

# Creating a Framework for Care Needs Hub for Persons with Disabilities and Senior Citizens

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**Abstract**—Patient satisfaction is an assessment that assesses how effectively a company's goods or services fulfil consumer expectations. This study aims to design an architectural framework for a care needs hub for people with disabilities and senior citizens. Using systems modelling for crafting architectural frameworks, the researchers used a 4+1 view model with UML to intensively describe the features of the care needs hub. Quality attributes were used to indicate how well the system would satisfy the needs of the stakeholders beyond its basic functions. The design includes the system's functional and non-functional features, as well as their corresponding diagrams drawn in a unified modelling language in accordance with the 4+1 view model, to assist the system's developer in mapping the system's functionalities correctly and accurately. Architecture models and design patterns are developed and executed to understand how the system's primary components fit together, how messages and data move effectively across the system, and how other structural issues work. The proposed model includes verified and validated development paradigms and architectural and design patterns that may help accelerate the development process. The architecture and design patterns fulfil all of the system's criteria. The researchers designed a comprehensive tool for the completion of the development of the care needs hub, which would greatly help the developers of the system in crafting the correct features and data abstractions needed to build and implement the said system. This research aims to develop an innovative solution that addresses the current challenges faced by persons with disabilities and senior citizens in accessing care services and provides a comprehensive and accessible platform for their care.

**Keywords**—Care need framework; persons with disability; CareAide; 4+1 view model; CareNeed

## I. INTRODUCTION

Health and disability are inextricably linked to the housing requirements of senior families. Physical as well as mental performance tends to deteriorate with age, raising the prevalence of limitations linked to movement and activity, self-care, and the capacity to operate a home, all of which may impede older individuals' capabilities to live freely in society [1]. This study examined current levels of disabled people, health developments that may affect the above rates in the future, and the forecasting of both the number and size of prospective families in which one or more people are highly likely to have a disorder in order to best explain the accommodation and care requirements for the older community by 2035. The next section examines our aging population's

financial well-being to better understand their ability to fulfil their own housing and care demands.

The World Health Organization says that "health" is a state of complete physical, mental, and social health, not just the absence of illness or incapacity [2]. For our purposes, we're curious about how health, or the lack thereof, impacts housing demands. As a result, we investigate health in terms of how it impacts people's ability to do daily self-care and housekeeping duties autonomously, since such tasks are inextricably linked to mobility about the home as well as prospective demands for help and care. In that facility, not being able to do a key daily task on your own is seen as a useful limitation or handicap.

The phrase "activities of daily living" (ADLs) means personal care responsibilities such as showering, dressing, using the toilet, transporting, and eating. Accessible housing may partially address ADLs inside the home; for instance, issues with bathing and toileting might be improved by the installation of walk-in showers, grab bars, and raised toilet seats. In contrast, those with ADL issues often need the aid of caregivers [3]. "Instrumental activities of daily living" (IADLs) are supportive housing skills related to a person's ability to interact with his or her environment, incorporating tasks like marketing, preparing food, cleaning, mobility, financial management, medication administration, and communication utilization [4]. Physical weakness is a common source of IADL-related difficulties; for instance, laundry and routine house-work might require more endurance or ability than an individual possesses. Nevertheless, some responsibilities, including bill payment, food preparation, and medication administration, may have a stronger correlation with mental wellbeing. People with disabilities are often assessed using a combination of ADL and IADL tests, and their impairments may be both neurological and physical. In this research, we also look at mobility issues such as difficulty traveling, walking, and transporting. Certain movement issues may be resolved by using assistive equipment, such as wheelchairs or walkers. Physical improvements to the house may also be used to solve mobility issues. A single-floor living layout, for example, may reduce the difficulty of ascending steps.

We utilize the National Institute on Aging's 2014 Health and Retirement Study (HRS), a continuous information gathering project, to explore the housing repercussions of impairment in the older population. HRS is unique among many disability assessments for the reason that it provides thorough information on healthcare, including functional limitations for any and all persons in the primary participant's

home, allowing us to evaluate disability and residential consequences for both individuals and households [5]. This research may help us determine the number of elderly families affected by impairment, individual attributes (such as ownership and family structure), as well as the scope of the demand for home modifications and assistance. To implement movement limitations, ADLs, and IADLs, we selected specific activities from the disability research that are evaluated by HRS and categorized them into the following categories: movement liabilities, soul functional limitations, and domestic behavior impairments. Mobility restrictions include difficulties walking, transferring in and out of bed, and climbing stairs. In the literature, the ability to transfer is classified as an ADL because.

