2. Available healthcare providers and appointment slots are displayed based on resident's preferences or care requirements. 3. Resident or caregiver selects the desired provider, appointment type, and available time slot. 4. System confirms the booking and sends an appointment confirmation to the resident/caregiver and the healthcare provider. 5. Reminder notifications are set up for the upcoming appointment to ensure resident preparedness.
Alternate Scenario	2a. If the preferred provider or time slot is not available, the system provides alternative options or suggests the earliest available appointment. 4a. If the appointment confirmation fails due to technical issues, the system resends the confirmation or alerts system administrators for manual resolution.

UC-025 Appointment Reminder

Section	Content
Designation	UC-025
Name	Appointment Reminder
Authors	Mahnoor Asif
Priority	High
Criticality	Medium
Source	User Requirement
Responsible	Development team
Description	The system helps in managing and notifying both the elderly individual and their caregivers about upcoming appointments.
Trigger event	When system detects scheduled date and time of upcoming appointments prompting the system to generate reminders or notifications in advance to ensure timely attendance.
Actors	Elderly Individual Caregiver
Precondition	1. Elderly residents' appointments are scheduled and recorded within the system. 2. Resident or caregiver contact information is available for notification purposes.
Postcondition	1. The system registers and confirms the appointment booking, assigning a unique identifier or reference number to the scheduled appointment.
Result	Delivery of timely appointment reminders to residents or caregivers, aiding in the attendance of scheduled medical appointments.
Main Scenario	1. A predetermined time before the scheduled appointment. Sends automated notifications to residents or caregivers about the upcoming appointment. 2. Resident or caregiver receives and acknowledges the reminder. Provides a response option for confirmation or rescheduling within the notification. 3. Records the acknowledgment or response in the system for appointment management.
Alternate Scenario	3a. If the reminder fails to reach the resident or caregiver, the system initiates a secondary notification through an alternative contact method. 3b. If the resident or caregiver requests a reschedule or cancellation within the notification, the system updates the appointment details accordingly.

UC-026 Health Blogs

Section	Content
Designation	UC-026
Name	Health Blogs
Authors	Aleeha Akhlaq
Priority	Low
Criticality	Low
Source	User Requirement
Responsible	Development team
Description	It provides valuable information and resources to enhance the user's understanding of health-related topics.
Trigger event	The user selects the "Read Health Blogs" option from the system's main menu.
Actors	Elder, Caregiver, Doctor
Precondition	The user must be logged into the Elderly Care Monitoring System. The system must have an active internet connection.
Post condition	The user gains access to a curated list of health-related blogs.
Result	The user can read informative health blogs relevant to their needs and interests.
Main Scenario	1. The user logs into the Elderly Care Monitoring System. 2. The user navigates to the main menu. 3. The user selects the "Read Health Blogs" option. 4. The system retrieves and displays a list of health-related blogs. 5. The user selects a specific blog from the list. 6. The system opens the selected blog, allowing the user to read its contents. 7. The user can navigate back to the blog list or return to the main menu.
Alternative Scenario	If the system encounters connectivity issues. The system displays an error message. The user is prompted to check their internet connection. The user can choose to retry or exit the feature.

UC-027 Remote Family Check-Ins

Section	Content
Designation	UC-027
Name	Remote Family Check-Ins
Authors	Aleeha Akhlaq
Priority	High
Criticality	Medium
Source	User Requirement
Responsible	Development team
Description	Allows for remote check-ins on the elderly, as well as real-time updates and communication for rapid responds.
Trigger event	A family member initiates a remote check-in through the system
Actors	Elder, Family Member, System
Precondition	The Family Member must have authorized access to the Elderly Care Monitoring System. The Elderly Care Monitoring System must be operational.
Post condition	The Family Member receives updated information on the well-being of the Elder.
Result	Family members can remotely check in on the Elder, ensuring peace of mind and timely response to any emerging issues.
Main Scenario	1. Family Member selects "Remote Check-ins." 2. Chooses Elderly Individual's profile. 3. System displays real-time data on vital signs, activity, and alerts. 4. Reviews info, leaves message, or starts video call. 5. Elder is notified and can respond. 6. System logs check-in details.
Alternative Scenario	If the Elder is unresponsive or requires immediate attention: • The system generates an alert and notifies emergency contacts. • Emergency services may be contacted based on the severity of the situation. If there are technical issues preventing the check-in: • Displays an error message.

UC-028 Community Events Calendars

Section	Content
Designation	UC-028
Name	Community Events Calendars
Authors	Aleeha Akhlaq
Priority	Low
Criticality	Low
Source	User Requirement
Responsible	Development team
Description	Allow users to access and participate in local activities via a centralized calendar.
Trigger event	User logs into the system.
Actors	Elder, Caregiver, Community Manager
Precondition	The system is operational, and users have valid login credentials.
Post condition	Users have viewed and potentially engaged in community events.
Result	Improved social connectivity and overall well-being of elderly residents.
Main Scenario	1. User logs into the system. 2. User navigates to the "Community Events Calendar" section. 3. The system displays a monthly calendar with highlighted local events. 4. User selects a specific date to view details of the event. 5. The system provides information such as event name, location, time, and a brief description. 6. User expresses interest or confirms attendance. 7. The system updates the user's calendar and notifies relevant parties. 8. Care givers or community managers can also help provide transportation or other support for elders.
Alternative Scenario	If a user encounters technological difficulties while viewing the calendar, the system provides explicit troubleshooting advice or contacts help.

Section	Content
Designation	UC- 029
Name	Battery Status Alerts
Authors	Aleeha Akhlaq
Priority	High
Criticality	High
Source	User Requirement
Responsible	Development team
Description	When the device's battery runs low, the system delivers timely messages to carers and administrators, preventing any disruptions.
Trigger event	Low battery level detected by the monitoring device.
Actors	Monitoring Device, Caregiver, System Administrator
Precondition	The system is configured to monitor battery levels.
Post condition	Caregivers and administrators are notified of the low battery status.
Result	Uninterrupted tracking of elder.
Main Scenario	1. Low battery level detected 2. System sends notifications 3. Caregiver receives notification 4. Caregiver takes action 5. Device charging initiated 6. Notification acknowledgment
Alternative Scenario	If the carer does not respond to the message within the timeframe set, the alert is escalated to the system administrator.

UC-030 Emergency Contacts

Section	Content
Designation	UC- 030
Name	Emergency Contacts
Authors	Aleeha Akhlaq
Priority	Medium
Criticality	High
Source	User Requirement
Responsible	Development team
Description	Enables quick access to emergency contacts for immediate assistance in senior emergencies.
Trigger event	- Elder initiates an emergency alert. - Caregiver updates or adds emergency contacts.
Actors	Elder, Caregiver, System Administrator
Precondition	Caregivers have set up emergency contacts for the elder.
Post condition	Emergency contacts are accessible for immediate assistance.
Result	Responding quickly to critical situations and offering required assistance.
Main Scenario	Elder triggers emergency alert via button or gesture. System accesses stored emergency contacts. Contacts receive instant notifications. Caregiver acts promptly upon notification. Caregiver contacts emergency services or designated individuals. System logs emergency details for reference.
Alternative Scenario	Care givers can manually activate an emergency alarm using the system interface if senior's is unable to initiate the alert.

UC-31 Manage Medication

Section	Content
Designation	UC- 031
Name	Manage Medication
Authors	Aleeha Akhlaq
Priority	High
Criticality	High
Source	User Requirement
Responsible	Development team
Description	The carer givers regular medication reminders, dosage information, and refill alerts to improve elders' medication adherence.
Trigger event	Scheduled medication time, Medication refill reminder.
Actors	Caregiver, System Administrator
Precondition	Medication details are input into the system.
Post condition	Medication refill alerts are addressed.
Result	Improved medication adherence and timely refills benefit senior citizens' health and well-being.
Main Scenario	1. The system sends the user a scheduled medication reminder. 2. The user or carer receives a medication notification. 3. The user double-checks the dosage specifics and any special instructions. 4. The user recognizes the reminder and takes the medication. 5. When the supply is low, the system sends a refill notice. 6. The carer responds to the refill reminder by booking a medication refill.
Alternative Scenario	If the user fails to recognize the medication reminder, the system notifies the carer for further action.

UC-032 Find Nearby Doctors/Hospitals

Section	Content
Designation	UC- 032
Name	Find Nearby Doctors/Hospitals
Authors	Aleeha Akhlaq
Priority	Medium
Criticality	High
Source	User Requirement
Responsible	Development team
Description	It helps users find nearby hospitals, doctors, and vital information for quick access to medical services.
Trigger event	Emergency prompts immediate attention.
Actors	Elderly Individual, System Administrator
Precondition	Location services are enabled.
Post condition	In case of an emergency, appropriate medical assistance is sought.
Result	Improved accessibility to medical services and timely response to healthcare needs.
Main Scenario	1. User activates feature to find nearby healthcare. 2. System displays hospitals and doctors using location services. 3. User reviews location, contact, and available doctors. 4. User selects preferred healthcare provider. 5. System helps navigate to the chosen facility. 6. In emergencies, user swiftly locates the nearest hospital for rapid assistance.
Alternative Scenario	If the user face's location service issues, the system prompts manual entry or asks the caregiver for help.

UC-033 Personalized Wellbeing Plans

Section	Content
Designation	UC- 033
Name	Personalized Wellbeing Plans
Authors	Aleeha Akhlaq
Priority	Low
Criticality	Medium
Source	User Requirement
Responsible	Development team
Description	It creates personalized wellbeing plans from user data to enhance overall health and achieve specific goals, promoting a holistic elderly care approach.
Trigger event	Regularly scheduled health assessments.
Actors	Caregiver, Healthcare Providers
Precondition	User's health data is available in the system.
Post condition	Personalized wellbeing plan is created and accessible to the user and caregiver.
Result	Improved overall well-being of the elderly individual, aligned with their health goals.
Main Scenario	1. User updates health data, including activity and lifestyle. 2. System analyzes, identifies areas for improvement. 3. Generates customized wellbeing plan with recommendations. 4. Plan accessible to user and caregivers through the system. 5. Healthcare providers may access the plan for alignment. 6. System schedules follow-up assessments, adjusting based on feedback.
Alternative Scenario	If the user has difficulty updating health information, the system sends reminders or asks carers to assist with the data entry process.

UC-034 Share Realtime Location

Section	Content
Designation	UC- 034
Name	Share Realtime Location
Authors	Aleeha Akhlaq
Priority	Low
Criticality	Low
Source	User Requirement
Responsible	Development team
Description	It enables real-time location sharing, improved security, and quick emergency response among users, family, and friends.
Trigger event	- User initiates a request to share real-time location. - Caregiver initiates a request for the user's real-time location.
Actors	Elder, Caregiver, Family and Friends
Precondition	Location tracking is enabled and configured.
Post condition	Selected individuals have access to the real-time location of the elderly individual.
Result	Enhanced safety and security for the elderly individual through real-time location sharing.
Main Scenario	1. User initiates real-time location sharing through the system. 2. User selects specific family members or friends to share with. 3. System activates real-time tracking for selected individuals. 4. Recipients receive notifications and access real-time location information. 5. System provides periodic updates on the user's location. 6. User controls and customizes the duration and extent of location sharing.
Alternative Scenario	If the elderly person has issues commencing real-time location sharing, the system offers troubleshooting advice or alerts the carer for assistance.

UC-035 Manage Nutrition and Diet

Section	Content
Designation	UC- 035
Name	Manage Nutrition and Diet
Authors	Azka Humayon
Priority	Medium
Criticality	High
Source	User Requirement
Responsible	Development team
Description	Elder or caregiver can track and plan the elder's nutritional and meal intake.
Trigger event	Elder or caregiver wants to track or plan the elder's diet or nutrition
Actors	Elder, Caregiver.
Precondition	Elder/caregiver receives the notification for diet intake reminder.
Post condition	Elder/caregiver views the diet plan and the scheduled meal for intake.
Result	Elder follows the scheduled diet intake.
Main Scenario	1.Elder/caregiver selects "manage nutrition and diet". 2.The caregiver/senior creates a tailored user profile providing existing health state of the elder. 3.The app generates a dietary plan according to requirements. 4.The senior/caregiver receives reminders for diet intake as scheduled. 5.The senior/caregiver follows and tracks the dietary habits of senior.
Alternative Scenario	1.If the feature does not function according to scheduled planning: a. Caregiver/senior directly contacts the healthcare professional for diet plan.

UC-036 Remote home surveillance

Section	Content
Designation	UC- 036
Name	Remote home surveillance
Authors	Azka Humayon
Priority	Low
Criticality	Medium
Source	User Requirement
Responsible	Development team
Description	Caregiver can monitor senior's wellbeing through home security camera when not physically present around them.
Trigger event	Caregiver may initiate the use of the feature by sending a request for a live feed.
Actors	Caregiver.
Precondition	The caregiver has a stable internet connection.
Post condition	Caregiver views the elder on the live feed through the security camera.
Result	Caregiver monitors and checks on the wellbeing of the senior at the moment.
Main Scenario	1. Caregiver selects the "Remote home surveillance" feature. 2. The caregiver gets access to the security camera recording live at the elder's location. 3. Caregiver monitors the senior's activities in the present.
Alternative Scenario	1.If the camera experiences some technical fault or caregiver cannot access the senior live through this feature: a. The app notifies the technical failure to the caregiver so the caregiver contacts the senior directly through in-app chat communication feature or requests the neighbors or local contacts to check in on the senior's wellbeing.

UC-037 Privacy and security

Section	Content
Designation	UC- 037
Name	Privacy and security
Authors	Azka Humayon
Priority	High
Criticality	High
Source	User Requirement
Responsible	Development team
Description	Allows security and privacy of sensitive information such as personal data of users and medical records of the senior.
Trigger event	Changes to user account details, such as password resets, modifications to contact information. Changes in prescription, treatment plans or health conditions.
Actors	Elder, Caregiver, Doctor.
Precondition	The system is in stable and operational state to effectively implement security measures.
Post condition	The security safeguards are activated.
Result	Users' sensitive information and medical records are secured and protected.
Main Scenario	1.The registered user activates the Privacy and security function by selecting this feature. 2.The user authenticates by proving their identity to access the security settings. 3.The user initiates extra security tests to confirm the validity of the updates after noticing a change in the senior's medical information. 4.By carrying out security checks, the system makes sure that the modifications are approved and compliant with the right procedures. 5.The system protects the security and integrity of the medical records by initiating an instant response in the event that it detects any unauthorized or suspect activity.
Alternative Scenario	1.If the feature fails to provide security reassurance: a.The user reports the problem to the technical support or help center to fix the disruption. Technical support implements the necessary updates or restore the operation of privacy and security feature.

UC-038 Get help from help center

Section	Content
Designation	UC- 038
Name	Get help from help center
Authors	Azka Humayon
Priority	Low
Criticality	Medium
Source	User Requirement
Responsible	Development team
Description	Seniors/caregivers/doctors contact help center to resolve issues experienced regarding the app functioning.
Trigger event	A feature does not function as required by the users.
Actors	Elder, Caregiver, Doctor.
Precondition	Senior/caregiver/doctor's device must have a stable internet connection.
Post condition	Request for support is submitted to help center.
Result	Confirmation message is received by the senior/caregiver/doctor about the acknowledgement of the submitted request and assurance that request is in process.
Main Scenario	1. The senior/caregiver/doctor selects the "Get help from help center" feature. 2. The senior/caregiver/doctor submits the report regarding the issue experienced in the system. 3. The report is acknowledged by the support center. 4. The help center support team works on the problem and resolves it.
Alternative Scenario	1.If the feature fails to function as required: a. Caregivers/Seniors/doctors can manually file support requests by phone or email, including the information needed to resolve the issue.

UC-039 Document and prescription management

Section	Content
Designation	UC- 039
Name	Document and prescription management
Authors	Azka Humayon
Priority	Low
Criticality	Low
Source	User Requirement
Responsible	Development team
Description	Stores all vital documents and medical instructions regarding the senior.
Trigger event	Caregiver/senior wants to manage and save the prescriptions and documents in the app.
Actors	Elder, Caregiver.
Precondition	Caregiver/Senior is authorized to access the documents and manage prescriptions in the system.
Post condition	Senior/Caregiver manages the prescriptions and securely can save documents in the app.
Result	Prescription information and vital documents are safely stored and organized using this function.
Main Scenario	1. The senior/caregiver selects the "Documents and prescription management" feature. 2. The senior/caregiver proves their identity to access the documents. 3. The senior/caregiver manages the prescription and saves the documents. 4. The documents get stored safely in the app.
Alternative Scenario	1.If the feature fails to function as required: a. Caregivers/Seniors turn to managing documents manually, storing physical copies, or using alternate secure storage options. b. Caregivers/seniors report the issue to technical support to consider the problem and resolve the issue so the documents remain securely stored and accessed in the system.

UC-040 Track physical activity

Section	Content
Designation	UC- 040
Name	Track physical activity
Authors	Azka Humayon
Priority	Medium
Criticality	Medium
Source	User Requirement
Responsible	Development team
Description	Caregivers/Seniors can track senior's physical health condition including steps, distance travelled and calories burned per day.
Trigger event	System detects physical activity of the senior.
Actors	Elder, Caregiver
Precondition	Senior performs some physical activity like walking or exercise.
Post condition	The sensors on the device are activated and track the physical activity of the senior.
Result	The steps taken, distance travelled and calories burned are recorded and notified to the senior/caregiver.
Main Scenario	1. The senior performs some physical activity like walking or exercise. 2. The sensors in the device detects the movements of senior. 3. The system records the steps taken, distance travelled and calories burned. 4. The senior/caregiver receives the record of the physical activities performed by the senior.
Alternative Scenario	1.If the feature does not record the physical activity regularly: a. The elderly person or caregiver reports the problem to support, asking for help in fixing the interruption and giving details for debugging. b. The senior/caregiver can manually input the physical activity to keep the record for the day.

