

Bela-Sheshe

(Elderly Assistance and Old Home Management System)

Group 2 (Subsection : A1)

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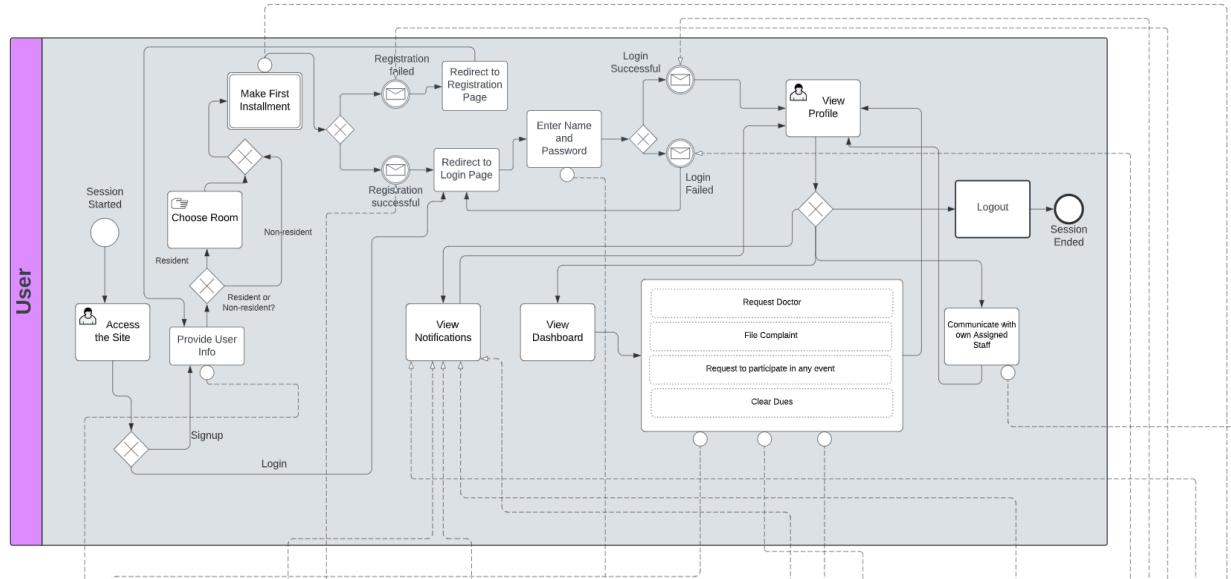
Motivation

- Effectively maintain and automate the multitude of tasks regarding the running of the institution.
- Create a suitable environment for the elderly and their family to properly monitor the daily routine, health and meals.
- Analyze data, manage staff and resources by the administration.
- Smoothly provide medical care and assistance along with the opportunity to engage in a community or ensure means of entertainment for the elderly.
- One of the primary motivations is to improve the quality of care provided to elderly individuals. Such a website can offer tools and resources to help caregivers better manage the health, well-being, and daily activities of elderly loved ones.
- Regular health monitoring is crucial for the elderly, especially those with chronic conditions. A website can track vital health metrics, medication schedules, and doctor's appointments, helping to manage health effectively.
- Ensuring that elderly individuals take their medications correctly is essential. An online system can offer medication reminders and even facilitate prescription refills.
- Loneliness and social isolation are common issues among the elderly. An elderly management system website can facilitate social engagement through features like social events, forums, or virtual events.
- Every elderly individual has unique needs and preferences. The website can allow for customization and personalization of care plans and services, ensuring a tailored approach.
- For healthcare providers, an elderly management system can aid in complying with regulations and ensuring accountability in care delivery.
- Many elderly individuals prefer to age in place, staying in their own homes rather than moving to assisted living facilities. An elderly management system website can assist in making this possible by providing tools for remote monitoring, health tracking, and assistance.