Neither moving nor climbing stairs are often considered ADLs or IADLs [4]. Nevertheless, we formed the subcategory of flexibility difficulties in order to examine older people's ability to move into residential houses. The literature classifies eating, Dressing, using the toilet, and bathing independently as ADLs, which are among the four self-care limitations. Limitations at work and at home have included the requirement for assistance with IADLs such as meal preparation, shopping, money management, housework, traveling, using the telephone, and medication administration.

An extensive body of work on ADL and IADL limitations that has developed because the two indicators were established in the 1960s and 1970s also indicates that the frequency of impairment drastically rises with age [6, 7]. There is a correlation between income, educational attainment, ethnic origin, relationship status, and the incidence of disability in the elderly. The unmarried, Hispanics, and non-Hispanic blacks have the highest disability rates, as do individuals with low incomes or poor educational attainment. 5. Our examination of HRS data confirms these findings.

As 41 percent of older adults aged 65 to 79 must have had at least one personality, family activity, or movement limitation, but the proportion increases to almost 71 percent for those aged 80 and beyond. Household activity disability is the most prevalent impairment (see Table I). This is a broad category, with elevated numbers generated most often by observed difficulty with housekeeping and driving, both of which are much more prevalent among older age groups [8, 9].

When addressing the consequences of impairment for older individuals' living arrangements, individual occurrence is less important than family occurrence. For instance, if just one member of a newlywed family has a transportation impairment, the housing unit must be adapted to accommodate that individual, regardless of whether the other spouse doesn't seem to [9].

Disability rates are higher for minority families across all three forms of impairment. Hispanic households had the greatest percentage of mobility disabilities among older households (48%), followed by non-Hispanic Asians or other households (41%). Hispanic homes had the greatest percentage of house-hold activity disabilities (62%), followed by non-Hispanic black households (60%).

In the same way, minority families had a higher rate of self-care handicaps than non-Hispanic white households: 31% of non-Hispanic black households and 35% of Hispanic households aged 65 and older have a self-care handicap, compared to 21% of non-Hispanic white households of the same age [8].

Lower-height appliances may eliminate the need for users to raise their hands above shoulder level. Individuals who use mobility aids, such as wheelchair users, may benefit from wider hallways and entrances that allow them to move around the house more easily. Customer happiness is a metric that reflects how well a company's products or services meet consumers' aspirations. It ranks among the most influential indicators of future sales, customer happiness, and loyalty [11]. Since the coronavirus pandemic began, delivery apps have become increasingly important for both business owners and their customers as more individuals order takeout and groceries. There are delivery apps to get individuals food, groceries, and other necessities, but somehow, they have left a segment of the population in need of care and nursing, the PWDs and seniors who have been abandoned by their loved ones for various reasons, without any outside assistance that can provide the same level of trust and security that have developed in some merchants and delivery apps. Based on the 2015 Census of Population and Housing, 1.44 million Americans, or 1.57 percent of the current population of 92.1 million, have a disability. People with disabilities (PWD) were 935,551 in CPH in 2000, or 1.23 percent of the population. [12-14] Region IV-A has the most PWD among the 17 regions, at 193 thousand. The National Capital Region (NCR) ranked second with 6 million people with disabilities (PWD). The Cordillera Administrative Region (CAR) has the fewest people with disabilities (26 thousand) [2]. Thirteen regions had a higher proportion of PWD than the national average. The top five (1.58 percent) were as follows: Region VI (1.95 percent), Region IVB and Region V (1.85 percent each), Region VIII (1.75 percent), Region II (1.72 percent), Region I (1.64 percent), CAR (1.63 percent), Region XI and Region VII (1.60 percent each), and CARAGA (1.60 percent) [15–20].

TABLE I. DISABILITY MEASUREMENT CHART [9, 10]

Disability related to	Difficulty with
Movement	Walking
	Transferring in and out of Bed
	Climbing Stairs
Personal care	Eating
	Dressing
	Toileting
	Bathing
In-house activities	Meal Preparation
	Food Shopping
	Using Telephone
	Taking Medication
	Money Management
	Housework
	Driving

In 2015, men comprised 50.9% of all PWDs, while females comprised 49.1%. Based on these statistics, there are 104 disabled males for every 100 disabled women. Men with disabilities outnumbered females in the 0–64 age categories. The age range of 0 to 14 years had the greatest surplus of men, with a sex ratio of 121 males per 100 females. In the age range of 65 and above, however, a greater number of females than men have disabilities. This is because females have a higher survival rate than males. In this age group, there were 70 males with impairments for every 100 females. One in five people with disabilities were between the ages of 0 and 14; three (59.0 percent) resided between the ages of 15 and 64; and one (22.1 percent) was 65 or older [21]. Individuals with impairments were more likely to be 5 to 19 years old and 45 to 64 years old. Youngsters between the ages of 10 and 14 were the largest age group among the overall impaired population by five-year age group (7.2 percent). This was followed by those aged 15 to 19 (6.9%), 5 to 9 (6.7%), and 50 to 54 years (6.9%). (6.6 percent) [22–24].