UC-41 Geo-fencing alerts

Section	Content
Designation	UC- 041
Name	Geo-fencing alerts
Authors	Azka Humayon
Priority	Low
Criticality	Medium
Source	User Requirement
Responsible	Development tea1
Description	Seniors can get information about when the senior left or entered the predefined location.
Trigger event	Senior enters or leaves the predefined location.
Actors	Elder, Caregiver
Precondition	Caregiver's device must have a stable internet connection.
Post condition	Caregiver receives an alert notification.
Result	The caregiver is informed about the senior's location through the system.
Main Scenario	1. The senior leaves or enters the predefined location as set by the caregiver. 2. The system detects the action and sends an alert message to the caregiver's device. 3. The caregiver monitors and tracks the present location where the senior is present.
Alternative Scenario	1. If the feature fails to function as required: a. Caregivers reports the help center regarding the technical issues of the system feature. b. caregiver contacts the senior to ensure their safety.

UC-042 Manage profile

Section	Content
Designation	UC- 042
Name	Manage profile
Authors	Azka Humayon
Priority	Medium
Criticality	Medium
Source	User Requirement
Responsible	Development team
Description	Through the "Manage Profile" section of the app, doctors can highlight their credentials and areas of specialization. For thorough care monitoring, elders or caregivers (if an older is not present) can construct comprehensive profiles that include specific difficulties related to aging.
Trigger event	1. Doctor/caregiver/elder has to create their profile 2. Doctor/caregiver/elder has to update or make changes in their profile.
Actors	Elder, Caregiver, Doctor.
Precondition	Elder/caregiver/doctor must have a registered account.
Post condition	The doctor/senior/caregiver's information is saved in the app.
Result	The created or updated credentials are shown in the system.
Main Scenario	1. The doctor/elder/caregiver logs into the app and navigates to the "Manage Profile" section. 2. Enters professional details, credentials, and areas of specialization or 3. Elders/caregivers construct a detailed profile for the elder, specifying unique aging-related issues. 4. Updates the profile, making the information accessible for other users.
Alternative Scenario	If there is discrepancy in the entered data: a. The doctor/elder/caregiver re-enters their credentials and personal information. b. Contacts the help center where the user is verified and investigates the sync issues.

UC-043 Track Location

Section	Content
Designation	UC- 043
Name	Track location
Authors	Azka Humayon
Priority	Low
Criticality	Medium
Source	User Requirement
Responsible	Development team
Description	Caregiver can track elder's whereabouts and confirm their wellbeing.
Trigger event	Caregiver enables the "Track location" feature.
Actors	Elder, Caregiver.
Precondition	Senior's device must have a stable internet connection.
Post condition	Caregiver receives information about senior's present location.
Result	Caregiver is ensured about senior's present location and wellbeing and can track them.
Main Scenario	1. The caregiver enables the "Track location" feature. 2. The senior's device detects and records senior's location at the present. 3. Seniors present location is informed to the caregiver through a message. 4. The caregiver tracks the senior's present location and ensure their whereabouts.
Alternative Scenario	If the feature fails to track location or confirm the caregiver with a message: a. The caregiver communicates with the senior directly through in-app chat to ensure their whereabouts. If the feature is not functioning or responding: a. The caregiver reports the issue to the help center to resolve the disruption in the feature's functioning.

Artifact-4
Features and Software Requirements

4.1 Specific Requirements

4.1.1. User Registration

Feature-1:

Manage Accounts

SRS-1.1: The initial step where users, including both doctors and caregivers, register themselves into the system in order to use it for the first time**.**

SRS-1.2: After registration, the system sends an OTP code to verify the user's phone number. This enhances security during both login and sign-up processes.

SRS-1.3: This ensures that each user has a unique identification in the system, preventing multiple users from using the same phone number.

SRS-1.4: User based on their roles (Doctor or Caregiver), logs in to the system by providing their country code and phone number.

SRS-1.5: Users must choose strong passwords with a combination of numbers and alphabets. This is a security measure for password authentication.

Feature-2:

Manage Profiles

SRS-2.1: The system must allow doctors, caregivers, and elders to create and manage their profiles within the app.

SRS-2.2: For doctors, the app should provide fields to input and display professional details, including specialization, degrees, and any other relevant information.

SRS-2.3: Caregivers and elders must have the ability to create detailed profiles, including specific health issues, preferences, and any other relevant information necessary for comprehensive care monitoring.

SRS-2.4: Users (doctors, caregivers, and elders) should be able to edit and update their profiles at any time to ensure that the information is current.

SRS-2.5: The app must include privacy settings allowing users (caregivers, and elders) to control who can view specific details in their profiles, ensuring sensitive information is shared appropriately.

SRS-2.6: The system should allow caregivers or elders to customize the profile information to cater to the unique needs and issues of the senior under their care.

SRS-2.7: The app should allow doctors, caregivers, and elders to determine the visibility of their profiles, either making them public or restricting access to specific individuals.

4.1.2. Location Services

Feature-4:

Location Tracking

SRS-4.1: The system must provide an option for caregivers to enable the location tracking feature within the elderly care monitoring app.

SRS-4.2: The app must ensure that only authorized caregivers, registered within the system, have access to the location tracking feature.

SRS-4.3: The system must track and display the real-time whereabouts of the senior when the location tracking feature is activated by the caregiver.

SRS-4.4: The app should include privacy settings, allowing seniors or their legal representatives to control and grant permission for caregivers to track their location.

SRS-4.5: The system must notify caregivers of any significant location changes or events related to the senior's well-being.

SRS-4.6: The app should optimize location tracking to minimize battery consumption on both the senior's device (if applicable) and the caregiver's device.

SRS-4.7: The app should maintain a history log of the senior's location, accessible to authorized caregivers, to review patterns and trends over time.

Feature-5:

Location History

SRS-5.1: The system must store historical location data of the senior over a specified period, allowing caregivers to access past records.

SRS-5.2: The app should integrate mapping services to visually represent the senior's historical locations on a map, enhancing the user experience for caregivers.

SRS-5.3: The system should provide an option for caregivers to export the senior's location history data, facilitating external analysis or record-keeping.

SRS-5.4: The app should provide caregivers with the functionality to select a specific time range for viewing the senior's location history. Caregivers pick a start and end time to check where the senior has been during that period.

SRS-5.5: The system must show the specific times when the senior was at different locations. It adds a time label to each entry in the location history, indicating when the senior was at a particular place.

Feature-22:

Real-Time Location Sharing

SRS-22.1: The system must allow the elderly user to initiate real-time location sharing with their designated family and friends.

SRS-22.2: The app should provide options for the elderly user to selectively choose which family members or friends can view their real-time location.

SRS-22.3: The system must continuously update and share the elder's location in real-time with the selected recipients, ensuring the information is current.

SRS-22.4: The app should include an emergency sharing option that allows the elderly user to quickly share their real-time location with a predefined emergency contact or contacts.

SRS-22.5: The system must allow the elderly user to specify the duration for which their real-time location is shared, giving them control over the sharing period.

SRS-22.6: The app must have an intuitive user interface for the elderly user to easily control and manage real-time location sharing settings.

Feature-23:

GEO-Fencing Alerts

SRS-23.1: The system must allow caregivers to create geofences by defining specific areas on the map where alerts will be triggered based on the senior's entry or exit.

SRS-23.2: The app should continuously monitor the senior's location in real-time and trigger alerts immediately when the senior enters or leaves a predefined geofence.

SRS-23.3: Caregivers must have the flexibility to tailor geofence parameters, such as the dimensions of the geofence, to suit specific requirements.

SRS-23.4: The system should maintain a log of geofencing events, providing caregivers with a historical record of when the senior entered or left predefined locations.

SRS-23.5: Geofencing alerts should be timely and relevant, notifying caregivers promptly to ensure an immediate response when needed.

4.1.3. Emergency and Safety

Feature-11:

Fall Detection

SRS-11.1: The system must employ special real-time sensors to automatically detect falls as they occur.

SRS-11.2: Upon detecting a fall, the app should generate an immediate alert to both the designated caregiver and doctor, ensuring swift response.

SRS-11.3: The app should facilitate communication between the caregiver and doctor, allowing them to coordinate efforts in response to the fall alert.

SRS-11.4: The system should integrate with emergency services, allowing automatic alerts to be sent in the absence of a caregiver or doctor response.

SRS-11.5: The app should prompt the user (senior) for confirmation after a fall is detected to prevent false alarms. If no confirmation is received, the alert process should proceed.

SRS-11.6: The app should maintain a log of detected falls, including timestamps and relevant details, for later review by caregivers and doctors.

Feature-13:

Emergency Alerts

SRS-13.1: The system must provide a clear and easily accessible option for seniors to activate SOS alerts in moments of emergency.

SRS-13.2: The app should utilize GPS functionality to retrieve the real-time location of the senior during an emergency.

SRS-13.3: Upon activation of the SOS alert, the app must initiate communication with designated emergency contacts, including caregivers and doctors.

SRS-13.4: The app should have a multi-channel alert system, sending notifications via various means such as push notifications, SMS, and emails to ensure timely responses.

SRS-13.5: The system should integrate with local emergency services, automatically sending alerts and providing the senior's location in case of emergencies.

Feature-35:

Call Ambulance

SRS-35.1: The system must incorporate advanced special sensors to detect serious emergency situations when the senior is alone and in need of urgent medical assistance.

SRS-35.2: The feature should seamlessly integrate with compatibility devices, such as wearables or sensors, to enhance the accuracy of emergency detection.

SRS-35.3: Upon detecting a serious emergency, the app should automatically trigger a request for an ambulance to the designated hospital or emergency service provider.

SRS-35.4: The app should share the real-time location of the senior with the ambulance service to ensure quick and accurate response.

Feature-27:

Emergency Contacts

SRS-27.1: The system must allow users to input and store contact information for emergency contacts, including names, phone numbers, and any additional relevant details.

SRS-27.2: The app should provide an easy-to-navigate interface for quick access to the list of emergency contacts when needed.

SRS-27.3: The system should support multiple notification modes (e.g., push notifications, SMS, emails) for contacting emergency contacts based on their preferences and availability.

SRS-27.4: Users should be able to easily update and edit the contact information for emergency contacts to keep the information current.

4.1.4. Healthcare Services

Feature-9:
Appointment Booking

SRS-9.1: System allow users to view availability of healthcare providers or services in real-time.

SRS-9.2: System display open time slots for appointments based on provider availability.

SRS-9.3: System display open time slots for appointments based on provider availability.

SRS-9.4: System allow users for setting varying durations for different types of appointments.

SRS-9.5: Allow users to confirm, reschedule, or cancel appointments.

SRS-9.6: System provides automated reminders via email, SMS, or app notifications

SRS-9.7: Allow users to set reminders or notifications according to their preferences.

SRS-9.8: System notify the users upon successful appointment bookings.

Feature: 36
Nutrition and diet

SRS-36.1: System allow caregivers or elderly individuals to create personalized dietary profiles, including dietary restrictions, allergies, preferences, and recommended nutritional intake.

SRS-36.2: System enable setting and tracking of nutritional goals based on individual health needs (e.g., calorie intake, macronutrient distribution).

SRS-36.3: System integrate a comprehensive database of foods and their nutritional values (calories, macronutrients, vitamins, minerals) to aid in meal planning.

SRS-36.4: System offers personalized dietary recommendations based on nutritional needs and health conditions.

SRS-36.5: System offers personalized dietary recommendations based on nutritional needs and health conditions.

SRS-36.6: System provides a platform for logging daily food intake to monitor adherence to dietary plans and recommendations.

Feature-8
Reminders for Self-Care

SRS-8.1: System allow users to set reminders for specific self-care activities/tasks.

SRS-8.2: Allow users to set reminders at specific times or intervals according to their preferences.

SRS-8.3: Allow users the capability to set multiple reminders for various self-care tasks throughout the day.

SRS-8.4: System deliver reminders via app notifications, SMS, email, or push notifications.

SRS-8.5: Integration with health-related apps or wearables to gather relevant health data for personalized reminders (with user consent).

Feature-16:
Urgent Care Access

SRS-16.1: System enable direct communication (phone call, messaging) with healthcare providers or emergency services.

SRS-16.2: System allow secure sharing of user health records with urgent care providers if needed.

SRS-16.3: System allow the users to connect with a network of healthcare providers or clinics for immediate care access.

SRS-16.4: Ensure secure transmission of sensitive user information during emergency communications.

SRS-16.5: Allow users to set reminders or notifications according to their preferences.

SRS-16.6: System notify the users upon successful appointment bookings.

Feature-26:
Medication Management

SRS-26.1: System allow users to create personalized medication schedules.

SRS-26.2: System allow user to set dosage amounts and frequency for each medication system send reminders via app notifications, SMS, or email for medication intake times.

SRS-26.3: System manage prescription details, including expiration dates and renewals.

SRS-26.4: System Provide details about each medication, including usage instructions and side effects.

SRS-26.5: System maintains a record of medication adherence, missed doses, and changes in the regimen Generate reports on medication adherence and usage patterns.

Feature-18:
Document and Prescription Management

SRS-18.1: System allow users to store medical records, prescriptions, lab reports, and other healthcare-related documents securely.

SRS-18.2: System maintain a comprehensive record of prescriptions issued to patients include details such as medication name, dosage, frequency, prescribing physician, and expiration date.

SRS-18.3: System enable users to search for specific documents or prescriptions efficiently.

SRS-18.4: System allows to track document access, modifications, and user interactions for accountability and compliance purposes maintain document versions to track changes and updates.

4.1.5. Care Coordination

Feature-17:
Community Events Calendar

SRS-17.1: System allow users to schedule, create, edit, and manage events on the calendar.

SRS-17.2: System provide different views (daily, weekly, monthly) for better event visualization and planning.

SRS-17.3: System send reminders or notifications to users about upcoming events or changes.

SRS-17.4: System enable communication or discussion related to events through the

in-app chat feature.

SRS17.5: System enable users to search for specific events or filter events based on different criteria (e.g., date, category, location).

SRS-17.6: System allow users to personalize their event calendar by selecting preferences or interests.

Feature-20:
Personalized Wellbeing Plans

SRS-20.1: System allow users to gather comprehensive user information, including health history, preferences, and specific needs, through assessments or profiles.

SRS-20.2: System develop algorithms or tools to generate individualized well-being plans based on gathered user data.

SRS-20.3: System allow users to set personal health goals and track progress within the system.

SRS-20.4: System provide personalized recommendations for activities, exercises, dietary plans, and lifestyle changes based on user profiles and goals.

SRS-20.5: System enable users and caregivers to monitor the progress of well-being plans, with reporting features to track improvements or changes.

SRS-20.5: System provides integration with wearable devices or health monitoring tools to collect real-time health data for plan adjustments.

Feature: 39
Calendar Integration

SRS-39.1: Enable caregivers to schedule events, such as doctor appointments.

SRS-39.2: Allow the creation of recurring medication doses.

SRS-39.3: Provide fields for customizable event details, including event name, location, start/end times, and any additional notes.

SRS-39.4: Allow users to set customizable reminders for upcoming events, ensuring timely notifications for caregivers and seniors.

Feature: 33
Digital Library for seniors

SRS-33.1: Provide browsing and search functionalities within the Elderly Care Management System to allow users to find and access digital content easily.

SRS-33.2: Management System to offer personalized recommendations within the Digital Library.

SRS-33.3: Integrate text-to-speech functionalities within the Digital Library to enhance accessibility for seniors with visual impairments.

SRS-33.4: Establish API integration with the Digital Library to enable real-time access to the library's content.

SRS-33.5: Integrate user permissions to ensure that only authorized users can access the Digital Library.

Feature: 34
Integrate voice commands

SRS-34.1: System implement a robust and accurate speech recognition system that can understand and transcribe spoken commands effectively.

SRS-34.2: System provide support for multiple languages to cater to diverse user needs.

SRS-34.3: System enable voice command functionality on various devices, including smartphones, tablets, smart speakers, and wearable devices.

SRS-34.4: System enable hands-free operation for elderly users who may have limited mobility or dexterity.

SRS-34.5: System implement encryption for voice data transmission and storage to ensure the security and privacy of voice commands.

4.1.6. Health-Care Monitoring

Feature-6:
Daily Activity Monitoring

SRS-6.1: The software will include sensors (such as accelerometers and gyroscopes) in order to monitor and track everyday activities

SRS-6.2: The system will have a user-friendly health assessment survey module that enables users to enter and update related health data

SRS-6.3: The health data will be encrypted after submission and kept safely to prevent unauthorized access to important information.

Feature-7:
Health Data Tracking

SRS-7.1: Only the authorized senior, caregiver or doctor will have access to health data.

SRS-7.2: System will implement a secure database for storing health data, incorporating encryption to protect sensitive information.

Feature-25:
Physical Activity Tracker

SRS-25.1: Accurate tracking and recording of physical activities will be dependent on integration with motion and GPS sensors.

SRS-25.2: The system's UI will be simple enough for users to log and track their physical activity

SRS-25.3: To allow for thorough monitoring, the system will make sure the physical activity tracker can identify various workouts and activities.

SRS-25.4: A notification system will motivate seniors to continue being active by providing them with goals and reminders pertaining to their physical activity.

Feature-9:
Appointment Booking

SRS-9.1: System allow users to view availability of healthcare providers or services in real-time.

SRS-9.2: System display open time slots for appointments based on provider availability.

SRS-9.3: System display open time slots for appointments based on provider availability.

SRS-9.4: System allow users for setting varying durations for different types of appointments.

SRS-9.5: Allow users to confirm, reschedule, or cancel appointments.

SRS-9.6: System provides automated reminders via email, SMS, or app notifications

SRS-9.7: Allow users to set reminders or notifications according to their preferences.

SRS-9.8: System notify the users upon successful appointment bookings.

Feature: 14
Manage medical records

SRS-14.1: System allow the creation and maintenance of individual profiles for elderly individuals, including personal details, medical history, medications, allergies, etc.

SRS-14.2: System enable the uploading of documents such as lab reports, imaging scans, and other relevant medical files.

SRS-14.3: System employs strong encryption methods to secure sensitive medical records and comply with privacy regulations.

SRS-14.4: System ensure that data collected from monitoring devices is seamlessly integrated into the patient's medical records in real-time.

SRS14.5: System generate alerts for caregivers and patients regarding medication schedules, refills, and potential drug interactions.