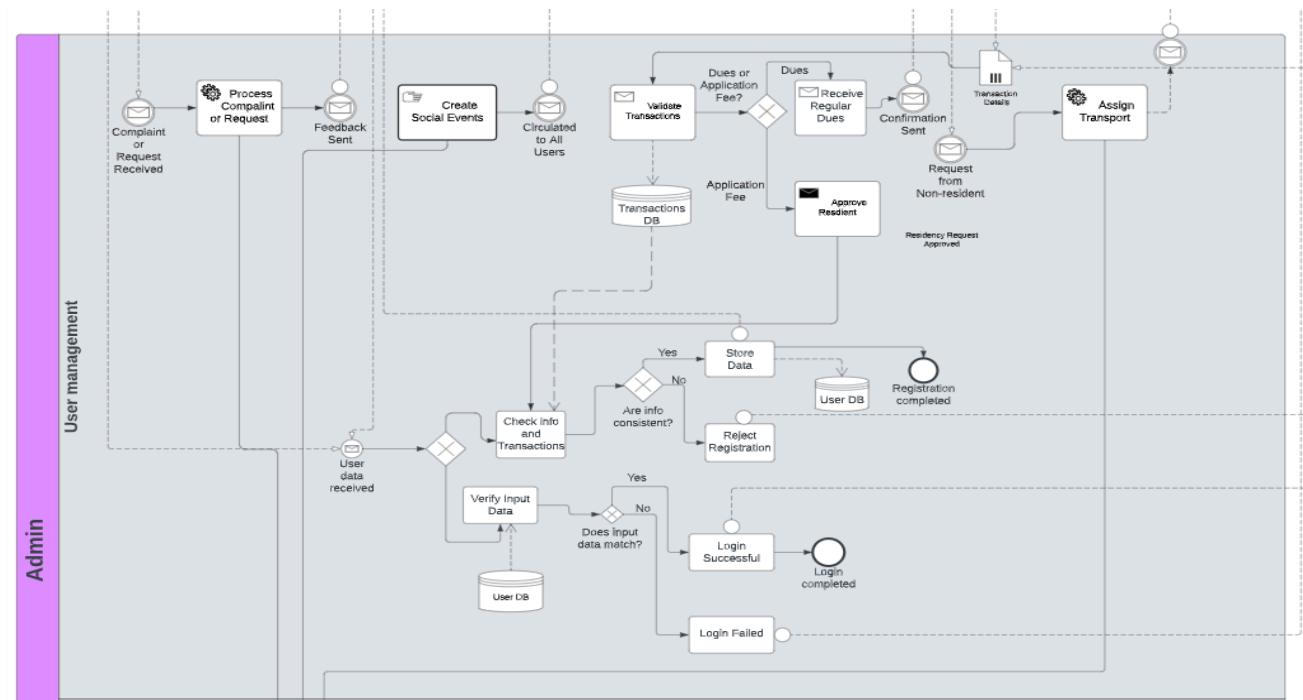
BPMN diagram

Our initial BPMN diagram was-

- **Pool Name: User**

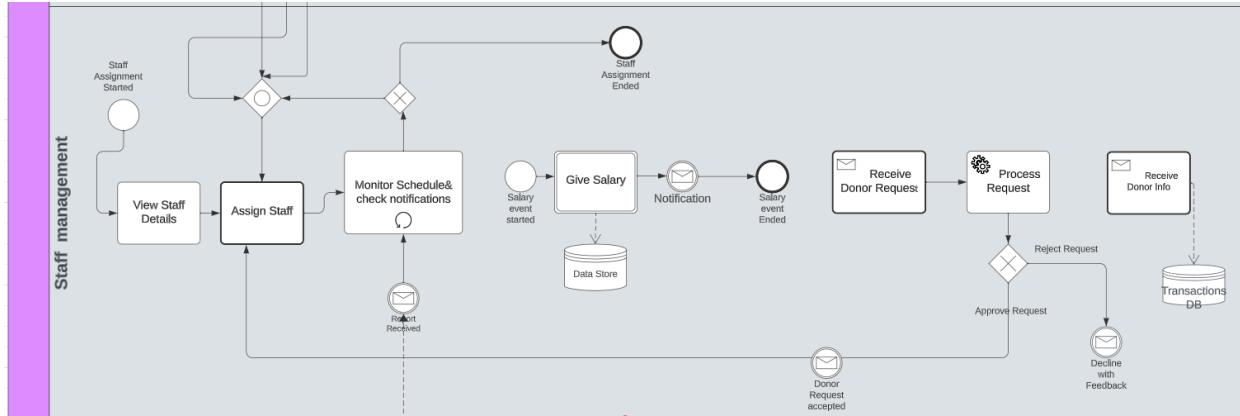


- **Pool Name: Admin (User Management Lane)**

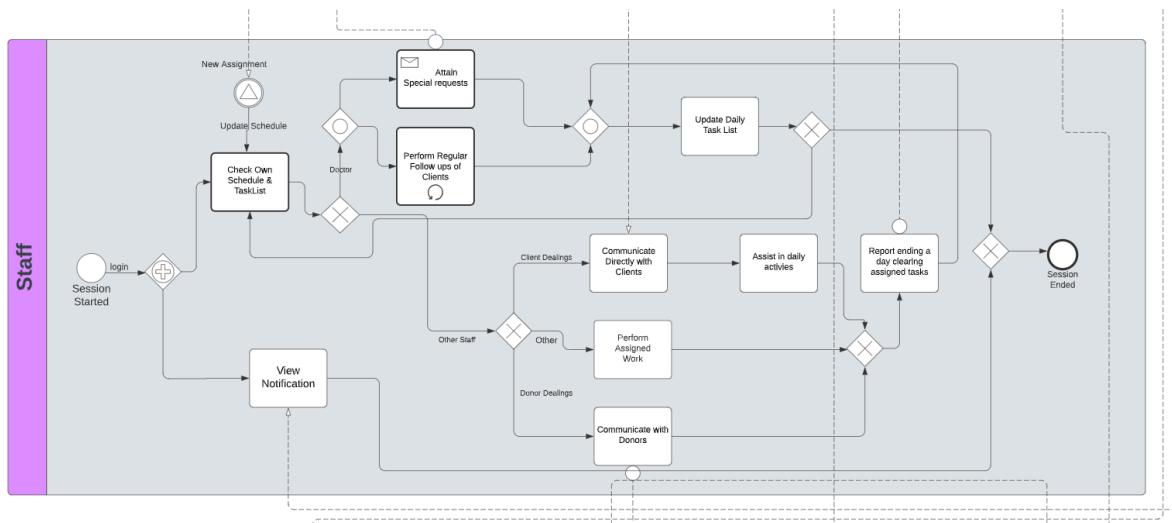


- **Pool Name:** Admin

Lane: Staff Management



- **Pool Name:** Staff (Previous Version)



- In the staff pool we had to make a lot of changes as per requirement. The improved version contains 3 lanes:

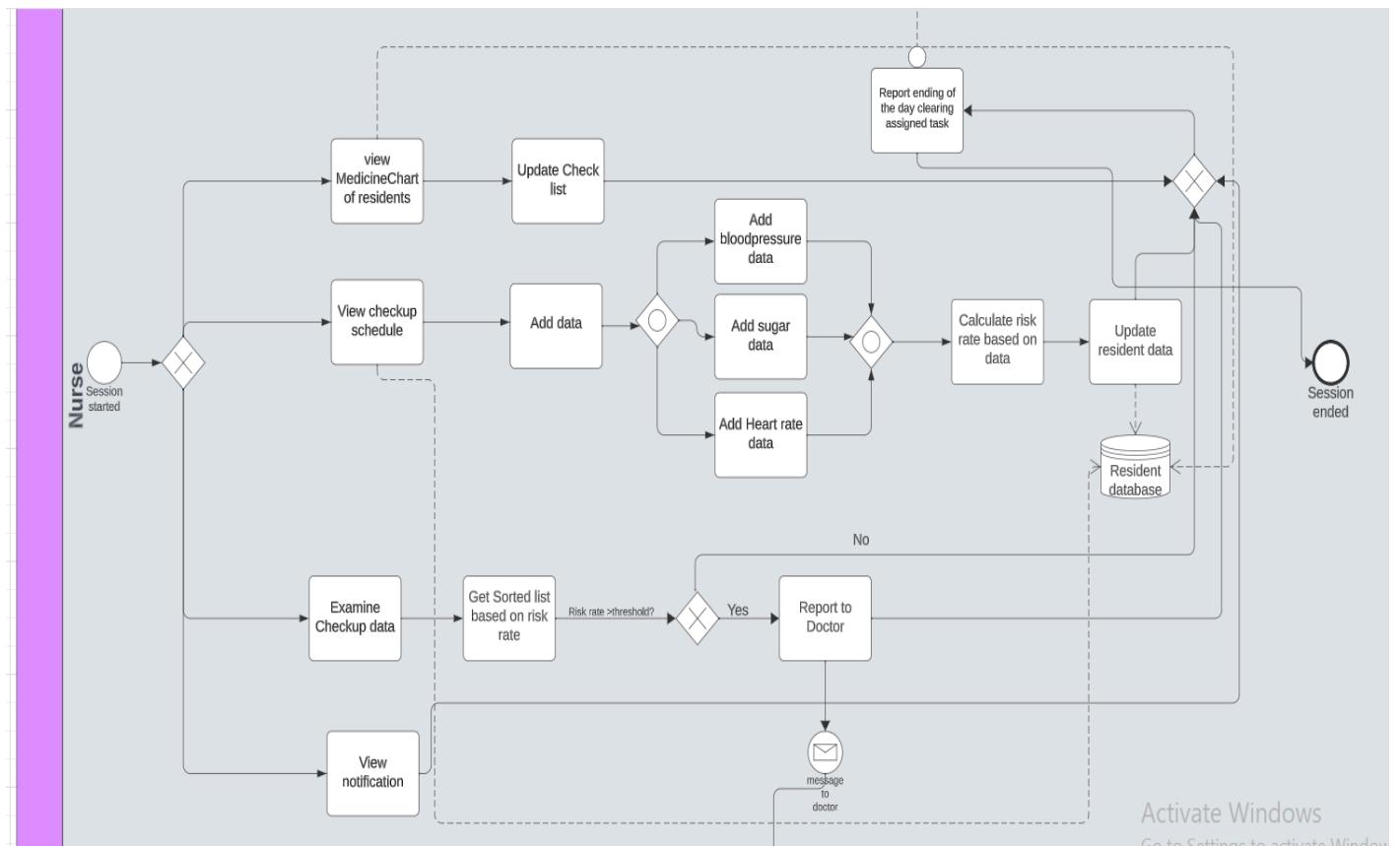
1. Nurse Lane
2. Doctor Lane
3. Meal Manager Lane

The improved version of the Staff Pool is provided below:

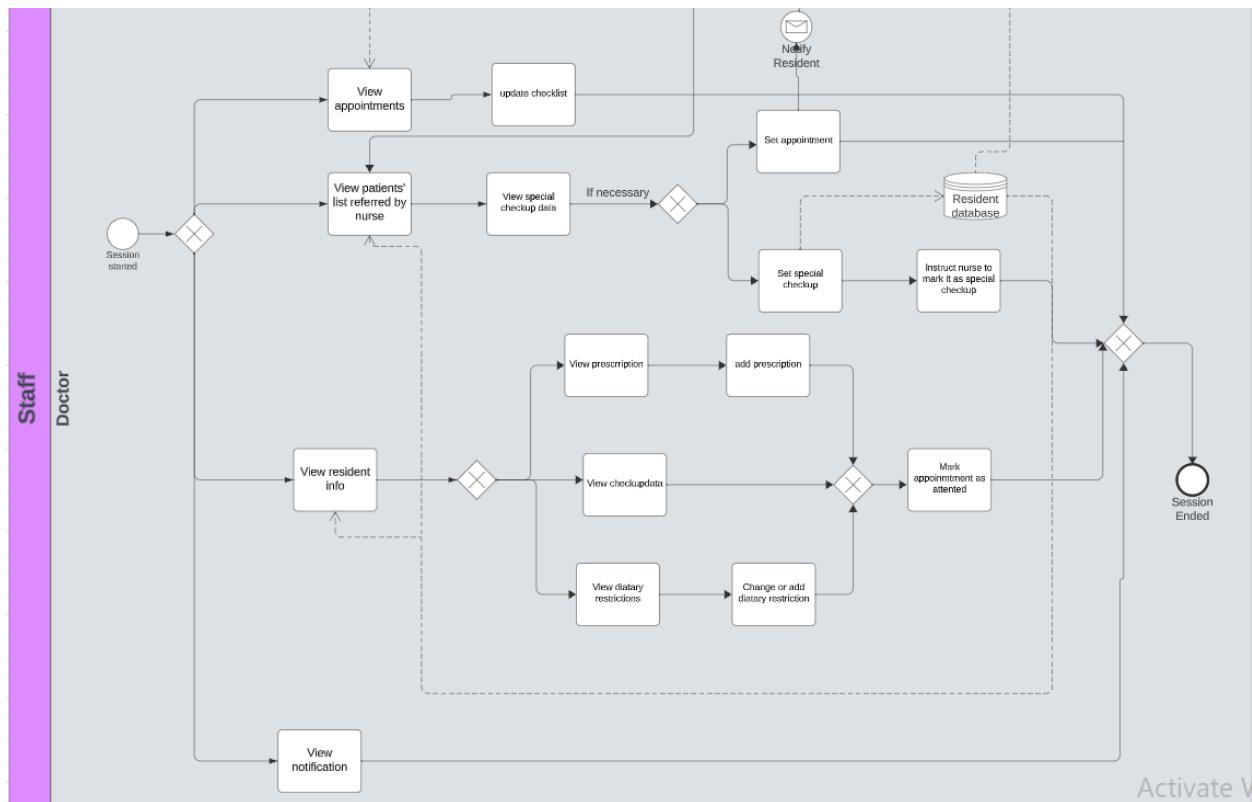
Changes in Staff Pool

- **Pool Name:** Staff (Improved Version)