The new model indicates that, with the statistics presented, the researcher is considering creating an app that would allow caregivers, nurses, and other individuals to showcase their services, along with fees and locations, and for PWDs and senior citizens to search for these types of services. Ranging from simple tasks such as pushing their wheelchair to specific locations, such as in the park or outside of their home, to more intensive tasks such as bathing, giving them medicine, and taking care of them as a whole. The researcher introduces the CareAide+ app, a mobile software that allows these consumers to experience and care for those who have been unintentionally or intentionally neglected. The purpose of this study is to design a framework for the development of the CareAide+ mobile application, which is a care-needs hub for people with disabilities and senior citizens. This platform will serve as a hub for people with disabilities and senior citizens who seek care that ranges from simple to intensive; at the same time, it will also create a hub for caregivers, freelance practitioners of caregiving, nurses, and other related services. The hub will open up different types of services and different disabilities that most normal people will never know about. This application can also be used by the loved ones of persons with disabilities or seniors in order for them to check all the necessary things. This CareAide+ app would open a different market that would connect this type of person, find what they need, and showcase what they can offer.

The increasing aging population and the prevalence of disabilities among individuals of all ages have created a growing need for accessible and comprehensive care services. The current pandemic has highlighted the difficulties faced by people with disabilities and senior citizens in accessing essential care services. Therefore, developing an app for a care needs hub can help address these challenges by providing a centralized platform that offers a range of care services and resources for people with disabilities and senior citizens. The research motive for creating an app for a care needs hub for people with disabilities and senior citizens could be to: (a) explore the current challenges faced by persons with disabilities and senior citizens in accessing care services, including issues related to accessibility, affordability, and

availability. (b) Identify the specific needs and preferences of persons with disabilities and senior citizens regarding care services, such as personal care, medical support, and social interaction. (c) Evaluate the effectiveness of existing care services and resources, including government-funded programs, private initiatives, and community-based organizations. (d) Examine the potential of technology, such as mobile apps, to enhance the accessibility and quality of care services for persons with disabilities and senior citizens. (e) Develop a user-centered design for the app that considers the unique needs and preferences of persons with disabilities and senior citizens, including accessibility features such as voice recognition and text-to-speech capabilities. (f) Conduct user testing and feedback sessions to assess the usability and effectiveness of the app and identify areas for improvement. (g) Assess the impact of the app on the quality of life and well-being of persons with disabilities and senior citizens, as well as their caregivers and families.

Overall, this research aims to develop an innovative solution that addresses the current challenges faced by persons with disabilities and senior citizens in accessing care services and provides a comprehensive and accessible platform for their care needs.

In this paper, the researchers presented our work part by part and described our relations with others work, which is an overview of the work presented in Section I of the Introduction. Working methods and new models are described in the Section II. Methodology is described in Section II. Results and outcomes are described in Section III. A summary of this research is described in Section IV.

## II. METHODOLOGY

To completely envision the functional requirements and necessary processes from the target users' perspectives, a qualitative research design was used in the study. This research design was used for the reason that it is mainly focused on the "why" rather than the "what" of the given situation. The 4+1 view model was also utilized to fully forge the designs for the architectural framework of the study. 4+1 is a view model used for "describing the architecture of software-intensive systems, based on the use of multiple, concurrent views" [31].

The gathered data was mainly from observations and unstructured interviews. An in-depth, unstructured interview with random people with disabilities from different group chats on social media and selected senior citizens was conducted to identify and understand the requirements needed to be incorporated into the study. Through these unstructured interviews, the researchers learn more about the different types of disabilities in different forms, what their current situation is, and how and when they get the care they need for the specifics and for the things that they do not understand about the care given by a non-care practitioner family member. To support the unstructured interviews, observations were made on the situational impacts of people with disabilities and senior citizens. From this data, Fig. 1 shows 4+1 view model was adopted with unified modeling language.

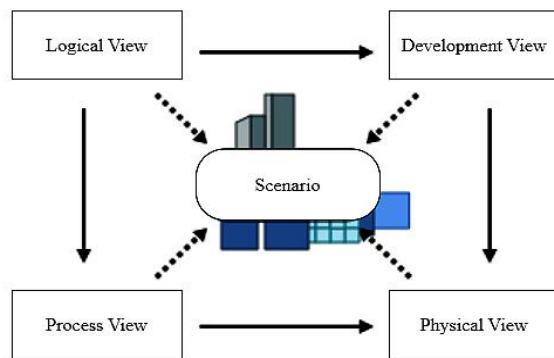


Fig. 1. 4+1 Architectural view model.