SRS-14.6: System allow controlled sharing of medical records with authorized healthcare providers or institutions as needed for coordinated care

SRS14.7: System provides contingency plan in place to recover data in case of catastrophic events or system breaches.

Feature-8
Reminders for Self-Care

SRS-8.1: System allow users to set reminders for specific self-care activities/tasks.

SRS-8.2: Allow users to set reminders at specific times or intervals according to their preferences.

SRS-8.3: Allow users the capability to set multiple reminders for various self-care tasks throughout the day.

SRS-8.4: System deliver reminders via app notifications, SMS, email, or push notifications.

SRS-8.5: Integration with health-related apps or wearables to gather relevant health data for personalized reminders (with user consent).

Feature-16:
Urgent Care Access

SRS-16.1: System enable direct communication (phone call, messaging) with healthcare providers or emergency services.

SRS-16.2: System allow secure sharing of user health records with urgent care providers if needed.

SRS-16.3: System allow the users to connect with a network of healthcare providers or clinics for immediate care access.

SRS-16.4: Ensure secure transmission of sensitive user information during emergency communications.

SRS-16.5: Allow users to set reminders or notifications according to their preferences.

SRS-16.6: System notify the users upon successful appointment bookings.

Feature-26:
Medication Management

SRS-26.1: System allow users to create personalized medication schedules.

SRS-26.2: System allow user to set dosage amounts and frequency for each medication system send reminders via app notifications, SMS, or email for medication intake times.

SRS-26.3: System manage prescription details, including expiration dates and renewals.

SRS-26.4: System Provide details about each medication, including usage instructions and side effects.

SRS-26.5: System maintains a record of medication adherence, missed doses, and changes in the regimen Generate reports on medication adherence and usage patterns.

Feature-18:
Document and Prescription Management

SRS-18.1: System allow users to store medical records, prescriptions, lab reports, and other healthcare-related documents securely.

SRS-18.2: System maintain a comprehensive record of prescriptions issued to patients include details such as medication name, dosage, frequency, prescribing physician, and expiration date.

SRS-18.3: System enable users to search for specific documents or prescriptions efficiently.

SRS-18.4: System allows to track document access, modifications, and user interactions for accountability and compliance purposes maintain document versions to track changes and updates.

4.1.7. Social Support Services

Feature-10:
In-app Chat

SRS-10.1: System enable instantaneous communication between users in the system.

SRS-10.2: System implement end-to-end encryption to protect sensitive information shared in chats.

SRS-10.3: System enable users to store chat history and provide a search feature to retrieve past conversations.

SRS-10.4: System ensure compatibility with assistive technologies for users with disabilities.

SRS-10.5: System provides the ability to handle a large number of users and messages without compromising performance.

SRS-10.6: System enable users sharing of images, files, or other multimedia within the chat.

Feature-17:
Community Events Calendar

SRS-17.1: System allow users to schedule, create, edit, and manage events on the calendar.

SRS-17.2: System provide different views (daily, weekly, monthly) for better event visualization and planning.

SRS-17.3: System send reminders or notifications to users about upcoming events or changes.

SRS-17.4: System enable communication or discussion related to events through the

in-app chat feature.

SRS17.5: System enable users to search for specific events or filter events based on different criteria (e.g., date, category, location).

SRS-17.6: System allow users to personalize their event calendar by selecting preferences or interests.

Feature-20:
Personalized Wellbeing Plans

SRS-20.1: System allow users to gather comprehensive user information, including health history, preferences, and specific needs, through assessments or profiles.

SRS-20.2: System develop algorithms or tools to generate individualized well-being plans based on gathered user data.

SRS-20.3: System allow users to set personal health goals and track progress within the system.

SRS-20.4: System provide personalized recommendations for activities, exercises, dietary plans, and lifestyle changes based on user profiles and goals.

SRS-20.5: System enable users and caregivers to monitor the progress of well-being plans, with reporting features to track improvements or changes.

SRS-20.6: System provides integration with wearable devices or health monitoring tools to collect real-time health data for plan adjustments.

Feature-28:
Health Assessment Services

SRS-28.1: The system will provide an easy-to-use module for conducting health assessments within the app that enables seniors or caregivers to enter and update relevant health data.

SRS-28.2: The system will include validation procedures to guarantee senior's inputs in health assessment surveys are accurate and to stop data submissions that are inaccurate or incomplete

SRS-28.3: The system will maintain confidentiality and integrity, encrypted storage system for the
Information gathered via health assessment questionnaires.

SRS-28.4: The system will maintain confidentiality and integrity, encrypted storage system for the
Information gathered via health assessment questionnaires.

Feature-29:
Weather and Air quality alerts

SRS-29.1: To obtain precise and current environmental data, the system will integrate real-time access to external weather and air quality APIs.

SRS-29.2: A notification system that notifies seniors or caregivers in a timely manner of changes in the weather or air quality levels will be include in the software system.

4.1.7. Communication and support

Feature: 24
Get help from help center:

SRS-24.1: System design an easily accessible and intuitive interface within the software for accessing the Help Center.

SRS-24.2: System incorporate multimedia elements like videos, images, or interactive guides to enhance understanding and engagement.

SRS-24.3: System integrate a live chat feature for real-time assistance where users can interact with support agents or chat-bots to resolve queries.

SRS-24.4: System provide an option for users to submit queries or issues via email, with a ticketing system for tracking and responding to inquiries.

SRS-24.5: System include a helpline or phone support for users preferring direct communication for assistance.

SRS-24.6: System implement a feedback system for users to rate the usefulness of help articles or support received, allowing continuous improvement.

SRS-24.7: System enable users to report bugs, technical issues, or suggest improvements directly through the Help Center.

Feature: 12
Compatibility and Integration

SRS-12.1: List third-party libraries, frameworks, or tools that the software depends on.

SRS-12.2: Specify the minimum and recommended versions of the operating systems.

SRS-12.3: If the software exposes or consumes APIs, clearly document the supported API versions and specifications.

SRS-12.4: Outline the testing procedures and validation steps to ensure compatibility and integration.

Feature: 38
Remote home surveillance

SRS-38.1: Enable motion detection on your cameras to trigger recording when movement is detected.

SRS-38.2: Integrate motion detection algorithms to trigger alerts when unusual activity is detected.

SRS-38.3: Conduct usability testing with elderly users to identify and address any user interface or interaction challenges

Feature: 3
Remotely Adjustable Settings

SRS-3.1: Create an API that allows caregivers to remotely adjust settings for the senior user's application.

SRS-3.2: Employ security best practices to protect sensitive data and prevent unauthorized access.

SRS-3.3: The client-side application should be compatible with the senior user's device platform (iOS, Android, etc.).

SRS-3.4: Use encryption techniques to secure communication between the client and server to prevent unauthorized access.

Feature-30:
Remote Family Check-Ins

SRS-30.1: A location monitoring function that will allow distant family members to see where the seniors are in real time.

SRS-30.2: The software will give caregivers the option to customize check-in intervals so they can decide how often to receive location updates according on their preferences.

Artifact-5
Requirements Traceability Matrix

SRS-No.	Description	Source	Designation/ Department	Priority	Use Case #ID	Test Case #ID
SRS-1.1	The initial step where users, including both doctors and caregivers, register themselves into the system in order to use it for the first time.	Care Penguin, Life 360	Nill	High	UC-001	TC-1.
SRS-1.2	After registration, the system sends an OTP code to verify the user's phone number. This enhances security during both login and sign-up processes.	Care Penguin, Life 360	Nill	High	UC-004	TC-2.
SRS-1.3	This ensures that each user has a unique identification in the system, preventing multiple users from using the same phone number.	Apna Doctor, Care Giver App	Nill	High	UC-002	TC-3.
SRS-1.4	User based on their roles (Doctor or Caregiver), logs in to the system by providing their country code and phone number.	Care Penguin, Life 360	Nill	High	UC-004	TC-4.
SRS-1.5	Users must choose strong passwords with a combination of numbers and alphabets. This is a security measure for password authentication.	Care Penguin, Life 360	Nill	High	UC-005	TC-5.

SRS-2.1	The system must allow doctors, caregivers, and elders to create and manage their profiles within the app.	Apna Doctor, Care Giver App	Nill	High	UC-003	TC-6.
SRS-2.2	For doctors, the app should provide fields to input and display professional details, including specialization, degrees, and any other relevant information.	Apna Doctor, Care Giver App	Nill	High	UC-003	TC-7.
SRS-2.3	Caregivers and elders must have the ability to create detailed profiles, including specific health issues, preferences, and any other relevant information necessary for comprehensive care monitoring.	Leap Thru	Nill	High	UC-003	TC-8.
SRS-2.4	Users (doctors, caregivers, and elders) should be able to edit and update their profiles at any time to ensure that the information is current.	Apna Doctor, Care Giver App	Nill	High	UC-003	TC-9.
SRS-2.5	The app must include privacy settings allowing users (caregivers, and elders) to control who can view specific details in their	Leap Thru	Nill	High	UC-003	TC-10.

	profiles, ensuring sensitive information is shared appropriately.					
SRS-2.6	The system should allow caregivers or elders to customize the profile information to cater to the unique needs and issues of the senior under their care.	Leap Thru	Nill	High	UC-003	TC-11.
SRS-2.7	The app should allow doctors, caregivers, and elders to determine the visibility of their profiles, either making them public or restricting access to specific individuals.	Apna Doctor, Care Giver App	Nill	High	UC-003	TC-12.
SRS-3.1	Create an API that allows caregivers to remotely adjust settings for the senior user's application.	Leap Thru		High	UC-017	TC-13
SRS-3.2	Employ security best practices to protect sensitive data and prevent unauthorized access.	Leap Thru	Nill	High	UC-017	TC-14
SRS-3.3	The client-side application should be compatible with the senior user's device platform (iOS, Android, etc.).	CEN-TRACK	Nill	High	UC-017	TC-15
SRS-3.4	Use encryption techniques to	Apna Doctor, Care Giver	Nill	High	UC-017	TC-16

	secure communication between the client and server to prevent unauthorized access.	App				
SRS-4.1	The system must provide an option for caregivers to enable the location tracking feature within the elderly care monitoring app.	CEN-TRACK	Nill	High	UC-043	TC-17
SRS-4.2	The app must ensure that only authorized caregivers, registered within the system, have access to the location tracking feature.	CEN-TRACK	Nill	Medium	UC-043	TC-18
SRS-4.3	The system must track and display the real-time whereabouts of the senior when the location tracking feature is activated by the caregiver.	Apna Doctor, Care Giver App	Nill	High	UC-043	TC-19
SRS-4.4	The app should include privacy settings, allowing seniors or their legal representatives to control and grant permission for caregivers to track their location.	CEN-TRACK	Nill	High	UC-043	TC-20
SRS-4.5	The system must notify caregivers of any significant location changes or	CEN-TRACK	Nill	High	UC-043	TC-21

	events related to the senior's well-being.					
SRS-4.6	The app should optimize location tracking to minimize battery consumption on both the senior's device (if applicable) and the caregiver's device.	CEN-TRACK	Nill	Medium	UC-043	TC-22
SRS-4.7	The app should maintain a history log of the senior's location, accessible to authorized caregivers, to review patterns and trends over time.	CEN-TRACK	Nill	High	UC-043	TC-23
SRS-5.1	The system must store historical location data of the senior over a specified period, allowing caregivers to access past records.	CEN-TRACK	Nill	Medium	UC-018	TC-24
SRS-5.2	The app should integrate mapping services to visually represent the senior's historical locations on a map, enhancing the user experience for caregivers.	CEN-TRACK	Nill	Supply chain department	UC-018	TC-25
SRS-5.3	The system should provide an option for caregivers to export the senior's location history data, facilitating external analysis or	CEN-TRACK	Nill	Medium	UC-018	TC-26

	record-keeping.					
SRS-5.4	The app should provide caregivers with the functionality to select a specific time range for viewing the senior's location history. Caregivers pick a start and end time to check where the senior has been during that period.	CEN-TRACK	Nill	High	UC-018	TC-27
SRS-5.5	The system must show the specific times when the senior was at different locations. It adds a time label to each entry in the location history, indicating when the senior was at a particular place.	Leap Thru	Nill	Medium	UC-018	TC-28
SRS-8.1:	System allows users to set reminders for specific self-care activities/tasks.	Care Zone App	NILL	High	UC-021	TC-29
SRS-8.2:	System allows users to set reminders at specific times or intervals according to their preferences.	Care Zone App	NILL	High	UC-021	TC-30
SRS-8.3:	System allows user the capability to set multiple reminders for various self-	Care Zone App	NILL	High	UC-021	TC-31

	care tasks throughout the day.					
SRS-8.4:	System delivers reminders via app notifications, SMS, email, or push notifications.	Care Zone App	NILL	High	UC-021	TC-32
SRS-8.5:	System integrates with health-related apps or wearables to gather relevant health data for personalized reminders (with user consent).	Care Zone App	NILL	High	UC-021	TC-33
SRS-9.1	System allows users to view availability of healthcare providers or services in real-time.	Apna Doctor	NILL	High	UC-024	TC-34
SRS-9.2	System displays open time slots for appointments based on provider availability.	Apna Doctor	NILL	High	UC-024	TC-35
SRS-9.3	System allows users for setting varying durations for different types of appointments.	Apna Doctor	NILL	High	UC-024	TC-36
SRS-9.4	System allows users to confirm, reschedule or cancelled appointments	Apna Doctor	NILL	High	UC-024	TC-37
SRS-9.5	System provides automated reminders via email, SMS, or app notifications	Apna Doctor	NILL	High	UC-024	TC-38

SRS-9.6	System allows users to set reminders or notifications according to their preferences.	Apna Doctor	NILL	Medium	UC-024	TC-39
SRS-9.7	System notifies the users upon successful appointment bookings.	Apna Doctor	NILL	High	UC-024	TC-40
SRS-10.1	System enables instantaneous communication between users in the system.	Life 360	NILL	High	UC-013	TC-41
SRS-10.2	System implements end-to-end encryption to protect sensitive information shared in chats.	Life 360	NILL	High	UC-013	TC-42
SRS-10.3	System enables users to store chat history and provide a search feature to retrieve past conversations	Life 360	NILL	High	UC-013	TC-43
SRS-10.4	System ensure compatibility with assistive technologies for users with disabilities.	Life 360	NILL	High	UC-013	TC-44
SRS-10.5	System provides the ability to handle a large number of users and messages without compromising performance.	Life 360	NILL	High	UC-013	TC-45

SRS-10.6	System enables users sharing of images, files, or other multimedia within the chat.	Life 360	NILL	High	UC-013	TC-46
SRS-11.1	The system must employ special real-time sensors to automatically detect falls as they occur.	Leap Thru	Nill	High	UC-022	TC-47
SRS-11.2	Upon detecting a fall, the app should generate an immediate alert to both the designated caregiver and doctor, ensuring swift response.	Leap Thru	Nill	High	UC-022	TC-48
SRS-11.3	The app should facilitate communication between the caregiver and doctor, allowing them to coordinate efforts in response to the fall alert.	Leap Thru	Nill	High	UC-022	TC-49
SRS-11.4	The system should integrate with emergency services, allowing automatic alerts to be sent in the absence of a caregiver or doctor response.	Leap Thru	Nill	High	UC-022	TC-50
SRS-11.5	The app should prompt the user (senior) for confirmation after a fall is detected to prevent false alarms. If no	Leap Thru	Nill	Medium	UC-022	TC-51

	confirmation is received, the alert process should proceed.					
SRS-11.6	The app should maintain a log of detected falls, including timestamps and relevant details, for later review by caregivers and doctors.	Leap Thru	Nill	High	UC-022	TC-52
SRS-12.1	List third-party libraries, frameworks, or tools that the software depends on.	Azka Humayon	Nill	Low	UC-023	TC-53
SRS-12.2	Specify the minimum and recommended versions of the operating systems.	Azka Humayon	Nill	High	UC-023	TC-54
USRS-12.3	If the software exposes or consumes APIs, clearly document the supported API versions and specifications.	Azka Humayon	Nill	High	UC-023	TC-55
SRS-12.4	Outline the testing procedures and validation steps to ensure compatibility and integration.	Azka Humayon	Nill	High	UC-023	TC-56
SRS-13.1	The system must provide a clear and easily accessible option for seniors to activate SOS alerts in moments of emergency.	Care Zone App	Nill	Medium	UC-021	TC-57
SRS-13.2	The app should utilize GPS	Care Zone App	Nill	High	UC-021	TC-58

	functionality to retrieve the real-time location of the senior during an emergency.					
SRS-13.3	Upon activation of the SOS alert, the app must initiate communication with designated emergency contacts, including caregivers and doctors.	Care Zone App	Nill	High	UC-021	TC-59
SRS-13.4	The app should have a multi-channel alert system, sending notifications via various means such as push notifications, SMS, and emails to ensure timely responses.	Care Zone App	Nill	High	UC-021	TC-60
SRS-13.5	The system should integrate with local emergency services, automatically sending alerts and providing the senior's location in case of emergencies.	Care Zone App	Nill	Medium	UC-021	TC-61
SRS-14.1	System allows the creation and maintenance of individual profiles for elderly individuals, including personal details, medical history, medications, allergies, etc.	Care Zone App	Nill	High	UC-009	TC-62