### A. Related Work

Using a neuromuscular interface controller, a Human Adaptive Mechatronics (HAM) device is controlled. Electromyogram (EMG) signals are used to evaluate muscle movement. A few electrodes placed on the skin's surface can detect the change in signal intensity caused by the voluntary movement of body parts. The EMG signal is employed as the control signal and provides coordination of movement. The signal's amplitude varies in response to muscle activity. The operation of the HAM device is dependent on the amplitude changes in the produced EMG signal. The availability of a cybernetic loop helps balance the system's control error and delayed reaction time. This study describes the operation of a human adaptive neuromuscular interface controller in a mechatronics device with simulations conducted in real time for the various muscle activities, primarily between two actions: voluntary motion and desired motion [25].

The ATM (automated teller machine) system exists to enable a computerized banking network shared by a consortium of banks that includes both human cashiers and ATMs [26]. Each bank maintains its own accounts and processes financial transactions using its own computer. The ATMs interact with the consortium's central computer, which clears transactions with the relevant banks. The ATM interacts with the user, connects with the central computer to conduct transactions, distributes cash, and produces receipts. The system needs proper documentation and security measures. The system must appropriately manage concurrent access to the same account. On their own computers, banks will supply their own software [27].

The architecture of software is concerned with abstraction, deconstruction, and composition, as well as style and aesthetics. In addition, it addresses the design and execution of the software's high-level structure. Architects are responsible for constructing structures utilizing a variety of architectural components in well-considered shapes. These aspects meet the system's primary functionality and performance needs, in addition to non-functional criteria such as dependability, scalability, portability, and system availability [28].

The 4+1 View Model is intended to describe the architecture of software-intensive systems using numerous concurrent views. Each of the five viewpoints focuses on a

particular aspect of the system and is detailed with an accompanying notation. These diverse perspectives permit the respective resolution of the issues of the different parties. It may display the architecture from many perspectives and provide the required perspective to various stakeholders. Using an architecture-centered, scenario-driven, iterative development methodology, these perspectives are created [29].

The physical view focuses mostly on non-functional needs and depicts the mapping of software to hardware. The configuration of the hardware has been shown in the physical view. It is necessary to map the many identified components, such as networks, processes, tasks, and objects, onto the various nodes. Certain configurations are used for development and testing, while others are utilized to create the system for different locations or clients [30].

The suggested technique is to assist in resolving the disparity between CRPD guiding principles and regional and national legal practices of interpretation. This technique intends to execute a rhetorical strategy tied to the Thirdness thesis in order to develop a new disability legal culture. Through a thirdness theory, the law of disability, conceived as a unitary figure and inspired by a rhetorical methodology, can contribute to the theoretical evolution of the methodology of legal interpretation without limiting itself to raising fundamental questions of justice philosophy [30], such as a new theory of the concept of a legal person. So, the rediscovery of the rhetorical approach might result in a metamorphosis of legal thinking capable of transcending certain aporia inherent to the positivistic idea of law. In addition, the reintroduction of the rhetorical approach may make it feasible to comprehend the structural function of fiction juris in legal reasoning. A few concluding remarks might be made on the link between ethics and rhetoric with respect to the rhetorical structure of thirdness in the trial, in which the judge is positioned after the parties [31].

Utilizing the Delphi research approach, a search strategy of sites, publications, and research papers was done to design a survey comprising questions about the information, abilities, and actions required to aid a person with an intellectual impairment who has been having mental health issues. A panel of experts evaluated these issues over the course of three polling rounds to determine if they should be included in the recommendations [30].

In total, 53 experts completed all three survey rounds (a retention rate of 67%). During the course of three rounds, 202 items were evaluated, resulting in 170 recommended items that have been put into the guidelines. The recommendations emphasize the necessity of recognizing the distinctive indicators of mental health issues in individuals with an intellectual impairment and of providing appropriate assistance, understanding, and compassion for these individuals. The recommendations will also strengthen caregivers' abilities to confront concerning or economically restrictive behaviors or to access professional assistance whenever necessary. The criteria are going to be employed to create a course on psychological disorders and first aid [31].

### III. RESULTS AND DISCUSSION

After measured consideration of all gathered data, the following system models were crafted to create a framework for the study, shown in Table II.