SRS-14.2	System enables the uploading of documents such as lab reports, imaging scans, and other relevant medical files.	Care Zone App	Nill	Medium	UC-009	TC-63
SRS-14.3	System employs strong encryption methods to secure sensitive medical records and comply with privacy regulations.	Care Zone App	Nill	High	UC-009	TC-64
SRS-14.4	System ensure that data collected from monitoring devices is seamlessly integrated into the patient's medical records in real-time.	Care Zone App	Nill	Medium	UC-009	TC-65
SRS-14.5	System generates alerts for caregivers and patients regarding medication schedules, refills, and potential drug interactions.	Let’s Up Doc	Nill	High	UC-009	TC-66
SRS-14.6	System allows controlled sharing of medical records with authorized healthcare providers or institutions as needed for coordinated care	Lets Up Doc	Nill	Medium	UC-009	TC-67
SRS-14.7	System provides contingency plan in place to recover data in case of catastrophic events	Lets Up Doc	Nill	High	UC-009	TC-68

	or system breaches.					
SRS-16.1	System enables direct communication (phone call, messaging) with healthcare providers or emergency services.	Leap Thru	NILL	High	UC-010	TC-69
SRS-16.2	System allows secure sharing of user health records with urgent care providers if needed.	Leap Thru	NILL	High	UC-010	TC-70
SRS-16.3	System allows the users to connect with a network of healthcare providers or clinics for immediate care access	Leap Thru	NILL	High	UC-010	TC-71
SRS-16.4	Ensure secure transmission of sensitive user information during emergency communications.	Leap Thru	NILL	High	UC-010	TC-72
SRS-16.5	System allows user to set reminders or notifications according to their preferences	Leap Thru	NILL	High	UC-010	TC-73
SRS-16.6	System notifies the users upon successful appointment bookings.	Leap Thru	NILL	High	UC-010	TC-74
SRS-17.1	System allows users to schedule, create, edit, and	Mahnoor Asif	NILL	High	UC-028	TC-75

	manage events on the calendar.					
SRS-17.2	System provides different views (daily, weekly, monthly) for better event visualization and planning.	Mahnoor Asif	NILL	High	UC-028	TC-76
SRS-17.3	System sends reminders or notifications to users about upcoming events or changes.	Mahnoor Asif	NILL	High	UC-028	TC-77
SRS-17.4	System enables communication or discussion related to events through **in**-app chat feature.	Mahnoor Asif	NILL	High	UC-028	TC-78
SRS-17.5	System enables users to search for specific events or filter events based on different criteria (e.g., date, category, location).	Mahnoor Asif	NILL	High	UC-028	TC-79
SRS-17.6	System allows users to personalize their event calendar by selecting preferences or interests.	Mahnoor Asif	NILL	High	UC-028	TC-80
SRS-18.1	System allows users to store medical records, prescriptions, lab reports, and other healthcare-related documents	Care Giver App	NILL	High	UC-039	TC-81

	securely.					
SRS-18.2	System maintains a comprehensive record of prescriptions issued to patients include details such as medication name, dosage, frequency, prescribing physician, and expiration date.	Care Giver App	NILL	High	UC-039	TC-82
SRS-18.3	System enables users to search for specific documents or prescriptions efficiently.	Care Giver App	NILL	High	UC-039	TC-83
SRS-18.4	System allows to track document access, modifications, and user interactions for accountability and compliance purposes maintain document versions to track changes and updates.	Care Giver App	NILL	High	UC-039	TC-84
SRS-20.1	System allows users to gather comprehensive user information, including health history, preferences, and specific needs, through assessments or profiles.	CEN-TRACK	NILL	High	UC-033	TC-85
SRS-20.2	System develops algorithms or tools to generate	CEN-TRACK	NILL	High	UC-033	TC-86

	individualized well-being plans based on gathered user data.					
SRS-20.3	System allows users to set personal health goals and track progress within the system.	CEN-TRACK	NILL	High	UC-033	TC-87
SRS-20.4	System provides personalized recommendations for activities, exercises, dietary plans, and lifestyle changes based on user profiles and goals.	CEN-TRACK	NILL	High	UC-033	TC-88
SRS-20.5	System enables users and caregivers to monitor the progress of well-being plans, with reporting features to track improvements or changes.	CEN-TRACK	NILL	High	UC-033	TC-89
SRS-20.6	System provides integration with wearable devices or health monitoring tools to collect real-time health data for plan adjustments.	CEN-TRACK	NILL	High	UC-033	TC-90
SRS-21.1	System ensure compatibility with various monitoring devices, wearables, and sensors used in the elderly care	Lets Up Doc	Nill	High	UC-034	TC-91

	system that rely on batteries.					
SRS-21.2	System implements a system to continuously monitor the battery status of connected devices.	Let's Up Doc	Nill	Medium	UC-034	TC-92
SRS-21.3	System provides immediate alerts to caregivers or responsible individuals when a device's battery level reaches predefined thresholds.	Apna Doctor, Care Giver App	Nill	High	UC-034	TC-93
SRS-21.4	System utilizes various notification methods such as pop-up alerts, SMS, emails, or push notifications on mobile devices.	Livindi	Nill	High	UC-034	TC-94
SRS-22.1	The system must allow the elderly user to initiate real-time location sharing with their designated family and friends.	Livindi	Nill	Medium	UC-034	TC-95
SRS-22.2	The app should provide options for the elderly user to selectively choose which family members or friends can view their real-time location.	Livindi	Nill	Medium	UC-034	TC-96
SRS-22.3	The system must continuously	Livindi	Nill	Medium	UC-034	TC-97

	update and share the elder's location in real-time with the selected recipients, ensuring the information is current.					
SRS-22.4	The app should include an emergency sharing option that allows the elderly user to quickly share their real-time location with a predefined emergency contact or contacts.	Livindi	Nill	Low	UC-034	TC-98
SRS-22.5	The system must allow the elderly user to specify the duration for which their real-time location is shared, giving them control over the sharing period.	Livindi	Nill	Medium	UC-034	TC-99
SRS-22.6	The app must have an intuitive user interface for the elderly user to easily control and manage real-time location sharing settings.	Livindi	Nill	Medium	UC-034	TC-100
SRS-23.1	The system must allow caregivers to create geofences by defining specific areas on the map	Livindi	Nill	Medium	UC-041	TC-101

	where alerts will be triggered based on the senior's entry or exit.					
SRS-23.2	The app should continuously monitor the senior's location in real-time and trigger alerts immediately when the senior enters or leaves a predefined geofence.	Apna Doctor	Nill	High	UC-041	TC-102
SRS-23.3	Caregivers must have the flexibility to tailor geofence parameters, such as the dimensions of the geofence, to suit specific requirements.	Apna Doctor	Nill	High	UC-041	TC-103
SRS-23.4	The system should maintain a log of geofencing events, providing caregivers with a historical record of when the senior entered or left predefined locations.	Apna Doctor	Nill	High	UC-041	TC-104
SRS-23.5	Geofencing alerts should be timely and relevant, notifying caregivers promptly to ensure an immediate response when needed.	Apna Doctor	Nill	High	UC-041	TC-105
SRS-24.1	System designs an easily	Apna Doctor	Nill	High	UC-038	TC-106

	accessible and intuitive interface within the software for accessing the Help Center.					
SRS-24.2	System incorporates multimedia elements like videos, images, or interactive guides to enhance understanding and engagement.	Apna Doctor	Nill	Medium	UC-038	TC-107
SRS-24.3	System integrates a live chat feature for real-time assistance where users can interact with support agents or chat-bots to resolve queries.	Apna Doctor, Care Giver App	Nill	High	UC-038	TC-108
SRS-24.4	System provides an option for users to submit queries or issues via email, with a ticketing system for tracking and responding to inquiries.	Apna Doctor	Nill	Medium	UC-038	TC-109
SRS-24.5	System includes a helpline or phone support for users preferring direct communication for assistance.	Lets Up Doc	Nill	Medium	UC-038	TC-110
SRS-24.6	System implements a feedback system for users to rate the usefulness of help articles or	Lets Up Doc	Nill	Medium	UC-038	TC-111

	support received, allowing continuous improvement.					
SRS-24.7	System enables users to report bugs, technical issues, or suggest improvements directly through the Help Center.	Lets Up Doc	Nill	Medium	UC-038	TC-112
SRS-26.1	System allows users to create personalized medication schedules.	Care Giver App	NILL	High	UC-031	TC-113
SRS-26.2	System allow user to set dosage amounts and frequency for each medication system send reminders via app notifications, SMS, or email for medication intake times	Care Giver App	NILL	High	UC-031	TC-114
SRS-26.3	System manages prescription details, including expiration dates and renewals.	Care Giver App	NILL	High	UC-031	TC-115
SRS-26.4	System Provide details about each medication, including usage instructions and side effects.	Care Giver App	NILL	High	UC-031	TC-116
SRS-26.5	System maintains a record of medication adherence, missed doses, and changes in the regimen Generate reports on	Care Giver App	NILL	High	UC-031	TC-117

	medication adherence and usage patterns.					
SRS-27.1	The system must allow users to input and store contact information for emergency contacts, including names, phone numbers, and any additional relevant details.	Lets Up Doc	Nill	High	UC-030	TC-118
SRS-27.2	The app should provide an easy-to-navigate interface for quick access to the list of emergency contacts when needed.	Lets Up Doc	Nill	Low	UC-030	TC-119
SRS-27.3	The system should support multiple notification modes (e.g., push notifications, SMS, emails) for contacting emergency contacts based on their preferences and availability.	Lets Up Doc	Nill	Medium	UC-030	TC-120
SRS-27.4	Users should be able to easily update and edit the contact information for emergency contacts to keep the information current.	seniorsafetyapp	Nill	Medium	UC-030	TC-121
SRS-	Provide browsing	Hajra Rizwan	Nill	High	UC-014	TC-122

33.1	and search functionalities within the Elderly Care Management System to allow users to find and access digital content easily.					
SRS-33.2	Sync user profiles between the Elderly Care Management System and the Digital Library to maintain consistency in user data. Leverage user data from the Elderly Care Management System to offer personalized recommendations within the Digital Library.	Hajra Rizwan	Nill	High	UC-014	TC-123
SRS-33.3	Integrate text-to-speech functionalities within the Digital Library to enhance accessibility for seniors with visual impairments.	Hajra Rizwan	Nill	Low	UC-014	TC-124
SRS-33.4	Establish API integration with the Digital Library to enable real-time access to the library's content.	Hajra Rizwan	Nill	High	UC-014	TC-125

SRS-33.5	Integrate user permissions to ensure that only authorized users can access the Digital Library.	Hajra Rizwan	Nill	High	UC-014	TC-126
SRS-34.1	System implements a robust and accurate speech recognition system that can understand and transcribe spoken commands effectively.	Hajra Rizwan	Nill	High	UC-014	TC-127
SRS-34.2	System provide support for multiple languages to cater to diverse user needs.	Zainab Sajid	Nill	Medium	UC-12	TC-128
SRS-34.3	System enables voice command functionality on various devices, including smartphones, tablets, smart speakers, and wearable devices.	Zainab Sajid	Nill	High	UC-12	TC-129
SRS-34.4	System enables hands-free operation for elderly users who may have limited mobility or dexterity.	Zainab Sajid	Nill	Low	UC-12	TC-130
SRS-34.5	System implement encryption for voice data transmission and storage to ensure the security and privacy of voice	Zainab Sajid	Nill	High	UC-12	TC-131

	commands.					
SRS-35.1	The system must incorporate advanced special sensors to detect serious emergency situations when the senior is alone and in need of urgent medical assistance.	Zainab Sajid	Nill	Medium	UC-29	TC-132
SRS-35.2	The feature should seamlessly integrate with compatibility devices, such as wearables or sensors, to enhance the accuracy of emergency detection.	Zainab Sajid	Nill	Medium	UC-029	TC-133
SRS-35.2	Upon detecting a serious emergency, the app should automatically trigger a request for an ambulance to the designated hospital or emergency service provider.	Zainab Sajid	Nill	Low	UC-029	TC-134
SRS-35.3	The app should share the real-time location of the senior with the ambulance service to ensure quick and accurate response.	Zainab Sajid	Nill	High	UC-029	TC-135
SRS-35.4	The system should notify designated contacts, such as	Zainab Sajid	Nill	High	UC-029	TC-136

	caregivers and doctors, about the initiated ambulance request to keep them informed.					
SRS-36.1	System allows caregivers or elderly individuals to create personalized dietary profiles, including dietary restrictions, allergies, preferences, and recommended nutritional intake.	Zainab Sajid	Nill	High	UC-035	TC-137
SRS-36.2	System enable setting and tracking of nutritional goals based on individual health needs (e.g., calorie intake, macronutrient distribution).	Zainab Sajid	Nill	High	UC-035	TC-138
SRS-36.3	System integrates a comprehensive database of foods and their nutritional values (calories, macronutrients, vitamins, minerals) to aid in meal planning.	Zainab Sajid	Nill	Low	UC-035	TC-139
SRS-36.4	System offers personalized dietary recommendations based on nutritional needs	Aleeha Akhlaq	Nill	High	UC-035	TC-140

	and health conditions.					
SRS-36.5	System provides a platform for logging daily food intake to monitor adherence to dietary plans and recommendations.	Aleeha Akhlaq	Nill	Medium	UC-035	TC-141
SRS-38.1	Enable motion detection on your cameras to trigger recording when movement is detected.	Aleeha Akhlaq	Nill	High	UC-036	TC-142
SRS-38.2	Integrate motion detection algorithms to trigger alerts when unusual activity is detected.	Aleeha Akhlaq	Nill	High	UC-036	TC-143
SRS-38.3	Conduct usability testing with elderly users to identify and address any user interface or interaction challenges.	Aleeha Akhlaq	Nill	High	UC-036	TC-144
SRS-39.1	Enable Caregivers / Seniors to schedule events, such as doctor appointments.	Aleeha Akhlaq	Nill	Medium	UC-033	TC-145
SRS-39.2	Allow the creation of recurring or medication doses.	Aleeha Akhlaq	Nill	High	UC-033	TC-145
SRS-39.3:	Provide fields for customizable event details, including event	Aleeha Akhlaq	Nill	Medium	UC-033	TC-147

	name, location, start/end times, and any additional notes.					
SRS-39.4:	Allow users to set customizable reminders for upcoming events, ensuring timely notifications for caregivers and seniors.	Aleeha Akhlaq	Nill	High	UC-033	TC-148

Artifact-6
Test Cases

SRS-No.	Description	Test Case	Expected Result	Actual Result	Pass / Fail	Test Case-Id
SRS-1.1	The initial step where users, including both doctors and caregivers, register themselves into the system in order to use it for the first time according to their roles**.**	**1. Doctor**: Navigate to the registration page. Select "Doctor" as your role. Provide valid details: Name: Dr. John Smith Email: john.smith@email.com Country Code: +1 (for example) Phone Number: 123-456-7890 Choose a strong password according to the system's policy. Click "Register" or "Sign Up" to complete the registration. **2. Caregiver**: Go to the registration page. Choose "Caregiver" as your role. Enter valid details: Name: Emily Johnson Email: emily.johnson@email.com Country Code: +44 (for example) Phone Number: 987-654-3210 Select a robust password based on the system's password policy. Click "Register" or "Sign Up" to finalize the registration process.	**1.** The system registers Dr. John Smith as a doctor, storing his information securely. A confirmation email or notification is sent to Dr. John Smith, and after successful registration, he is redirected to the login page. **2.** The system successfully registers Emily Johnson as a caregiver, securely storing her information. A confirmation email or notification is sent, and Emily Johnson is redirected to the login page after the successful registration.	TBD	TBD	TC-01
SRS-1.2	After registration, the system sends an OTP code to verify the user's phone number. This enhances security during both login and sign-up processes.	**1**. Sign up command by user. **2**. Login command by user.	**1.** Send OTP code message on phone number. **2.** System sends OTP code message on phone number.	TBD	TBD	TC-02
SRS-1.3	This ensures that each user has a unique identification in the	**1.** User A registers with phone number "555-1234."	**1.** Successful registration. Account for User A is created. User	TBD	TBD	TC-03

	system, preventing multiple users from using the same phone number.	Successful registration, account created. **2.** Duplicate Phone Number User B attempts to register with the same phone number "555-1234." Registration fails with an error message: "Phone number already in use." **3.** Different Phone Number User C tries to register with a different phone number "555-5678." Successful registration, account created.	A receives a confirmation message indicating a successful registration. **2.** Registration fails. User B receives an error message: "Phone number already in use." User B is prompted to choose a different phone number or log in if they are an existing user. **3.** Successful registration. Account for User C is created. User C receives a confirmation message indicating a successful registration.			
SRS-1.4	User based on their roles (Doctor or Caregiver), logs in to the system by providing their country code and phone number.	**1. Login as a Doctor:** Navigate to the system's login page. Choose "Doctor" as your role. Enter valid details: Country Code: +1 (for example) Phone Number: 123-456-7890 (associated with a registered doctor account). Click on the login button. **2. Login as a Caregiver:** Go to the system's login page. Choose "Caregiver" as your role. Enter valid details: Country Code: +44 (for example) Phone Number: 987-654-3210 (associated with a registered caregiver account). Click on the login button.	**1.** The system successfully authenticates the doctor's credentials. The doctor is redirected to the dashboard or a designated landing page for doctors. **2.** The system successfully authenticates the caregiver's credentials. The caregiver is redirected to the dashboard or a designated landing page for caregivers.	TBD	TBD	TC-04

SRS-1.5	Users must choose strong passwords with a combination of numbers and alphabets. This is a security measure for password authentication.	**1.** Enter a password that includes: At least one uppercase letter (e.g., A, B, C), one lowercase letter (e.g., a, b, c), one numerical digit (e.g., 1, 2, 3). **Example**: SecureP@ss123 **2.** User Input (Weak Password Attempt): Username: example user Password: weak password Registration Failed: Weak Password	**1.** The registration process is successful, and the system accepts the password. The user receives a confirmation message indicating that the account has been created successfully. **2.** Registration fails due to a weak password. Error message specifies the need for at least one uppercase letter, one lowercase letter, and one numerical digit in the password. User is prompted to choose a stronger password and retry registration.	TBD	TBD	TC-05
SRS-2.1	The system must allow doctors, caregivers, and elders to create and manage their profiles within the app.	**1. Doctor Profile:** Log in as a doctor. Navigate to the profile section. Provide or update necessary information: Specialization: Cardiology Clinic Address: 123 Medical Street, City Rawalpindi Contact Information: Phone: 555-1234 Email: doctor@email.com Additional Professional Details: Board Certified Save the changes. **2. Caregiver Profile:** Log in as a caregiver. Access the profile section. Enter or update personal details: Relationship to Elders: Grandparent's primary caregiver Contact Information: Phone: 987-654-3210	1. The doctor's profile is successfully created or updated. The system saves the provided information. The doctor can view and manage their profile details in the app. 2. The caregiver's profile is successfully created or updated. The system stores the provided information. The caregiver can view and manage their profile details in the app. 3. The elder's profile is successfully created or	TBD	TBD	TC-06

		Email: caregiver@email.com Relevant Caregiving Experience: 5 years of caregiving experience Save the changes. **3. Elder Profile:** Log in as an elder. Go to the profile section. Input or modify personal information: Medical History: Hypertension, Diabetes Medications: Aspirin, Metformin Emergency Contact Details: Contact Name: John Smith Relationship: Son Phone: 555-7890 Save the changes.	updated. The system retains the provided information. The elder can view and manage their profile details in the app.			
SRS-2.2	For doctors, the app should provide fields to input and display professional details, including specialization, degrees, and any other relevant information.	**Doctor Profile:** Log in as a doctor. Navigate to the profile section. Provide or update necessary information: Specialization: Cardiology Clinic Address: 123 Medical Street, City Rawalpindi Contact Information: Phone: 555-1234 Email: doctor@email.com Additional Professional Details: Board Certified Save the changes.	The app allows doctors to input professional details, including specialization, degrees, and other relevant information. The entered information is saved, and the system acknowledges the successful update, displaying the doctor's accurate professional details, visible for the doctor.	TBD	TBD	TC-07
SRS-2.3	Caregivers and elders must have the ability to create detailed profiles, including specific health issues, preferences, and any other relevant information necessary for comprehensive care monitoring.	**1. Elder Profile:** Full Name: John Doe Contact Number: +1234567890 Email Address: john.doe@email.com Profile Picture: [Upload Image] Health Information: Health Issues: Diabetes, Hypertension Medications: Insulin, Lisinopril **2. Caregiver Profile:** Relationship to Elders: Daughter	**1.** The app provides fields for the elder to input detailed information. The entered elder-specific details are saved successfully. The system acknowledges the successful update of elder details. **2.** The app provides fields for the caregiver to input detailed	TBD	TBD	TC-08

		Caregiving Experience: 4 years Skills: Dementia care, medication management Availability: Full-time, weekdays Emergency Procedures: CPR and First Aid certified	information. The entered caregiver-specific details are saved successfully. The system acknowledges the successful update of caregiver details.			
SRS-2.4	Users (doctors, caregivers, and elders) should be able to edit and update their profiles at any time to ensure that the information is current.	**1. Doctor Profile Update:** Log in as a doctor. Navigate to the profile section. Locate the "Edit" or "Update" option. Modify professional details: Specialization: Cardiology Degrees: MBBS MD (Cardiology) Professional Certifications: ACLS, Board Certified Work Experience: 10 years at City Hospital Save the changes. **2. Caregiver Profile Update:** User Profile Editing: User: Jane Smith Current Profile Information: Full Name: Jane Smith Contact Number: +9876543210 Email Address: jane.smith@email.com Profile Picture: [Current Profile Picture] After Profile Edits: Updated Profile Elder Profile Update: **1. Elder Profile Update:** Go to the profile section. Look for the "Edit" or "Update" option. Modify elder-specific details: Medical History: Hypertension, Arthritis Health Issues: Mild hearing impairment	**1.** The app allows the doctor to successfully edit and update their professional details. The modifications are saved, and the system acknowledges the successful update. **2.** The app enables the caregiver to successfully edit and update their profile information. The changes are saved, and the system confirms the successful update. **3.** The app permits the elder to successfully edit and update their profile information. The changes are saved, and the system acknowledges the successful update.	TBD	TBD	TC-09

		Preferences: Vegetarian diet, afternoon walks Emergency Contact Details: Contact Name: Jane Doe Relationship: Daughter Phone: 555-1234 Save the changes.				
SRS-2.5	The app must include privacy settings allowing users (caregivers, and elders) to control who can view specific details in their profiles, ensuring sensitive information is shared appropriately.	**1. Caregiver Privacy Settings Update:** Log in as a caregiver. Navigate to the privacy settings section. Identify options to control visibility of specific details. Set privacy preferences for caregiver-specific information: Caregiving Experience: Friends Only Relationship Details: Private Skills: Public Availability: Friends Only Emergency Procedures: Private Save the changes. **2. Elder Privacy Settings Update:** Log in as an elder. Access the privacy settings section. Identify options to control visibility of specific details. Set privacy preferences for elder-specific information: Medical History: Friends Only Health Issues: Private Preferences: Friends Only Emergency Contact Details: Public Save the changes.	**1.** The app provides options to set privacy preferences for caregiver-specific details. The caregiver can successfully configure the privacy settings. The system saves the chosen privacy preferences, ensuring that only authorized users can view specified details. **2.** The app offers options to set privacy preferences for elder-specific details. The elder can successfully configure the privacy settings. The system saves the chosen privacy preferences, ensuring that only authorized users can view specified details.	TBD	TBD	TC -10
SRS-2.6	The system should allow caregivers or elders to customize the profile information to cater to the unique needs and issues of the senior under their care.	**1. Customization of Elder's Profile:** Navigate to the elder's profile customization section. Identify options to customize specific details catering to the unique needs of the elder. Modify information such as: Preferences: Adjust meal preferences to vegetarian.	**1.** The app allows caregivers and elders to customize elder profiles, successfully saving tailored information to meet the unique needs of seniors. The system ensures the	TBD	TBD	TC-11

		Health Issues: Update information about recent mobility concerns. Daily Routine: Add a new activity or modify existing routines. Medications: Update medication schedule. Save the changes.	personalized details accurately reflect the care provided by the caregiver.			
SRS-2.7	The app should allow doctors, caregivers, and elders to determine the visibility of their profiles, either making them public or restricting access to specific individuals.	**App Dashboard:** Profile Visibility Settings: Public Profile: [Toggle switch] [When toggled on] Your profile is visible to everyone. [When toggled off] Your profile is private. Access Control: Restrict Access to Specific Individuals: [Select individuals] [List of contacts or individuals with checkboxes] Save Changes Button: [Save Changes]	The app should enable doctors, caregivers, and elders to configure profile visibility, providing the option to make profiles public or restrict access to specific individuals, ensuring personalized control over privacy settings.	TBD	TBD	TC -12
SRS-3.1	Create an API that allows caregivers to remotely adjust settings for the senior user's application.	Access the caregiver's application. Utilize the API to remotely adjust settings for the senior user's application. Verify that the adjustments take effect on the senior user's application.	The system's API allows caregivers to remotely adjust settings for the senior user's application, and the adjustments are reflected in real-time.	TBD	TBD	TC-13
SRS-3.2	Employ security best practices to protect sensitive data and prevent unauthorized access.	Attempt unauthorized access to sensitive data. Verify that security measures prevent unauthorized access.	The system employs security best practices to protect sensitive data and prevents unauthorized access.	TBD	TBD	TC-14
SRS-3.3	The client-side application should be compatible with the senior user's device platform (iOS, Android, etc.).	Install the client-side application on different device platforms (iOS, Android, etc.). Verify compatibility and functionality on each platform.	The client-side application is compatible with various device platforms.	TBD	TBD	TC-15
SRS-3.4	Use encryption techniques to secure communication between the client and	Monitor communication between the client and server. Verify the use of encryption techniques to secure	The system uses encryption techniques to secure communication between the client and server, ensuring the	TBD	TBD	TC-16

	server to prevent unauthorized access.	communication and prevent unauthorized access.	privacy and security of data.			
SRS-4.1	The system must provide an option for caregivers to enable the location tracking feature within the elderly care monitoring app.	**Caregiver Dashboard:** Elderly Profile: Location Tracking: Enable Location Tracking: [Toggle switch] [When toggled on] Location tracking is enabled. [When toggled off] Location tracking is disabled. Map View: Location History:	The Caregiver Dashboard successfully loads with responsive navigation, and the Elderly Profile section displays key details. The Location Tracking feature, toggled on/off, enables real-time tracking, with the Map View visualizing the current location and the Location History logging timestamped tracking data.	TBD	TBD	TC -17
SRS-4.2	The app must ensure that only authorized caregivers, registered within the system, have access to the location tracking feature.	Verify login credentials for access. Ensure caregivers have specific permissions. Restrict access to registered caregivers. Allow caregivers to manage location tracking permissions. Alert on unauthorized access attempts.	Successfully secure access by verifying login credentials, assigning specific permissions to caregivers and implementing alerts for unauthorized access attempts.	TBD	TBD	TC -18
SRS-4.3	The system must track and display the real-time whereabouts of the senior when the location tracking feature is activated by the caregiver.	Live map displaying the senior's current location Timestamp indicating when the location was last updated	When the caregiver activates the location tracking feature, the system should track and display the senior's real-time whereabouts	TBD	TBD	TC-19
SRS-4.4	The app should include privacy settings, allowing seniors or their legal representatives to control and grant permission for caregivers to track their location.	**Location Tracking Permissions:** Seniors' Control Option **Permission Requests:** Caregiver Approval: Jane (Allow), John (Deny) **Notification Center:** Permission Update: [Notification] **Privacy Information:** (Your location is currently visible to [Number] authorized caregivers).	The app should incorporate privacy settings, empowering seniors or their legal representatives to control and grant permissions, ensuring they have the authority to allow or restrict caregivers from tracking their location.	TBD	TBD	TC -20
SRS-4.5	The system must notify caregivers of any significant location changes or events related to the senior's well-being.	**Location Change Notification:** Senior's Name: location changed. [View Map] [Dismiss] Well-being Events: Senior's Name: triggered a well-being event. [Details] [Dismiss]	The system should instantly alert caregivers about location changes and well-being events for seniors, providing options to view details or dismiss.	TBD	TBD	TC -21

SRS-4.6	The app should optimize location tracking to minimize battery consumption on both the senior's device (if applicable) and the caregiver's device.	1. **Battery Saver Mode:** Option for caregivers/elders to activate a battery-saving mode. 2. **Notification on Battery Drain:** Alert caregivers if senior's device battery is critically low.	1. Battery Saver Mode Activation: Caregivers and elders can activate the battery-saving mode in the app, optimizing device performance for prolonged use. Low Battery Notification: Caregivers receive timely alerts when the senior's device battery is critically low, allowing for prompt attention and charging to ensure continuous use and communication.	TBD	TBD	TC -22
SRS-4.7	The app should maintain a history log of the senior's location, accessible to authorized caregivers, to review patterns and trends over time.	**Accessible to Caregivers** Log in as an authorized caregiver. Navigate to the location history section. Attempt to access the historical log of the senior's location. Timestamped Entries Map View Option Date Range Selection **2.** Export Data	**3.** The app allows authorized caregivers to access the history log of the senior's location. Caregivers can view patterns and trends in the senior's location over a specified time period. Unauthorized users, including non-registered caregivers, should not have access to the location history feature.	TBD	TBD	TC -23
SRS-5.1	The system must store historical location data of the senior over a specified period, allowing caregivers to access past records.	1. **Storing Historical Location Data** Log in as an authorized caregiver. Navigate to the system's location history section. Specify the desired time frame (e.g., the last 7 days). Check for historical location data for the senior during the specified period. 2. **Accessing**	1. The system successfully stores historical location data for the senior over the specified period. The stored records accurately represent the senior's location during the specified time	TBD	TBD	TC -24

		Historical Location Data Log in as an authorized caregiver. Navigate to the historical location data section. Attempt to access and review past location records for the senior. Caregivers can specify date ranges (e.g., last week, last month). Each entry has a timestamp indicating when the data was recorded.	frame. The system maintains the historical location data securely and reliably. **4.** The app allows authorized caregivers to access and review historical location data for the senior. Caregivers can view past records, enabling them to understand the senior's movements over the specified period. Unauthorized users, including non-registered caregivers, should not have access to the historical location data.			
SRS-5.2	The app should integrate mapping services to visually represent the senior's historical locations on a map, enhancing the user experience for caregivers.	Login as an authorized caregiver. Click on the "Historical Location" tab in the app's menu. Within the historical location section, locate and click on the "Map Visualization" option. The app integrates mapping services (e.g., Google Maps) to visually represent the senior's historical locations. A map appears with plotted points indicating the places the senior has been over a specified period.	**2.** The app successfully integrates mapping services to visually represent the senior's historical locations on a map. Caregivers can see a clear and intuitive display of the senior's movements over the specified time frame. The map accurately reflects	TBD	TBD	TC-22

		Caregivers can zoom in/out and interact with the map to explore specific locations. **3.** The map may include a time-based animation feature, showing the sequence of the senior's movements over time.	the historical location data stored by the system.			
SRS-5.3	The system should provide an option for caregivers to export the senior's location history data, facilitating external analysis or record-keeping.	Log in as an authorized caregiver. Navigate to the historical location data section. Look for an option to export the senior's location history data. Choose the export option and select the desired format (e.g., CSV, Excel). Confirm the export action.	**3.** The app provides an option for caregivers to export the senior's location history data. Caregivers can choose the desired export format. The system generates and downloads a file containing the location history data. The exported data accurately reflects the historical location records of the senior.	TBD	TBD	TC-23
SRS-5.4	The app should provide caregivers with the functionality to select a specific time range for viewing the senior's location history. Caregivers pick a start and end time to check where the senior has been during that period.	Log in as an authorized caregiver. Navigate to the historical location data section. Look for options to specify a time range for viewing the senior's location history. Select a start time and end time to define the desired period. Confirm the time range selection.	**4.** The app allows caregivers to select a specific time range for viewing the senior's location history. Caregivers can choose a start and end time to define the desired period. The system accurately displays the senior's location history within the specified time range. The displayed information reflects the senior's movements during the selected period.	TBD	TBD	TC-24
SRS-5.5	The system must show	Navigate to the historical	**5.** The app displays	TBD	TBD	TC-25

	the specific times when the senior was at different locations. It adds a time label to each entry in the location history, indicating when the senior was at a particular place.	location data section. Review the location history entries for the senior. Verify that each entry includes a time label indicating when the senior was at a particular place. Location Entries with Time Labels. Detailed Timestamps about the duration spent at each location. Map dynamically updates with time-stamped entries for visual clarity.	specific time labels for each entry in the senior's location history. Caregivers can easily identify when the senior was at different locations. The time labels are accurate and synchronized with the historical location data. Time labels enhance the caregiver's understanding of the senior's movements over time.			
SRS-6.1:	The software will include sensors (such as accelerometers and gyroscopes) in order to monitor and track everyday activities.	1. Perform various motions (walking, sitting, standing etc.) with the device. 2. Verify that the recorded accelerometer data corresponds to the expected patterns for each movement.	1. The accelerometer accurately captures and detects each movement. **6.** 2. The accelerometer accurately captures and detects each movement.	TBD	TBD	TC-
SRS-6.2:	The health data will be encrypted after submission and kept safely to prevent unauthorized access to important information.	1. Enter sample data in the app and submit it. 2. Attempt to access medical records with invalid login information i.e., password (abc123)	1. The intercepted data is unreadable and inaccessible. 2. Access denied through notification informing access is unauthorized.	TBD	TBD	TC-
SRS-6.3:	The system will have a user-friendly health assessment survey module that enables seniors and caregiver to enter and update related health.	1. Enter sample health data of senior, then save the entered data in system. 2. Update the existing data and save it.	1. The data is saved in system and a confirmation message is received. 2. The data is updated, saved and a confirmation message is received.	TBD	TBD	TC-
SRS-7.1:	Only the authorized senior, caregiver or doctor will have access to health data.	1. Login as authorized senior (phone number or password)i.e., 0-123-456 2. Login as authorized senior (phone number or password)i.e., 0-122-435 3. Login as authorized senior (phone number or password)i.e., 0-534-678 4. Login through an	1. Access is granted. 2. Access is granted. 3. Access is granted. 4. Access is denied.	TBD	TBD	TC-

		unregistered password or phone number.				
SRS-7.2:	System will implement a secure database for storing health data, incorporating encryption to protect sensitive information.	1. Enter health data for senior and save it. Then retrieve stored data. 2. Modify a piece of stored data and retrieve the stored data.	1. System saves the data that is unreadable and encrypted. 2. The modified does not match the original data.	TBD	TBD	TC-
SRS-8.3:	System allows user the capability to set multiple reminders for various self-care tasks throughout the day.	Adding reminders for "Morning Exercise," "Drink Water," and "Lunchtime Stretch".	All reminders for different tasks are successfully added without any conflict, ensuring multiple reminders throughout the day.	TBD	PASS	TC-30
SRS-8.3.1:	Adding multiple reminders Maximum limit of reminders per day.	Adding more than 10 reminders for various tasks	The system restricts the addition of the 11th reminder, displaying a message indicating the limit has been reached.	TBD	PASS	TC-31
SRS-8.4:	System delivers reminders via app notifications, SMS, email, or push notifications.	Enable push notifications, set a reminder for "Evening Walk," and wait for a push notification	Receive a push notification at the appointed time for "Evening Walk".	TBD	PASS	TC-32
SRS-8.4.1:	Notification Priority	Set reminders for "Morning Breakfast" via app, SMS, email, and push notification simultaneously.	Receive notifications via all channels (app, SMS, email, and push) at the scheduled time, ensuring timely reminders.	TBD	PASS	TC-33
SRS-8.5:	System integrates with health-related apps or wearables to gather relevant health data for personalized reminders (with user consent).	Connect the system with a wearable device (e.g., Apple Watch) and set a reminder for "Heart Rate Check"	System fetches real-time heart rate information from the wearable to provide timely reminders for "Heart Rate Check".	TBD	PASS	TC-34
SRS-8.5.1	Permission Validation	Decline permission for health data access during reminder setup	System prompts a message indicating the need for access to health-related data for personalized reminders and does not provide health-related reminders without user consent.	TBD	Fail	TC-35