#### A. Scenarios

A limited selection of use cases, or scenarios, are used to show an architecture's definition, resulting in a fifth perspective. The purpose of the diagram was to assist in understanding how the proposed system would function in relation to the actors. They are used for high-level system condition analysis. Fig. 2 depicts the system's overall use case diagram from a higher-level perspective.

The PWD/senior, healthcare professionals, hospitals, administrators, and customer support are the characters in the use case diagram in Fig. 2. The diagram's purpose is to help users update their inquiries and grievances so that the customer

service module can deal with them later. Use cases associated with it at a more fundamental level of abstraction include filing complaints about abuse, getting compensation, scheduling meetings with management, and contacting management.

#### B. Logical View

- The conceptual perspective is centered on the service's final functioning. A static view of the program is provided by the class diagram. One of the key factors in its use during building is that it can be directly mapped with object-oriented languages [32].
- Fig. 3 displays the class diagram for the suggested application. The objective is to make it easier to understand the subtleties of the interactions between various classes. Each class consists of a rectangular box that operates in a different method and accepts attributes [33].

TABLE II. USERS STORIES FROM PUBLIC SURVEY

As a	I want to...	so that...
Care Giving Individual	Add a service	I can showcase my services to the needs of PWDs and Seniors and have a decent fee for it
Care Giving Individual	Specify my service	My clients/patients will have accurate knowing of the services and care they need for them or their patient
Care Giving Individual	Upload my credentials and experiences	My clients/patients will have an idea of my credibility to take this service and gain their trust
Care Giving Individual	Write a description of my services	I can describe and thoroughly explain what are this type of services
Care Giving Individual	Specify the fees or amount of my services	My client/patient will have accurate expectations
Care Giving Individual	Specify my location range	My client/patient will have accurate knowing of my location
Care Giving Individual	Specify and list my policies for my service	My client/patient understands my expectations for them.
Care Giving Individual	Respond to messages from clients/patients	I can quickly respond on inquiries about my service listing
Care Giving Individual	Accept requests	I can accept or reject requests to whom I want to have my services
Care Giving Individual	See past reviews of the requester (as client/patient)	I can assess the quality of the requester before I allow them to have my service rendered
Care Giving Individual	See a message history between myself and the requester	I can remember what was communicated between me and my client/patient
Care Giving Individual	Leave a review of a client/patient with an overall rating (1-5)	I feel assured the client/patient will treat me with respect.
Client/patient	Browse services	I can look for certain services upon my needs
Client/ patient	See past reviews of services of care giving individuals, and other services by the same care giving individuals	I can assess the quality of the services and the Care Giving Individual as to the matter of professionalism
Client/ patient	Send a message to the care giving individual as to the services offered	I can ask the care giving individual about anything not covered in the services page.
Client/ patient	See the schedule of a care giving individual if available for	I can plan for the said service offered
Client/ patient	Send a request for available schedule for the service	I can quickly lock down a service offered by the care giving individual
Client/ patient	Include an introduction of myself	I can make the care giving individual feel comfortable about having me as a client/patient and increase the likelihood that they will approve my request.
Client/ patient	Leave a review of the service	I feel assured that the care giving individual will care about my experience.
Client/ patient	Review the accuracy of the service offered (1-5)	I feel assured the care giving individual will be truthful in their service offered page description.
Client/ patient	Review the communication of the host (1-5)	I feel assured the care giving individual will be responsive to my messages.
Client/ patient	Leave a written review (in freeform text)	I can describe my experience in my own words.

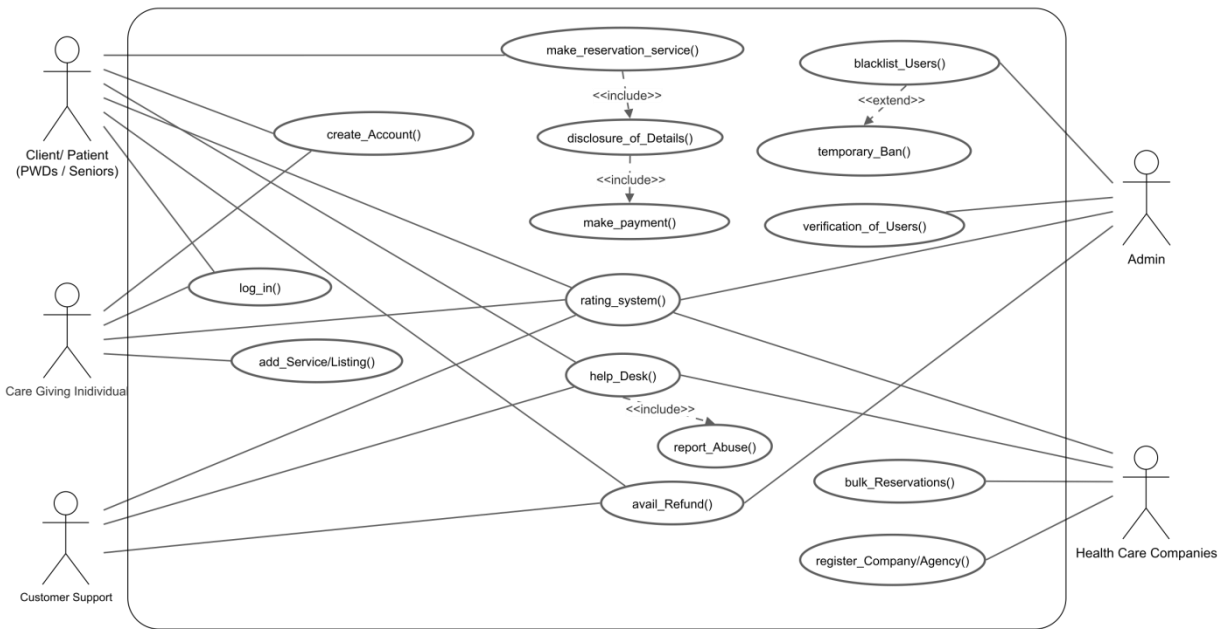


Fig. 2. Use case diagram of CareAide+.

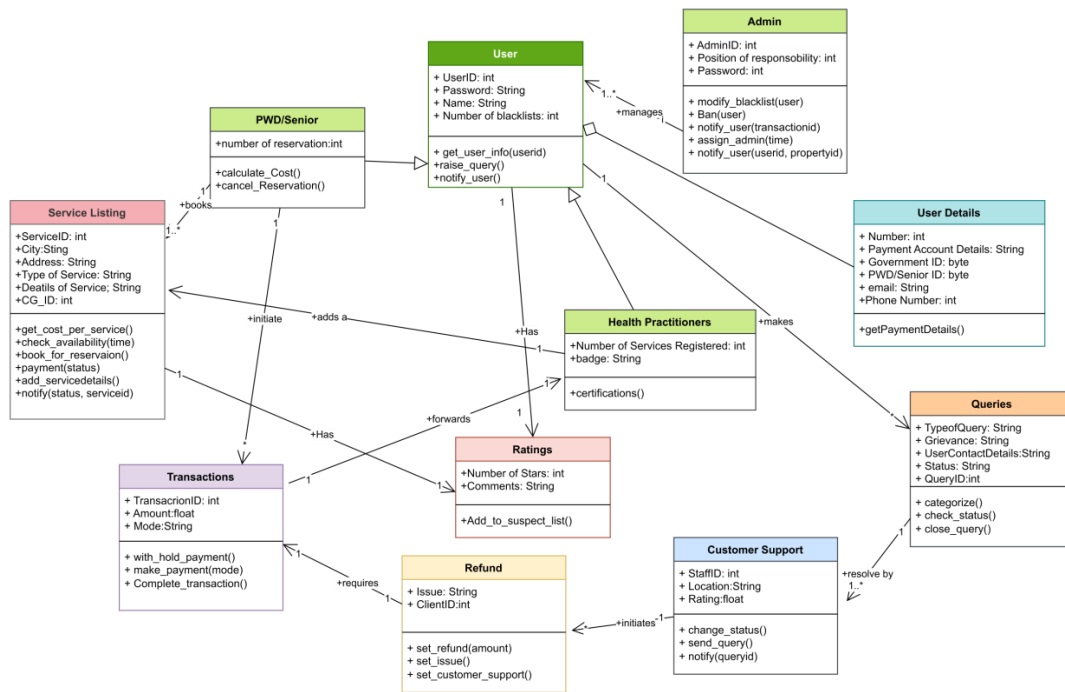


Fig. 3. Class diagram for the CareAide+.

C. Process View

The process perspective focuses on the performance of the service and is concerned with the flexible aspects of the system. It also describes system activities and interactions.

Fig. 4 shows graphical representations that simulate the logic of a complex method, function, or action and describe the intricate details of a UML use case. The flow charts attempted to illustrate the idea of the project's key processes, including developing services, utilizing facilities, and paying for interactions.

According to the flowchart in Introducing a Platform, the current variables are client, service description, administrator, and user information. The administrator must confirm the patient's identity and financial information when the user adds a support showing, which disables the Care Review component and notifies the administrator via the Communication Lineup. If the status is successful, the client or patient is informed and the property listing is updated; if it is unsuccessful, the client or patient is informed. A reference is used to notify the user of a status change in order to avoid cluttering the diagram and make it easier to understand.