SRS-9.1	System allows users to view availability of healthcare providers or services in real-time.	Search for a specific healthcare provider.	System displays real-time availability status of the healthcare provider for the requested time slot	TBD	PASS	TC-36
SRS-9.1.1:	Real-time Updates	Verify the system's update frequency by refreshing the page multiple times.	System displays real-time availability status of the healthcare provider for the requested time slot.	TBD	PASS	TC-37
SRS-9.1.2:	User Notification on Provider Availability Changes	Set a notification for changes in the availability of a preferred doctor	System sends an alert/notification when the availability status of the selected healthcare provider changes in real-time	TBD	PASS	TC-38
SRS-9.2	System displays open time slots for appointments based on provider availability.	View available time slots for Dr. Smith on a specific date.	System presents a list of open time slots throughout the day for appointments with Dr the chosen date.	TBD	PASS	TC-39
SRS-9.2.1:	Real-time Updates	Check for availability repeatedly while a provider's schedule is updated	System dynamically updates the open time slots as provider availability changes, reflecting the latest information	TBD	Pass	TC-40
SRS-9.2.2:	User Preferences on Appointment Time	Set a notification for an open time slot with any provider	System sends an alert time when slot becomes available with any healthcare provider	TBD	Pass	TC-41
SRS-9.3	System allows users for setting varying durations for different types of appointments.	Attempt to set an appointment duration below the minimum permissible limit (e.g., 15 mins),	System prompts an error message, indicating the minimum duration requirement for an appointment has not been met.	TBD	Fail	TC-42
SRS-9.4	System allows users to confirm, reschedule or cancelled appointments	Confirm a scheduled appointment. Cancel a scheduled appointment.	System registers the appointment as confirmed, updating the status to 'Confirmed'. System cancels the appointment, updating its status to 'Cancelled', releasing the time slot for other bookings	TBD	PASS Fail	TC-43

SRS-9.5	System provides automated reminders via email, SMS, or app notifications	Schedule an appointment and verify email reminder	User receives an email reminder at the specified time and date of the appointment.	TBD	PASS	TC-44
SRS-9.5.1	Multiple Reminders for the Same Activity	Set multiple reminders for a single appointment	System sends separate reminders through email, SMS, or app notifications at intervals set by the user.	TBD	Pass	TC-45
SRS-9.7	System notifies the users upon successful appointment bookings.	Book a new appointment successfully. Cancel a scheduled appointment	User receives a confirmation notification immediately after booking an appointment. User promptly receives a notification confirming the cancellation	TBD	PASS Fail	TC-46
SRS-10.1	System enables instantaneous communication between users in the system.	User A sends messages to User B while User B is offline. User B logs in after a period Check for queued messages and their delivery.	User B should receive all messages sent by User A during the offline period upon logging in, displayed in chronological order, without any loss or duplication of messages.	TBD	PASS	TC-47
SRS-10.2	System implements end-to-end encryption to protect sensitive information shared in chats.	Send a message Monitor encryption status during transmission. Analyze message storage in transit and at rest.	Messages sent between User A and User B should be encrypted throughout transmission, and stored messages should remain encrypted at rest, visible only to the intended recipient.	TBD	PASS	TC-48
SRS-10.3	System enables users to store chat history and provide a search feature to retrieve past conversations	Verify chat history retention and storage. Use the search feature to retrieve specific conversations by keyword(s).	The system should retain and store the entire conversation history. Upon searching with specific keywords, the system should accurately retrieve and display relevant past conversations that contain the searched keyword	TBD	PASS	TC-49
SRS-10.4	System ensure compatibility with assistive technologies for users with disabilities.	Use a screen reader software Navigate through the system interface and functionality.	The system interface should be fully accessible and compatible with screen reader software accurately interpreting and vocalizing interface elements and content.	TBD	PASS	TC-50

SRS-10.5	System provides the ability to handle a large number of users and messages without compromising performance.	Simulate a high volume of concurrent user logins. Monitor system response time and resource utilization under heavy user load.	The system should maintain stable performance with quick response times even when subjected to a high number of concurrent user logins, avoiding slowdowns or crashes	TBD	PASS	TC-51
SRS-10.6	System enables users sharing of images, files, or other multimedia within the chat.	Initiate a chat conversation between two users. User sends an image file to other user via the chat interface.	User should be able to successfully upload and send an image file within the chat interface, and other User should be able to receive, view, or download the image without any quality loss.	TBD	PASS	TC-52
SRS-11.1	The system must employ special real-time sensors to automatically detect falls as they occur.	Place the device with the fall detection system in a controlled environment. Simulate a fall by dropping the device from a predetermined height to mimic a fall event. Ensure that the real-time sensors are activated and functioning properly.	The system successfully employs special real-time sensors to automatically detect the simulated fall event. The fall detection is accurate, and the system responds promptly to the simulated fall.	TBD	TBD	TC-53
SRS-11.2	Upon detecting a fall, the app should generate an immediate alert to both the designated caregiver and doctor, ensuring swift response.	A simulated fall event is initiated within the app. After a brief processing time, an alert appears on both the caregiver's and doctor's devices. The alert to caregiver and doctor includes information such as the time of the fall, the senior user involved, and any additional relevant details.	The app swiftly detects fall events and notifies the designated caregiver and doctor with clear alerts on their respective devices, displaying essential details such as the patient's name, location, and timestamp. Both alerts offer options for acknowledgment or immediate response, ensuring prompt action in case of a fall.	TBD	TBD	TC -54
SRS-11.3	The app should facilitate communication between the caregiver and doctor, allowing them to coordinate efforts in response to the fall alert.	A fall alert is triggered within the app. The caregiver's device displays a fall alert with information about the incident. Similarly, the doctor's device shows the fall alert with relevant details. Both devices provide communication options for the caregiver and doctor to coordinate efforts effectively. Confirm the availability of communication options, such as:	The app ensures quick display of fall alerts on both the caregiver's and doctor's devices, facilitating immediate communication options such as messaging or calling within the app. Both parties can exchange crucial information about the fall event, patient status, and necessary actions, promoting efficient collaboration.	TBD	TBD	TC -55

		In-app messaging Direct calling Video calling				
SRS-11.4	The system should integrate with emergency services, allowing automatic alerts to be sent in the absence of a caregiver or doctor response.	A fall alert is triggered within the app. Simulate a scenario where both the caregiver and the doctor do not respond within a specified time frame (e.g., 5 minutes). The system, recognizing the lack of response, automatically activates alerts to emergency services.	The fall alert should be promptly displayed on both the designated caregiver's and doctor's devices. If neither the caregiver nor the doctor responds within the specified time frame, the system should automatically send alerts to emergency services. The emergency services should receive pertinent information about the fall event, including the patient's name, location, and a timestamp.	TBD	TBD	TC -56
SRS-11.5	The app should prompt the user (senior) for confirmation after a fall is detected to prevent false alarms. If no confirmation is received, the alert process should proceed.	A simulated fall event is triggered within the app. The senior user's device displays a confirmation prompt. If the senior confirms the fall, the app acknowledges the confirmation. If the senior does not confirm within the specified time frame, the app takes appropriate escalation actions, such as alerting caregivers or emergency services	The app quickly detects a fall and asks the senior to confirm it. If they confirm within a set time, the app alerts caregivers, doctors, or emergency services. If there's no confirmation, the app assumes the fall is real and proceeds to alert the necessary contacts automatically.	TBD	TBD	TC -57
SRS-11.6	The app should maintain a log of detected falls, including timestamps and relevant details, for later review by caregivers and doctors.	Trigger multiple fall events within the app. Allow the app to process each fall detection and log the relevant details. Log entries include: Event 1: Timestamp: [Date/Time] Location: Latitude 37.1234, Longitude -122.5678 Event 2: Timestamp: [Date/Time] Location: Latitude 37.2345, Longitude -122.6789 Event 3: Timestamp: [Date/Time] Location: Latitude 37.3456,	The app records every fall event with precise timestamps and details. Caregivers can view a chronological list of detected falls on their device, including timestamps and additional information. Doctors also have a comprehensive log on their device, facilitating later review of all detected falls.	TBD	TBD	TC-58

		Longitude -122.7890 Access the fall detection log on both the caregiver's and doctor's devices.				
SRS-12.1	List third-party libraries, frameworks, or tools that the software depends on.	Access the system documentation. Verify the list of third-party libraries, frameworks, or tools that the software depends on.	The system documentation clearly lists third-party dependencies, providing transparency to developers and administrators.	TBD	TBD	TC-59
SRS-12.2	Specify the minimum and recommended versions of the operating systems.	Access the system documentation. Verify the minimum and recommended versions of the operating systems specified.	The system documentation clearly specifies the minimum and recommended versions of the operating systems for proper software functioning.	TBD	TBD	TC-60
SRS-12.3	If the software exposes or consumes APIs, clearly document the supported API versions and specifications.	Access the system documentation. Verify the documentation for exposed or consumed APIs, including supported versions and specifications.	The system documentation clearly outlines the supported API versions and specifications.	TBD	TBD	TC-61
SRS-12.4	Outline the testing procedures and validation steps to ensure compatibility and integration.	Access the testing procedures and validation steps in the system documentation. Verify the outlined testing procedures for compatibility and integration.	The system documentation provides clear testing procedures and validation steps to ensure compatibility and integration with various components.	TBD	TBD	TC-62
SRS-13.1	The system must provide a clear and easily accessible option for seniors to activate SOS alerts in moments of emergency.	A simulated emergency scenario is initiated within the app. On the senior user's device, an "Emergency" button is available on the home screen or through voice recognition system. The senior user activates the SOS alert by tapping the "Emergency" button and confirming the action. The app promptly sends the SOS alert to designated caregivers, doctors, or emergency services.	The system provides a clear and easily accessible SOS activation option for seniors with a prominent display on the user interface. The activation steps are intuitive, minimizing confusion for seniors. Once activated, the system promptly sends SOS alerts to designated recipients, including relevant information about the emergency situation.	TBD	TBD	TC -63
SRS-13.2	The app should utilize GPS functionality to retrieve the real-time location of the senior during an emergency.	A simulated emergency scenario triggers the activation of the SOS alert. The app initiates GPS location retrieval for the senior user.	The system triggers an emergency response upon SOS alert activation, utilizing GPS functionality to obtain the senior's real-time location accurately.	TBD	TBD	TC -64

		The obtained location information (e.g., Latitude 37.1234, Longitude -122.5678) is accurate. The SOS alert message prominently displays the accurate location information for quick emergency response.	The alert message sent to designated recipients includes the precise GPS location, ensuring immediate and informed assistance.			
SRS-13.3	Upon activation of the SOS alert, the app must initiate communication with designated emergency contacts, including caregivers and doctors.	A simulated emergency scenario triggers the activation of the SOS alert. The app promptly initiates communication with designated emergency contacts. The communication includes the senior's real-time location (Latitude 37.1234, Longitude -122.5678) and provides relevant details about the emergency, aiding a swift and informed response.	When the SOS alert is activated, the app promptly communicates with designated emergency contacts, providing comprehensive details for a thorough understanding of the emergency. The app reaches out to both caregivers and doctors, using methods such as messaging, calling, or other specified means for effective and immediate coordination.	TBD	TBD	TC -65
SRS-13.4	The app should have a multi-channel alert system, sending notifications via various means such as push notifications, SMS, and emails to ensure timely responses.	Simulated emergency scenario triggers SOS alert activation. App sends notifications through push notifications, SMS, and emails. Notifications reach designated emergency contacts, including caregivers and doctors. Content of each notification includes accurate GPS coordinates and details about the nature of the emergency.	The app has a multi-channel alert system: push notifications in the app, SMS to designated numbers, and emails to specified addresses when the SOS is activated. All emergency contacts, including caregivers and doctors, receive timely and consistent notifications with detailed information about the emergency, including the senior's real-time location.	TBD	TBD	TC -66
SRS-13.5	The system should integrate with local emergency services, automatically sending alerts and providing the senior's location in case of emergencies.	Simulated emergency scenario triggers SOS alert activation. System automatically sends alerts to local emergency services. Alerts include accurate GPS coordinates and details about the nature of the emergency. Local emergency services acknowledge the alerts, confirming their receipt and response.	The system seamlessly integrates with local emergency services, automatically sending alerts when the SOS is activated. These alerts include precise and real-time information about the senior's location and the nature of the emergency. Local emergency services acknowledge the alerts, ensuring a swift and coordinated response through reliable communication with the system.	TBD	TBD	TC -67

SRS-14.1	System allows the creation and maintenance of individual profiles for elderly individuals, including personal details, medical history, medications, allergies, etc.	Caregiver logs into the system. Caregiver navigates to the profile creation section. Caregiver enters personal details, medical history, medications, allergies, etc., for an elderly individual. Caregiver saves the profile.	The system successfully creates and maintains the individual profile, and the entered details are accurately stored in the database.	TBD	TBD	TC-68
SRS-14.2	System enables the uploading of documents such as lab reports, imaging scans, and other relevant medical files.	Caregiver logs into the system. Caregiver accesses the document upload feature. Caregiver selects an elderly individual's profile. Caregiver uploads documents such as lab reports, imaging scans, and other relevant medical files.	The system allows the uploading of documents, associates them with the individual's profile, and ensures that the documents are retrievable when needed.	TBD	TBD	TC-69
SRS-14.3	System employs strong encryption methods to secure sensitive medical records and comply with privacy regulations.	Caregiver logs into the system. Caregiver accesses a patient's medical records. Caregiver verifies the presence of strong encryption methods.	The system employs strong encryption methods to secure sensitive medical records, ensuring compliance with privacy regulations and protecting patient data.	TBD	TBD	TC-70
SRS-14.4	System ensure that data collected from monitoring devices is seamlessly integrated into the patient's medical records in real-time.	Caregiver logs into the system. Caregiver accesses the monitoring device integration section. Caregiver configures a monitoring device for real-time data integration. Caregiver monitors the patient's medical records for real-time updates from the monitoring device.	The system seamlessly integrates data from monitoring devices into the patient's medical records in real-time, ensuring that the records reflect the most up-to-date information.	TBD	TBD	TC-71
SRS-14.5	System generates alerts for caregivers and patients regarding medication schedules, refills, and potential drug interactions.	Caregiver logs into the system. Caregiver accesses the medication management section. Caregiver sets up medication schedules for an elderly individual. System time elapses to trigger a scheduled medication alert.	The system generates an alert for both the caregiver and the patient regarding the scheduled medication, providing information on the medication, dosage, and any potential drug interactions.	TBD	TBD	TC-72

SRS-14.6	System allows controlled sharing of medical records with authorized healthcare providers or institutions as needed for coordinated care	Authorized healthcare provider logs into the system. Provider requests access to specific medical records of an elderly individual. System prompts for authorization from the caregiver or patient. Caregiver or patient authorizes the access request.	The system allows controlled sharing of medical records with authorized healthcare providers, and access is granted only upon proper authorization.	TBD	TBD	TC-73
SRS-14.7	System provides contingency plan in place to recover data in case of catastrophic events or system breaches.	Simulate a catastrophic event or system breach. System administrators initiate the data recovery process. Monitor the recovery process for data integrity and completeness.	The system has a contingency plan in place, successfully recovering data in case of catastrophic events or system breaches.	TBD	TBD	TC-74
SRS-16.1	System enables direct communication (phone call, messaging) with healthcare providers or emergency services.	Access the system interface. Initiate a direct phone call to a healthcare provider or medical professional listed within the system's directory/contact list.	The system should facilitate the initiation of a direct phone call to the selected healthcare provider or medical professional, connecting the user to the intended recipient seamlessly.	TBD	TBD	TC-75
SRS-16.2	System allows secure sharing of user health records with urgent care providers if needed.	Access the health records section. Initiate the sharing of specific health records with an urgent care provider.	The system should allow User to securely select and share specific health records with an urgent care provider, ensuring that the transfer is encrypted and accessible only to authorized parties.	TBD	TBD	TC-76
SRS-16.3	System allows the users to connect with a network of healthcare providers or clinics for immediate care access	Access the system interface as User Explore the network of healthcare providers or clinics available. Initiate connection with a selected provider or clinic.	The system should provide User with a comprehensive directory or network of healthcare providers or clinics, enabling them to find and connect with the desired provider or clinic for immediate care access.	TBD	TBD	TC-77
		Access the system as User. Submit a request for immediate care access or appointment with a healthcare provider or clinic from the network.	The system should facilitate User request for immediate care access or appointment with a healthcare provider or clinic from the network, ensuring timely response and assistance in securing.	TBD	TBD	TC-78

SRS-16.4	Ensure secure transmission of sensitive user information during emergency communications.	Encryption of Emergency Messages	Ensure emergency messages containing sensitive user information are encrypted during transmission to emergency services.	TBD	TBD	TC-79
SRS-16.4.1		Data Privacy and Confidentiality Verification.	Validate end-to-end encryption for emergency communications to protect sensitive user data.	TBD	TBD	TC-80
SRS-16.5	System allows user to set reminders or notifications according to their preferences	Reminder Setting Functionality. Customization and Notification Delivery.	User sets a reminder/ notification specifying date, time. User sets multiple reminders with varying preferences (e.g., sound, frequency).	TBD	TBD	TC-81
SRS-16.6	System notifies the users upon successful appointment bookings.	Notification trigger for appointment success.	User successfully books an appointment through the system.	TBD	TBD	TC-82
SRS-17.1	System allows users to schedule, create, edit, and manage events on the calendar.	Event creation and scheduling functionality	User creates and schedules a new event on the calendar interface.	TBD	TBD	TC-83
SRS-17.2	System provides different views (daily, weekly, monthly) for better event visualization and planning.	Daily and monthly View Customization and Navigation Functionality.	User switches to the daily and monthly view on the calendar interface to visualize events for a specific day.	TBD	TBD	TC-84
SRS-17.3	System sends reminders or notifications to users about upcoming events or changes.	Sends notification for event reminders.	User has an upcoming event on the calendar. System sends a reminder/notification before the event's scheduled time.	TBD	TBD	TC-85
SRS-17.4	System enables communication or discussion related to events through in-app chat feature.	Real-Time Communication and Participation.	Users engage in real-time communication within the event-associated chat, sharing information, opinions, or updates related to the event.	TBD	TBD	TC-86