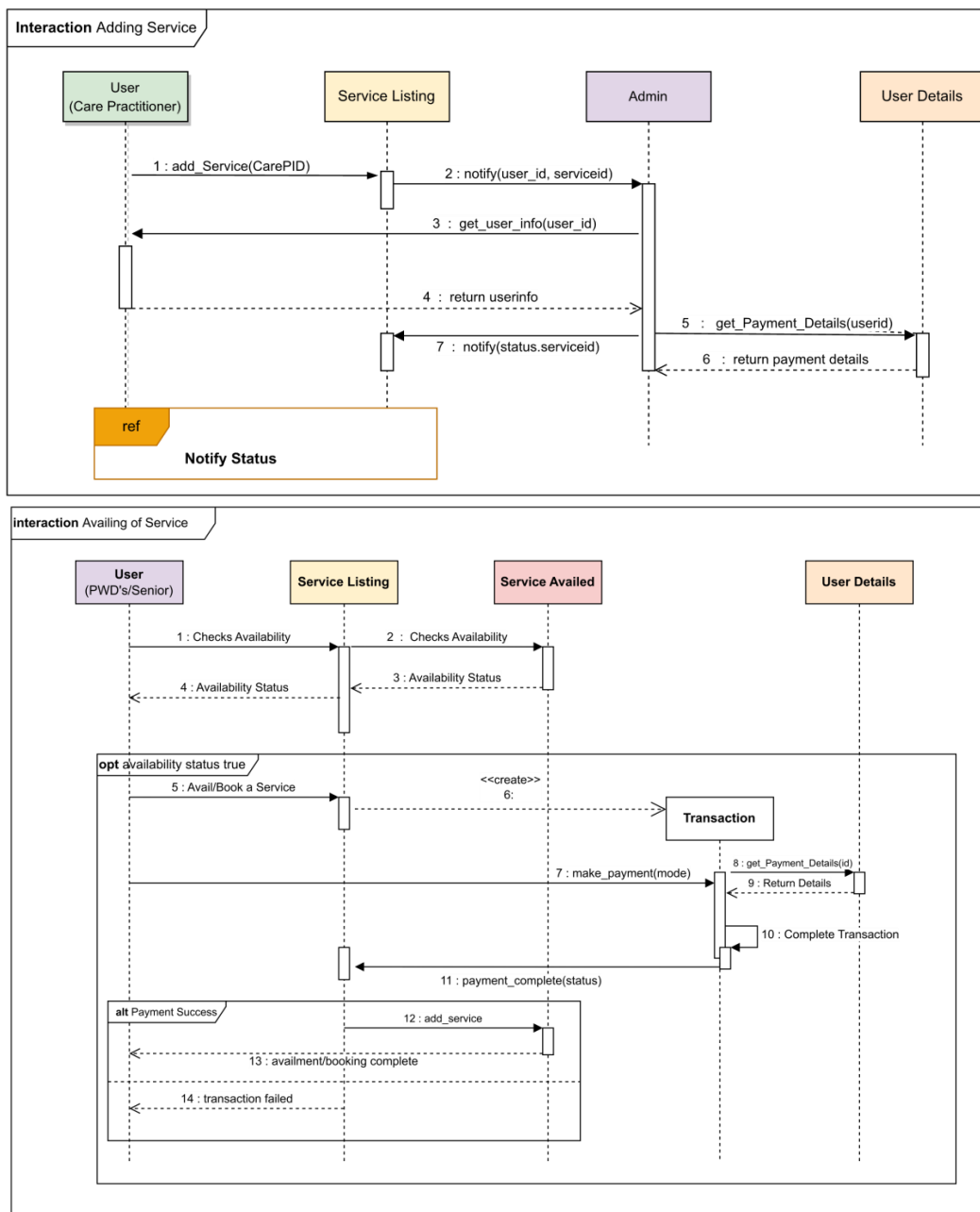


Fig. 4. Sequence diagram for the CareAide+.

In the Availment of a Service, the objects involved are the user, the service listing, the service availd, and the user details. The steps involved in a user requesting a service are shown in this flowchart. The user must first check whether the service is accessible on the date or at the time specified, and only then may the user use the service. When a service is requested, a new instance of the transaction class is created.

The actual perspective, also known as the implementation perspective, illustrates the infrastructure as a technical team would see it. Both the physical connections between software components and their layer-by-layer structure are of interest. Fig. 5 shows how the Layered and Model View Controller architecture pattern worked in the implementation of the visualization services of the CareAide+ application. The

Presentation layer adopts the View component to display various visualization layouts and widgets, especially user reviews and ratings. The application or business layer implements the controller component in processing requests and then communicates the result to the persistence layer, where the model component retrieves and updates data with the database layer. The database layer then sends the updates to the persistence layer through the model component until they are displayed in the presentation layer through the view component.