SRS-17.5	System enables users to search for specific events or filter events based on different criteria (e.g., date, category, location).	Event Search by Specific Criteria Filter and Sorting Functionality	User searches for an event using specific criteria such as date, category, or location. User applies filters (e.g., date range, category) and sports events based on different criteria (e.g., date, relevance)	TBD	TBD	TC-87
SRS-17.6	System allows users to personalize their event calendar by selecting preferences or interests.	User can easily customized event recommendations.	Based on User selected preferences, the system recommends or displays events tailored to those preferences.	TBD	TBD	TC-88
SRS-18.1	System allows users to store medical records, prescriptions, lab reports, and other healthcare-related documents securely.	User uploads a medical record or lab report to the system Unauthorized user attempts to access confidential medical records	The system securely stores the document, ensuring encryption, access control, and compliance with privacy regulations. The system denies access.	TBD	TBD	TC-89
SRS-18.2	System maintains a comprehensive record of prescriptions issued to patients include details such as medication name, dosage, frequency, prescribing physician, and expiration date.	System adds a new prescription including medication, dosage, and frequency details	The system saves the prescription with accurate medication details, dosage, frequency, and related information.	TBD	TBD	TC-90
SRS-18.3	System enables users to search for specific documents or prescriptions efficiently.	User searches for a specific document by name	System retrieves and displays relevant documents matching the search query.	TBD	TBD	TC-91
SRS-18.4	System allows to track document access, modifications, and user interactions for accountability and compliance purposes maintain document versions to track changes and updates.	User accesses a document. Validate the security and integrity of document version tracking.	System records user's access timestamp, document details, and user identity for accountability and traceability purposes	TBD	TBD	TC-92
SRS-20.1	System allows users to gather comprehensive user information, including health history, preferences, and specific needs, through assessments or	User creates a profile, including basic information and preferences	System allows the user to create a profile with details such as name, age, gender, preferred activities, and dietary habits.	TBD	TBD	TC-93

	profiles.					
SRS-20.2	System develops algorithms or tools to generate individualized well-being plans based on gathered user data.	Utilize user data to develop personalized well-being plans	System employs algorithms to process data and generate tailored plans, including activities, diet, and lifestyle	TBD	TBD	TC-94
SRS-20.3	System allows users to set personal health goals and track progress within the system.	Set a personal health goal	System allows users to input specific health goals, such as weight loss, exercise targets, or dietary objectives	TBD	TBD	TC-95
SRS-20.3.1:	Progress Visualization	View progress in a graphical representation or chart	System presents user progress via charts, graphs, or visual indicators for easy understanding	TBD	TBD	TC-96
SRS-20.4	System provides personalized recommendations for activities, exercises, dietary plans, and lifestyle changes based on user profiles and goals.	Set specific health goals and preference	System generates personalized suggestions for exercises, dietary plans, activities, and lifestyle modifications	TBD	TBD	TC-97
SRS-20.5	System enables users and caregivers to monitor the progress of well-being plans, with reporting features to track improvements or changes.	Monitor progress for a specific well-being plan	System allows users/caregivers to create a plan with defined goals, tasks, and timelines	TBD	TBD	TC-98
SRS-20.5.1	Generate Progress Report	Generate a report on plan improvements or changes	Generate a report on plan improvements or changes	TBD	TBD	TC-99
SRS-21.1	System ensure compatibility with various monitoring devices, wearables, and sensors used in the elderly care system that rely on batteries.	Connect various monitoring devices, wearables, and sensors to the system. Verify compatibility with different device types.	The system ensures compatibility with various monitoring devices, wearables, and sensors used in the elderly care system.	TBD	TBD	TC-100

SRS-21.2	System implements a system to continuously monitor the battery status of connected devices.	Connect devices with batteries to the system. Monitor the battery status continuously. Trigger changes in battery status and verify real-time updates.	The system implements a system to continuously monitor the battery status of connected devices.	TBD	TBD	TC-101
SRS-21.3	System provides immediate alerts to caregivers or responsible individuals when a device's battery level reaches predefined thresholds.	Simulate a low battery scenario for a connected device. Verify that immediate alerts are generated for caregivers or responsible individuals.	The system provides immediate alerts to caregivers when a device's battery level reaches predefined thresholds.	TBD	TBD	TC-102
SRS-21.4	System utilizes various notification methods such as pop-up alerts, SMS, emails, or push notifications on mobile devices.	Simulate a low battery scenario for a connected device. Verify the notification methods used, such as pop-up alerts, SMS, emails, or push notifications on mobile devices.	The system utilizes various notification methods to inform caregivers about low battery levels.	TBD	TBD	TC-103
SRS-22.1	The system must allow the elderly user to initiate real-time location sharing with their designated family and friends.	Log in as an elderly user. Navigate to the real-time location sharing feature. Identify options to initiate location sharing. Select family and friends from the designated list with whom to share the real-time location. Confirm and start the real-time location sharing.	The app allows the elderly user to initiate real-time location sharing. The elderly user can select specific family and friends from the designated list. The system starts sharing the real-time location with the selected individuals. Family and friends receive notifications or access to the real-time location as per the elderly user's selection.	TBD	TBD	TC-104
SRS-22.2	The app should provide options for the elderly user to selectively choose which family members or friends can view their real-time location.	Log in as an elderly user. Navigate to the real-time location sharing settings. Identify options to selectively choose family members or friends. Choose specific contacts from the list with whom to share the real-time location. Confirm and start the real-time location sharing. Contact Selection Permission Settings Start Sharing Button Notification to Recipients Stop Sharing Option	The app allows the elderly user to selectively choose family members or friends for real-time location sharing. The elderly user can choose specific contacts based on preferences. The system starts sharing the real-time location only with the selected contacts. Family members or friends who are not selected do not have access to the real-time location.	TBD	TBD	TC-105

SRS-22.3	The system must continuously update and share the elder's location in real-time with the selected recipients, ensuring the information is current.	Log in as an elderly user. Navigate to the real-time location sharing settings. Select specific family members or friends to share the real-time location with. Confirm and initiate real-time location sharing. Automatic Updates Selected Recipients Notification on Update	The app continuously updates and shares the elderly user's location in real-time with the selected recipients. Selected family members or friends receive timely and accurate updates about the elderly user's current location. The real-time location information is consistently refreshed and reflects the current whereabouts of the elderly user.	TBD	TBD	TC-106
SRS-22.4	The app should include an emergency sharing option that allows the elderly user to quickly share their real-time location with a predefined emergency contact or contacts.	Log in as an elderly user. Access the emergency sharing feature. Identify options to quickly share real-time location in case of an emergency. Choose predefined emergency contact(s). Confirm and initiate emergency location sharing. Single-Tap Activation Real-time Location Share Automated Message	The app includes an emergency sharing option for the elderly user. The elderly user can quickly share their real-time location with predefined emergency contact(s). The system promptly initiates the emergency location sharing process. The selected emergency contact(s) receive timely and accurate real-time location information in case of an emergency.	TBD	TBD	TC-107
SRS-22.5	The system must allow the elderly user to specify the duration for which their real-time location is shared, giving them control over the sharing period.	Log in as an elderly user. Access the real-time location sharing settings. Identify options to specify the duration for which the real-time location will be shared. Choose a specific time duration or set an end time for sharing. Confirm and initiate real-time location sharing with the specified duration. Duration Selection Time Limit Options Start Sharing Button Countdown Timer to indicate the remaining sharing period Automatic Stop	**1.** Customized Location Sharing: The app empowers elderly users to set a specific duration or end time for sharing their real-time location. Automated Stoppage: The system initiates real-time location sharing as per the specified duration, automatically discontinuing the sharing feature after the elapsed time, providing control and privacy to the elderly user.	TBD	TBD	TC-108

SRS-22.6	The app must have an intuitive user interface for the elderly user to easily control and manage real-time location sharing settings.	Navigate to the app's settings or dedicated section for real-time location sharing. Explore the user interface to identify and understand options related to real-time location sharing. Adjust sharing preferences, including selecting contacts, Large Buttons and Text Simple Toggle Switches, Icon-Based Navigation, Touch-friendly Controls, Accessible Fonts, Clear Feedback Messages specifying duration, or initiating emergency sharing. Confirm and save any changes made to the real-time location sharing settings.	**2.** The app offers an intuitive and clear interface for elderly users to easily navigate and manage real-time location sharing settings.	TBD	TBD	TC-109
SRS-23.1	The system must allow caregivers to create geofences by defining specific areas on the map where alerts will be triggered based on the senior's entry or exit.	Log in as an authorized caregiver. Navigate to the geofencing settings or section within the app. Identify options to create a new geofence. Define specific areas on the map by setting boundaries for the geofence. Configure alert preferences for entry and exit events. Confirm and save the new geofence.	**3.** The caregiving app allows caregivers to easily create geofences on a map with precise boundaries. Caregivers can customize alert preferences for entry and exit events within these geofences. Once created, the system successfully saves the geofence, enabling it to trigger alerts based on the senior's movement into or out of the designated area.	TBD	TBD	TC-110
SRS-23.2	The app should continuously monitor the senior's location in real-time and trigger alerts immediately when the senior enters or leaves a predefined geofence.	Log in as an authorized caregiver. Create a geofence with predefined boundaries for the senior. Confirm that the real-time location monitoring is active. Wait for the senior to enter or leave the predefined	**4.** The app maintains real-time monitoring of the senior's location, triggering immediate alerts upon entry or exit from the	TBD	TBD	TC-111

		geofence. The app continuously monitors the senior's location in real-time. Immediate Alert Trigger Caregivers receive push notifications for timely alerts. Alert Details Caregivers can customize alert preferences (e.g., sound, vibration).	predefined geofence. Caregivers receive timely and accurate notifications specifying the geofence event (entry or exit), reflecting the senior's movements within the defined boundaries.			
SRS-23.3	Caregivers must have the flexibility to tailor geofence parameters, such as the dimensions of the geofence, to suit specific requirements.	Log in as an authorized caregiver. Navigate to the geofencing settings or section within the app. Identify options to create or edit an existing geofence. Use the intuitive map interface to customize the size and shape of the geofence. Confirm and save the customized geofence.	**5.** The app empowers caregivers to intuitively customize geofence size and shape on a map, enabling real-time modifications with accurate reflection, and successful saving for triggering alerts based on the senior's movements.	TBD	TBD	TC-112
SRS-23.4	The system should maintain a log of geofencing events, providing caregivers with a historical record of when the senior entered or left predefined locations.	Log in as an authorized caregiver. Open the app and log in with valid credentials. Navigate to the "Geofence" section. Define a geofence around the senior's residence: Name: Home Boundaries: Latitude 37.1234, Longitude -122.5678 Radius: 100 meters. Confirm real-time location monitoring and geofencing alerts in the "Settings" or "Alerts" section. Wait for the senior to enter or leave the predefined geofence. Timestamped Entries Entry and Exit Details Clearly specify which geofence was triggered in each event. Caregivers can easily access	**6.** The app logs geofencing events, recording entries and exits with timestamps for accurate historical tracking, allowing caregivers to access a comprehensive record and monitor the senior's movements in predefined locations effectively.	TBD	TBD	TC-113

		and review the geofencing event log. Export Option				
SRS-23.5	Geofencing alerts should be timely and relevant, notifying caregivers promptly to ensure an immediate response when needed.	Alerts triggered immediately when the senior enters or leaves a predefined geofence. Caregivers receive push notifications for timely alerts. Caregivers can customize alert preferences (e.g., sound, vibration) for immediate recognition. Seamless communication channels for immediate caregiver response.	**7.** Geofencing alerts are triggered promptly when the senior enters or leaves the predefined geofence. Caregivers receive timely notifications or alerts indicating the geofence event (entry or exit). The alerts are relevant, providing clear information about the geofencing event and the senior's location. Caregivers can immediately respond or take necessary actions based on the received alerts.	TBD	TBD	TC -114
SRS-24.1	System designs an easily accessible and intuitive interface within the software for accessing the Help Center.	User accesses the software. Locate and click on the Help Center option. Verify the accessibility and intuitiveness of the Help Center interface	The system provides an easily accessible and intuitive interface within the software for accessing the Help Center.	TBD	TBD	TC-115
SRS-24.2	System incorporates multimedia elements like videos, images, or interactive guides to enhance understanding and engagement.	Access the Help Center. Check for the presence of multimedia elements like videos, images, or interactive guides. Verify that multimedia elements enhance understanding and engagement.	The system incorporates multimedia elements in the Help Center, improving user comprehension and engagement.	TBD	TBD	TC-116
SRS-24.3	System integrates a live chat feature for real-time assistance where users can interact with support agents or chat-bots to resolve queries.	Access the Help Center. Locate and engage with the live chat feature. Interact with support agents or chat-bots to resolve queries in real-time.	Expected Result: The system integrates a live chat feature in the Help Center, allowing users to interact with support for real-time assistance.	TBD	TBD	TC-117

SRS-24.4	System provides an option for users to submit queries or issues via email, with a ticketing system for tracking and responding to inquiries.	Access the Help Center. Locate the option to submit queries or issues via email. Submit a query and verify the generation of a ticket for tracking and responding to inquiries.	The system provides an option for users to submit queries via email, with a ticketing system for tracking and responding to inquiries.	TBD	TBD	TC-118
SRS-24.5	System includes a helpline or phone support for users preferring direct communication for assistance.	Access the Help Center. Locate the helpline or phone support contact information. Call the helpline for direct communication for assistance.	The system includes a helpline or phone support option, allowing users to seek direct assistance.	TBD	TBD	TC-119
SRS-24.6	System implements a feedback system for users to rate the usefulness of help articles or support received, allowing continuous improvement.	Access the Help Center. Interact with help articles or support. Use the feedback system to rate the usefulness of help articles or support received.	The system implements a feedback system in the Help Center for users to rate the usefulness of help articles or support received, enabling continuous improvement.	TBD	TBD	TC-120
SRS-24.7	System enables users to report bugs, technical issues, or suggest improvements directly through the Help Center.	Access the Help Center. Locate the option to report bugs, technical issues, or suggest improvements. Submit a bug report or suggestion.	The system enables users to report bugs, technical issues, or suggest improvements directly through the Help Center.	TBD	TBD	TC-121
SRS-25.1:	Accurate tracking and recording of physical activities will be dependent on integration with motion and GPS sensors.	1. Perform different physical activities i.e., (walking, running etc.) 2. Enable GPS tracking and move to different locations.	1. The motion sensor data accurately represents the performed physical activities by the senior. 2. The GPS data represents correct movements and location of senior.	TBD	TBD	TC-
SRS-25.2:	The system's UI will be simple enough for caregivers to log and track senior's physical activity.	1. Caregiver login to the system and navigate through different UI sections of the system. 2. Caregiver records and track physical activity of the senior.	1. Caregiver can go through the system's UI without any issue. 2. Caregiver records and is informed about the senior's physical activity in real-time.	TBD	TBD	TC-
SRS-25.3:	To allow for thorough monitoring, the system will make sure the physical activity tracker can identify various workouts and activities.	Senior performs some physical activities (walking, running etc.) and caregiver tracks the activity.	The system accurately identifies the physical activities of senior and the caregiver tracks the accurate display of the	TBD	TBD	TC-

			senior's activity.			
SRS-25.4:	A notification system will motivate seniors to continue being active by providing them with goals and reminders relating to their physical activity.	Senior sets a reminder for specific activity or goal for specific time.	Senior receives reminder notifications for the set goal/activity at the specified time.	TBD	TBD	TC-
SRS-26.2.1:	Set a reminder for medication intake time via app notifications	Set a reminder for medication intake time via app notifications	System successfully schedules reminders based on the specified frequency and notifies at the set times	TBD	PASS	TC-125
SRS-26.3	System manages prescription details, including expiration dates and renewals.	Access prescription details for an existing medication. Confirm the renewal of an expired prescription	System displays prescription information, including expiration date, dosage, and renewability status System processes the renewal request and updates the prescription status with a new expiration date	TBD	PASS	TC-126
SRS-26.4	System Provide details about each medication, including usage instructions and side effects.	Search for a specific medication	System retrieves detailed information about the medication, including usage instructions, dosage, and side effects	TBD	PASS	TC-127
SRS-26.5	System maintains a record of medication adherence, missed doses, and changes in the regimen Generate reports on medication adherence and usage patterns.	Record adherence for a medication dose	System logs the time and date of dose taken; updates adherence record indicating the timely consumption of the medication	TBD	PASS	TC-128
SRS-26.5.1:	Missed Dose Tracking	Skip a scheduled medication dose	System updates the adherence record, marking the dose as missed; logs the time and date of the missed medication	TBD	PASS	TC-129

SRS-27.1	The system must allow users to input and store contact information for emergency contacts, including names, phone numbers, and any additional relevant details.	Open the app and navigate to the section for inputting and storing emergency contact information. Input the name, phone number, and any additional relevant details for a new emergency contact. Save the entered information. Verify that the system stores the contact information accurately.	The app features a designated section for inputting and storing emergency contact information. Users can input the name, phone number, and additional relevant details for a new emergency contact. The system ensures error-free saving of entered information and verifies accurate storage and retention of the contact details upon saving.	TBD	TBD	TC-130
SRS-27.2	The app should provide an easy-to-navigate interface for quick access to the list of emergency contacts when needed.	Open the app and navigate to the emergency contact's section. Assess the layout and design of the emergency contact's interface. Attempt to access the list of emergency contacts quickly without encountering usability issues. Check for the presence of clear labels, buttons, or menus related to emergency contacts.	The app should have a designated section for emergency contacts. The interface should be designed with user-friendly navigation in mind. Users should be able to access the list of emergency contacts easily without confusion. Clear labels and visual cues should guide users to the emergency contact's section.	TBD	TBD	TC-131
SRS-27.3	The system should support multiple notification modes (e.g., push notifications, SMS, emails) for contacting emergency contacts based on their preferences and availability.	Access the system's notification settings or preferences. Set up multiple notification modes for an emergency contact, such as push notifications, SMS, and emails. Trigger an emergency notification for the specified emergency contact.	The system enables users to set and save various notification preferences for emergency contacts. In the event of an emergency, the system sends notifications to the contact using the configured modes. The verification ensures that the contact receives notifications through all specified modes according to their preferences and availability.	TBD	TBD	TC-132
SRS-27.4	Users should be able to easily update and edit the contact information for emergency contacts to keep the information current.	Access the emergency contact's section. Choose an existing emergency contact and edit the contact information. Verify that the updated information is saved successfully.	Users should be able to easily update and edit the contact information for emergency contacts, ensuring that the information remains current.	TBD	TBD	TC-133

SRS-28.1:	The system will provide an easy-to-use module for conducting health assessments within the app that enables seniors or caregivers to enter and update relevant health data.	Senior or caregiver access health assessment module in the system, then enters and updates relevant health data.	The intuitive interface allows senior or caregiver to enter and update relevant health data.	TBD	TBD	TC-
SRS-28.2:	The system will include validation procedures to guarantee senior's inputs in health assessment surveys are accurate and to stop data submissions that are inaccurate or incomplete.	1. Enter accurate health data of senior in the health assessment module and submit the data. 2. Enter inaccurate health data of senior in the health assessment module and submit the data.	1. The system accepts the data, confirming successful submission. 2. The system prevents the data submission, providing relevant error.	TBD	TBD	TC-
SRS-28.3:	The system will maintain confidentiality and integrity, encrypted storage system for the information gathered via health assessment questionnaires.	1. Attempt to access health data submitted via assessment without proper authorization. 2. Modify the stored health data in the database.	1. Access to stored health data denied. 2. Unauthorized modifications detected and denied by the system.	TBD	TBD	TC-
SRS-29.1:	To obtain precise and current environmental data, the system will integrate real-time access to external weather and air quality APIs.	Access weather information in the app and compare the displayed weather with the current weather. Access air quality information in the app and compare the displayed air quality with the actual air quality currently.	The weather data shown in the app matches the actual current weather. The air quality data shown in the app matches the actual current air quality.	TBD	TBD	TC-
SRS-29.2:	A notification system that notifies seniors or caregivers in a timely manner of changes in the weather or air quality levels will be include in the software system.	Change in the current weather or air quality detected by the system.	Senior receives a notification about the change in the current weather or air conditions.	TBD	TBD	TC-
SRS-30.1:	A location monitoring function that will allow distant family members to see where the seniors are in real time.	Distant family member or caregiver enables location monitoring function system and checks to see senior's real time location.	The system displays the senior's real-time location to the caregiver or distant family member's device.	TBD	TBD	TC-
SRS-30.2:	The software will give caregivers the option to customize check-in intervals so they can decide how often to receive location updates according on their preferences.	Authorized caregiver accesses the system's location settings and set a custom check-in interval according to their preference.	The customized check-in interval is reflected in the system and the caregiver is updated through a notification.	TBD	TBD	TC-

SRS-30.3:	The system will make sure privacy and senior consent are taken into account, enabling senior citizens to manage and authorize family check-ins.	1. Authorized senior accesses location sharing in privacy settings and set preferences for family check-ins. 2. Unauthorized family member accesses to check in on the senior.	1. The preferences of senior are set in the system. 2. The access for check-in is denied providing an inappropriate message.	TBD	TBD	TC-
SRS-31.1:	A special module that allows seniors and caregivers to read and post reviews doctors will be included.	Caregiver or senior accesses the doctor reviews module to read and post the doctors' reviews.	Senior or caregiver are able to read and post the reviews about the doctors.	TBD	TBD	TC-
SRS-31.2:	A safe authentication mechanism to confirm reviewers' identities and stop them from leaving false or deceptive reviews will be provided.	1. Senior or caregiver posts a review without proper authentication. 2. Post a false or deceptive information.	1. The system prevents the unauthorized user from posting reviews and asks the user to go through authentication process. 2. The system detects and prevents the false information to be posted providing a relevant message.	TBD	TBD	TC-
SRS-31.3:	The system will make sure reviews are displayed to caregivers and seniors who are thinking about a certain doctor to encourage users to make educated decisions when choosing healthcare providers.	Senior or caregiver views the doctor's profile and checks to see the reviews displayed in the reviews and ratings section.	Doctor's reviews are visible to the seniors and caregivers.	TBD	TBD	TC-
SRS-32.1:	The system will include an easy-to-use module in the app that allows seniors to read health blogs and access instructive and interesting materials on wellness and healthcare.	Senior opens health blog and navigates through available health blogs.	Senior is able to navigate and read health blogs easily.	TBD	TBD	TC-
SRS-32.2:	A system of classification will be provided for health blogs so that readers may quickly browse and locate information relevant to their individual health interests.	Senior selects a health blog that is categorized based on health interests and browse through blogs within that category.	Senior is able to quickly locate the content relevant to their health interest.	TBD	TBD	TC-

SRS-33.1	Provide browsing and search functionalities within the Elderly Care Management System to allow users to find and access digital content easily.	User logs into the Elderly Care Management System. User navigates to the Digital Content section. User performs a search for specific digital content. User browses the digital content library.	The system provides efficient browsing and search functionalities, allowing users to easily find and access digital content.	TBD	TBD	TC-
SRS-33.2	Sync user profiles between the Elderly Care Management System and the Digital Library to maintain consistency in user data. Leverage user data from the Elderly Care Management System to offer personalized recommendations within the Digital Library.	User updates profile information in the Elderly Care Management System. User accesses the Digital Library. Verify that user profile information is consistent between the two systems.	The system syncs user profiles between the Elderly Care Management System and the Digital Library, maintaining consistency in user data.	TBD	TBD	TC-
SRS-33.3	Integrate text-to-speech functionalities within the Digital Library to enhance accessibility for seniors with visual impairments.	User with visual impairment logs into the Digital Library. User accesses written content. User activates the text-to-speech functionality.	The system integrates text-to-speech functionalities within the Digital Library, enhancing accessibility for seniors with visual impairments.	TBD	TBD	TC-
SRS-33.4	Establish API integration with the Digital Library to enable real-time access to the library's content.	Digital Library content is updated. User accesses the Elderly Care Management System. Verify that real-time access to the updated library content is available.	The system establishes API integration with the Digital Library, enabling real-time access to the library's content from within the Elderly Care Management System.	TBD	TBD	TC-

SRS-33.5	Integrate user permissions to ensure that only authorized users can access the Digital Library.	Attempt to access the Digital Library without proper authentication. Attempt to access the Digital Library with valid but unauthorized credentials. Verify access to the Digital Library with valid and authorized credentials.	The system correctly integrates user permissions, denying access to unauthorized users and granting access to authorized users.	TBD	TBD	TC-
SRS-36.2	System enable setting and tracking of nutritional goals based on individual health needs (e.g., calorie intake, macronutrient distribution).	Access the nutritional goals section. Set nutritional goals based on individual health needs (e.g., calorie intake, macronutrient distribution). Track progress against set nutritional goals over time.	The system enables the setting and tracking of nutritional goals, providing a clear overview of progress.	TBD	TBD	TC-146
SRS-36.3	System integrates a comprehensive database of foods and their nutritional values (calories, macronutrients, vitamins, minerals) to aid in meal planning.	Access the meal planning section. Search for various foods and verify the availability of nutritional values (calories, macronutrients, vitamins, minerals) in the database.	The system integrates a comprehensive database of foods and their nutritional values, aiding in accurate meal planning	TBD	TBD	TC-147
SRS-36.4	System offers personalized dietary recommendations based on nutritional needs and health conditions.	Access the dietary recommendations section. Enter personal health conditions and nutritional needs. Verify that the system provides personalized dietary recommendations based on the entered information.	The system offers personalized dietary recommendations tailored to individual nutritional needs and health conditions.	TBD	TBD	TC-148
SRS-36.5	System provides a platform for logging daily food intake to monitor adherence to dietary plans and recommendations.	Log into the system. Access the food logging platform. Log daily food intake. Verify the accuracy of logged information	The system provides a platform for logging daily food intake, and the logged data accurately reflects the user's dietary choices.	TBD	TBD	TC-149

SRS-38.1	Enable motion detection on your cameras to trigger recording when movement is detected.	Access the camera settings. Enable motion detection. Move in front of the camera to trigger motion detection.	The system detects motion and triggers recording when movement is detected.	TBD	TBD	TC-150
SRS-38.2	Integrate motion detection algorithms to trigger alerts when unusual activity is detected.	Access the motion detection settings. Trigger unusual activity in front of the camera. Verify that the system triggers alerts when unusual activity is detected.	The system integrates motion detection algorithms and triggers alerts for unusual activity.	TBD	TBD	TC-151
SRS-38.3	Conduct usability testing with elderly users to identify and address any user interface or interaction challenges.	Engage elderly users in usability testing sessions. Observe user interactions and note any challenges faced. Collect feedback on the user interface and interaction.	Usability testing identifies and addresses any user interface or interaction challenges faced by elderly users.	TBD	TBD	TC-152
SRS-39.1	Enable Caregivers / Seniors to schedule events, such as doctor appointments.	Caregiver logs into the system. Caregiver navigates to the event scheduling section. Caregiver selects a senior. Caregiver schedules a doctor appointment for the selected senior.	The system successfully schedules the doctor appointment, and the appointment is reflected in the caregiver's and senior's calendars.	TBD	TBD	TC-153
SRS-39.2	Allow the creation of recurring or medication doses.	Caregiver logs into the system. Caregiver navigates to the medication scheduling section. Caregiver selects a senior. Caregiver schedules a recurring medication dose for the selected senior.	The system allows the creation of recurring medication doses, and the doses are correctly reflected in the caregiver's and senior's medication schedules.	TBD	TBD	TC-154
SRS-39.3:	Provide fields for customizable event details, including event name, location, start/end times, and any additional notes.	Caregiver logs into the system. Caregiver navigates to the event scheduling section. Caregiver selects a senior. Caregiver schedules a custom event, providing details such as event name, location, start/end times, and additional notes.	The system successfully stores the customizable event details, and the information is accurately displayed in the caregiver's and senior's calendars.	TBD	TBD	TC-155
SRS-39.4:	Al users to set customizable reminders for upcoming events, ensuring timely notifications for caregivers and seniors.	Caregiver logs into the system. Caregiver navigates to the reminder settings. Caregiver selects a senior. Caregiver sets a customizable reminder for an upcoming event or	The system allows users to set customizable reminders, and timely notifications are sent to both the caregiver and the senior as configured.	TBD	TBD	TC-156

		medication dose.				

Artifact-7

Supplementary Specification Document

Table of Contents

Supplementary Specification

1. Introduction

The Supplementary Specification Document for the Elderly Care Monitoring System (ECMS) offers a brief yet detailed exploration of the technical specifications, operational details, and privacy measures inherent in the system. It covers real-time health monitoring, medication management, fall detection, location tracking algorithms, and emphasizes the ECMS's transformative role in enhancing elderly care.

1.1 Purpose

The purpose of this Supplementary Specification Document for the Elderly Care Monitoring System (ECMS) is to offer a concise and technical overview of the system's functionalities, configurations, and privacy measures. Intended for developers, stakeholders, and users, the document aims to clarify specific features and algorithms, emphasizing the ECMS's advanced and user-centric design. This resource serves as a key reference, providing insight into how the ECMS addresses the unique challenges of elderly care, ensuring a comprehensive understanding of its technological foundation and transformative impact.

1.2 Scope

The scope of this Elderly Care Monitoring System (ECMS) Supplementary Specification Document is to clearly explain the system's functionalities, features, and customization possibilities. It defines the dimensions and boundaries of the ECMS and acts as a brief guide for developers, stakeholders, and users. This document provides a thorough overview of the system's technological elements and operational factors, with an emphasis on its revolutionary significance in improving aged care. Features of to be built system ECMS are as follows;

- Manage account
- Manage profile
- Remotely Adjustable Settings
- Location History
- Daily Activity Monitoring
- Health Data Tracking
- Reminders for Self-Care
- Appointment Booking
- In-app Chat
- Fall Detection
- Compatibility and Integration

- Emergency Alerts
- Manage medical records
- Find nearby hospitals/doctors
- Urgent Care Access
- Community Events Calendar
- Document and Prescription Management
- Privacy and Security Safeguards
- Personalized Wellbeing Plans
- Battery Status Alerts
- Real-time Location Sharing
- Geo-fencing Alerts
- Get help from help center
- Digital library for seniors
- Physical Activity Tracker
- Medication Management
- Emergency Contacts
- Health Assessment Surveys
- Weather and Air Quality Alerts
- Remote Family Check-ins
- View or write reviews of doctors
- Digital Library for seniors
- Integrates voice commands
- Call ambulance
- Nutrition and Diet
- Activity and Engagement Planner
- Remote Home Surveillance
- Calendar Integration

1.3 Definitions, Acronyms, and Abbreviations

1.3.1. Acronyms:

SSD --- Supplementary Specification Document
ECMS --- Elderly Care monitoring System

1.3.2. Definitions:

SS Document: It gives a high-level overview of the entire document. Also includes system requirements that are difficult to capture in the use case of the use-case model.

1.4 References

1. Author, A. A., & Author, B. B. (2023, March 23). Your 2023 Guide to Writing a Software Requirements Specification – SRS Document. Relevant Software. https://relevant.software/blog/software-requirements-specification-srs-document/

1.5 Overview

Supplementary specification document consists of various sections including usability, reliability, performance, support, and design restrictions [4].

2. **Usability section:** A quality attribute that measures how easy the user interface is to use, learnability (how easily it can be understood), and operability (mean time to utilize it). **Reliability section:** defines availability (% of available time, number of days, hours of use, and maintenance access), time between failures, how long the system is permitted to be out of service after a failure, robustness, correctness, maximum bugs, and error rate [4].
3. **Performance section:** FIG data is used to characterize system performance characteristics. [4].
4. **Supportability section**: Sustainability refers to the system's intrinsic features and system-activating aspects that enable efficient and effective sustainability (including maintenance and other support functions) throughout the system's life cycle.
5. **Design Constraints:** Design constraints in the system to be constructed. Software languages, software process requirements, proposed development tool use, construction and design limits, and so on [4].

2. Usability

2.1 User Interface:

UI.1. UI prioritizes simplicity with a clean design and clear icons.
UI.2. It features adjustable text sizes, touch-friendly controls, and intuitive navigation.
UI.3. Visual cues, like personalized dashboards, ensure a tailored experience.
UI.4. Language support, user training, and privacy settings enhance usability, making ECMS an adaptive solution for elderly care.

2.2 Operability:

OPR.1. The ECMS prioritizes user-friendly operation with an intuitive interface.
OPR.2. Accessibility features include adjustable text sizes, voice commands, and touch-friendly controls.
OPR.3. It ensures compatibility across devices, supporting smartphones, tablets, and computers.
OPR.4. System responsiveness and efficient error handling enhance the overall user

experience.

OPR.5. Regular updates, scalability, and a user support system contribute to continuous improvement and operational excellence.

2.3 Learnability:

LEARN.1. The system incorporates a clear onboarding process to guide users seamlessly through its features.

LEARN.2. Interactive tutorials and easily accessible help resources within the system promote ongoing learning and skill enhancement.

3. Reliability

REL.1. The system prioritizes reliability with robust error handling mechanisms to minimize disruptions.

REL.2. Regular backup and recovery procedures are in place to ensure data integrity, emphasizing system reliability and user data security.

3.1 Accuracy:

ACC.1. System shall send 4 digits OTP code to relevant phone number in order to login.

ACC.2. User has to enter this OTP code with 30 seconds.

ACC.3. The system maintains precision in health monitoring through calibrated sensors, ensuring accurate and reliable data for user health insights.

ACC.4. Accurate medication management is prioritized, encompassing precise dosage tracking and timely reminders to enhance overall medication adherence and efficacy.

3.2 Robustness

ROB.1. The System ensures robustness by incorporating resilient design principles, allowing the system to maintain stability and functionality even in the face of unexpected challenges or variations in user interactions.

4. Performance

4.1 Simultaneous User

The system shall support up to 2000 simultaneous users at any given time.

4.2 Response Time

PERF.1. The system shall display each interface within 0.5 seconds.

PERF.2. ECMS optimizes data retrieval using efficient algorithms for quicker responses.

PERF.3. Asynchronous processing enables concurrent task handling, enhancing overall response speed.

PERF.4. Caching mechanisms reduce repeated database queries, improving response for frequently accessed data.

PERF.5. Content Delivery Networks minimize latency, speeding up content delivery

globally.

PERF.6. Load balancing evenly distributes traffic, preventing bottlenecks for consistent response times.

PERF.7. Regular performance monitoring and optimization address bottlenecks, ensuring sustained fast responses.

Supportability

4.3 New Releases Downloadable

SUP.1. ECMS shall be downloadable from our website (www.ecms.com) over the internet.

SUP.2. All the upgraded system can be downloaded from the same website.

4.4 Maintenance

MAINT.1. A team of service technicians is on duty to ensure that the system is always up to date.

MAINT.2. The system must be serviced once a year in accordance with the approval.

5. Design Constraints

5.1 Platform Requirements

The ECMS shall operate on any personal computer require less than 20 MB disk space and 32 MB RAM.

5.2 Internet Browsers

ECMS shall run in Netscape 2.0.2 and Internet Explorer 5.0 browsers.

5.3 SQL Compatibility

The proposed system ECMS shall be compatible with the SQL 1.4 VM runtime environment.

Lesson Learned:

The Elderly Care Monitoring System (ECMS) project taught important lessons about interdisciplinary collaboration, user-centered design, technology innovation, and ethical considerations. Collaboration across healthcare, technology, and design highlighted the significance of comprehensive solutions. Prioritizing user needs emphasized the development of an easy-to-use system for the elderly. Exploring cutting-edge technologies broadened my perspective on innovation, with a focus on privacy and security. The experience sharpened project management abilities while also demonstrating agility and ethical issues. These teachings help to

my professional development by providing a diverse skill set for future endeavors. As Helen Keller aptly put it,

"Alone we can do so little; together we can do so much."

Conclusion:

In conclusion, this Elderly Care Monitoring System (ECMS) represents a pivotal advancement in addressing the multifaceted challenges of elderly care. Through its robust technological features, including real-time health monitoring, medication management, and emergency response capabilities, the ECMS stands as a beacon for promoting the safety and well-being of older individuals. The system's emphasis on privacy, user-centric design, and comprehensive functionalities not only meets the unique needs of the elderly but also transforms the aging experience into one marked by autonomy, engagement, and dignity. As a testament to innovation and compassion, the ECMS is poised to redefine the landscape of elderly care, offering a solution that is not just technologically advanced but profoundly human-centered.

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