The forecasting model contains data along with the explanation associated with that as well. It describes data transmitted among controlling sections or even other relevant circuitry. A control system module, for example, will fetch



client or patient details from the database. Before putting the data back into the repository or using it to create data that is somewhat similar to it, it tries to manipulate the data. A view is an interface element that contains and presents data. Presentations are made using the information obtained from the model data. A viewpoint asks the model for information in order to give the client a special highlight. The Control System is the system element in charge of interactivity. The controller evaluates the inputs from the user's input devices before deciding how the model and views should react. The model receives instructions from a controller to modify its state (for instance, by saving a specific document). The controller can modify how a view is displayed by sending commands to views that are related to it. For example, scrolling while turning the page.

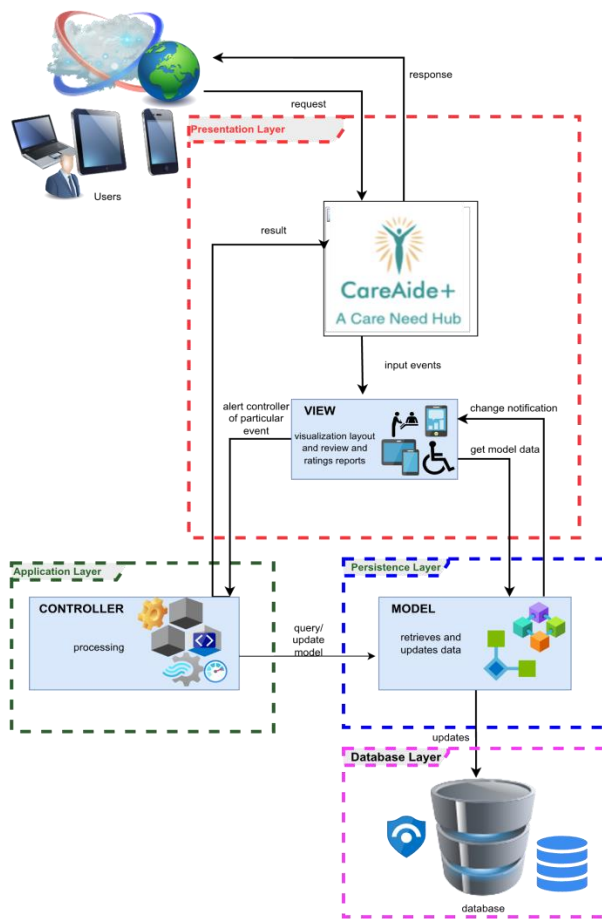


Fig. 5. Architecture design pattern using model-view-controller pattern mapped in a layered architecture for the CareAide+.

The MVC Pattern Interface has advantages such as simple code that is easy to grow and expand. MVC model elements may be tested without the involvement of the user. Assistance for various clienteles is now simpler. It is possible for various components to evolve. By dividing an application into three parts, it helps to avoid complexity. Components include the model, view, and controller. It only uses the Front Controller design pattern, which uses a single controller to route requests from custom applications. It presents the toughest development assistance. It works well for websites that are supported by

large teams of web designers and engineers. It guarantees a distinct separation of concerns (SoC) [34]. Search engine optimization (SEO) is friendly since, each class and object is self-contained, you can test each one separately. The MVC design pattern [35] makes it possible to logically group related controller operations. The drawbacks are as follows: Understanding, modifying, unit testing, and reusing this model are challenging. Because the framework introduces additional levels of abstraction that force users to adapt to the MVC decomposition requirements, navigating the framework can occasionally be difficult. No explicit validation support is provided. Data inefficiency and complexity have grown. The difficulty of using MVC with a modern graphical user interface [36]. The use of many programmers is required for parallel programming. It is necessary to be familiar with a variety of technologies and management of several codes in the controller.

#### IV. CONCLUSION

The crafted architecture design for the care needs hub application would be a comprehensive tool for the completion of the development. This would greatly help the developers of the system in building the correct features and data abstractions needed to build and implement the said system. The researchers then recommend conducting an in-depth analysis of the features to be included in the application and considering adding payment alternatives or revising payment modules to other modes, like non-monetary things, if it would be possible. According to the research, a hub of helping hands is very important for senior citizens around the world to survive their daily lives. Our model helps to increase humanity, reliability, and confidence all over the world for overaged people. It is possible that in the future, with the help of artificial intelligence, it will be developed for automatic operation. If we are able to develop a model for the care hub that operates on its own, it will be more accurate and have lower costs for individuals.

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