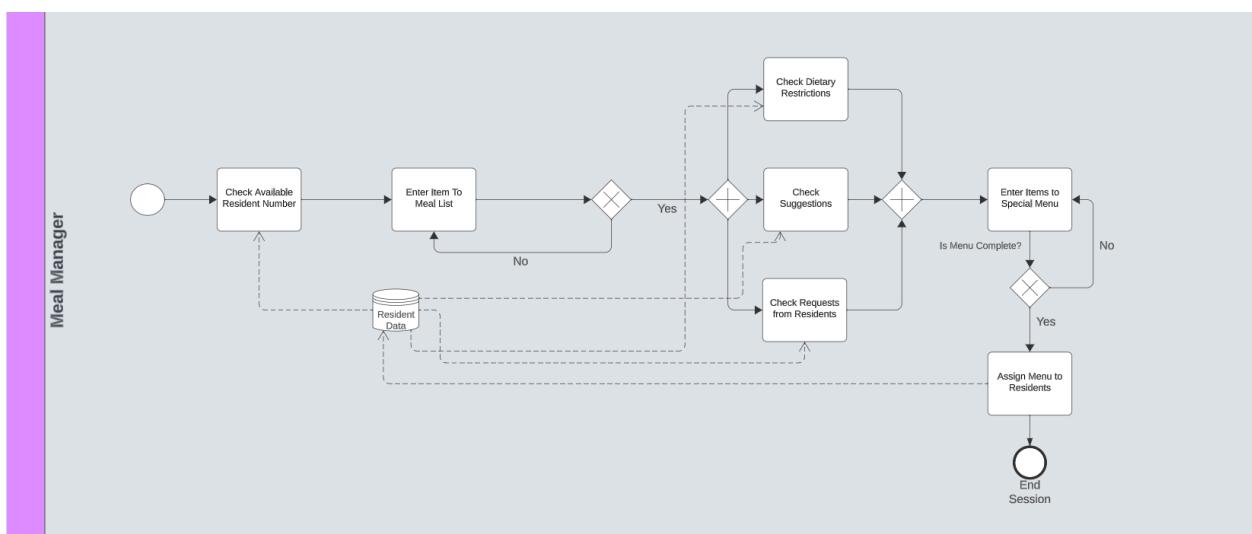
Lane : Nurse



Lane : Doctor



Lane : Meal-manager



MOCK UI DESIGN

Our mock UI has the following format-

- **Home page:**

BELA SHESHE
ELDERLY ASSISTANCE AND OLD HOME MANAGEMENT

EVERY ELDERLY DESERVES
LOVE, CARE & RESPECT

Lorem ipsum dolor sit amet, consectetur
adipiscing elit. Nullam dignissim tincidunt.

Contact Us
Phone: 01721xxxxxx
Email: info@belasheshe.com
Address: West Palashi, Dhaka-1000

Our location

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Changes in Resident module

- **Dashboard:** (improved version) We included the resident's medical condition(s) and activity growth graph.

Activity Growth

Jan. 2023

Search

Your Medical Condition(s)

Hypertension

Advice Maintain a healthy diet low in sodium, exercise regularly

Guidelines Follow the Dietary Approaches to Stop Hypertension (DASH) diet, monitor blood pressure regularly

Type 2 Diabetes

Advice Monitor blood sugar levels, maintain a balanced diet, engage in physical activity

Guidelines Take prescribed medications

Appointments

Today

Dr. Amisha Smith Weekly Visit (9:15 AM)

Dr. Amisha Smith Routine Checkup (9:30 AM)

Dr. Amisha Smith Weekly Visit (9:50 AM)

Dr. Amisha Smith Weekly Visit (10:10 AM)

Daily Task

10:00 Yoga session

01:00 Lunch

04:00 Routine Checkup

06:00 Book Review session

08:00 Monthly Home Meeting

Dues

Monthly Due - July

Amount: 1000/- Due Date: 10 July, 2023 Status: Pending

Dining Fee - July

Amount: 4000/- Due Date: 10 July, 2023 Status: Pending

Logout

- **Register and login page:** We have discarded the Login and Register pages since we were discouraged from including them.

- **Health & diet:** Residents can check their daily menu and report any issue..

They can also add their allergy information and dietary restrictions.

- **Events page:** (improved version) Instead of a single Community page, we have included two pages for regular events and special events as per the feedback.

Regular events:

Special events:

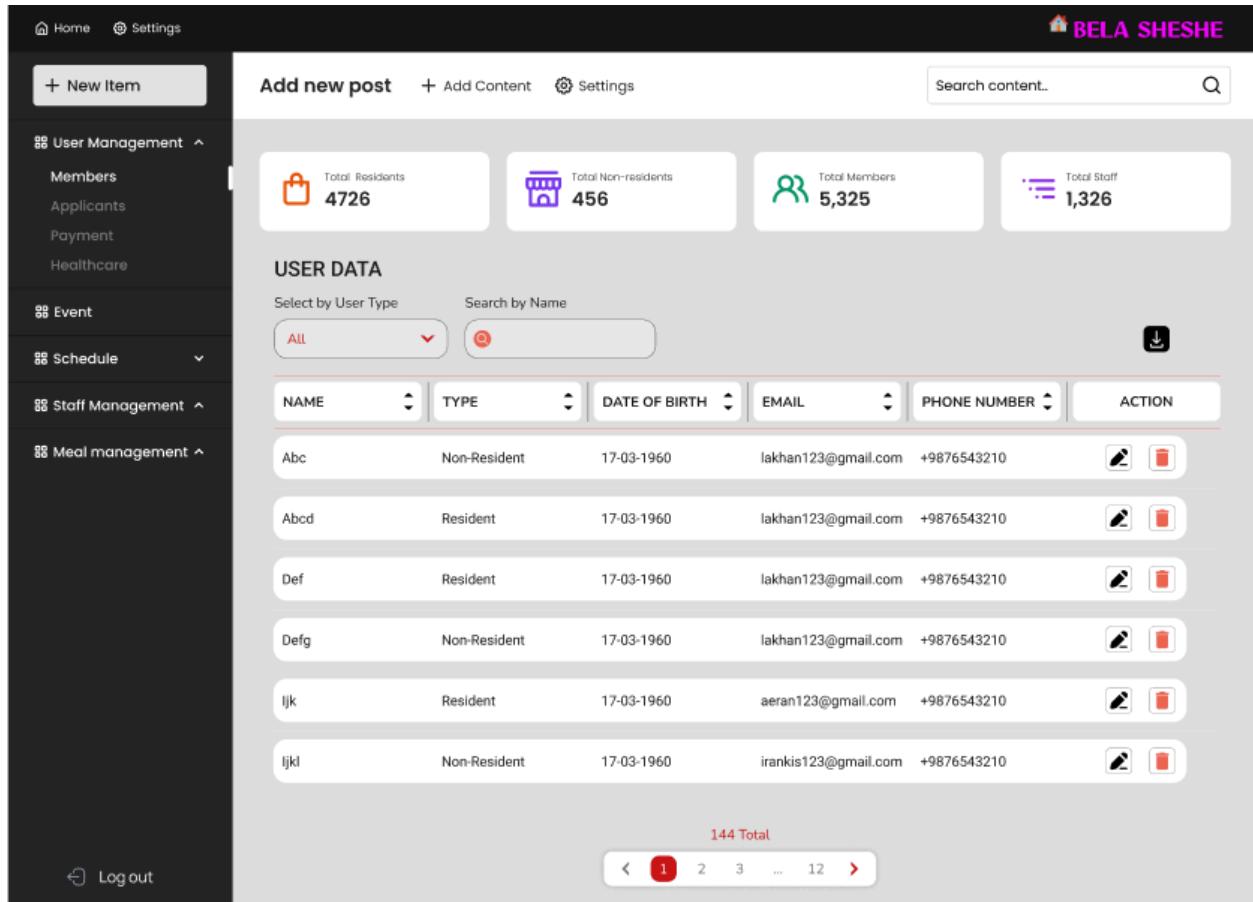
- A schedule for daily activities:

Admin module

- **Dashboard:** It gives an overview of the admin's upcoming meeting schedule with residents and staff, as well as a statistics showing the number of times the users have visited the site in a year.

Daily Task	Time	Venue	Status	Follow Up Action
Meeting with Residents	10:00 am	Auditorium	Done	No
Meeting with Staffs	11:00 am	Online Event	Done	No
Meal Approval	12:00 pm	N/A	Done	No
Staff Report Check	8:00 pm	N/A	Pending	No
Cameron William...				

- **User management page:** gives an overview of the current residents



The screenshot shows the BELA SHESHE user management interface. The top navigation bar includes 'Home', 'Settings', 'Add new post', '+ Add Content', and 'Settings'. The title 'BELA SHESHE' is on the top right. A search bar with placeholder 'Search content...' and a magnifying glass icon is on the right.

The left sidebar has a dark background with the following menu items:

- User Management** (selected): Members, Applicants, Payment, Healthcare
- Event**
- Schedule**
- Staff Management**
- Meal management**

The main content area has a light gray background. At the top, there are four cards with icons and counts: 'Total Residents 4726', 'Total Non-residents 456', 'Total Members 5,325', and 'Total Staff 1,326'.

USER DATA section:

- Filter: 'Select by User Type' dropdown set to 'All', and a 'Search by Name' input field with a magnifying glass icon.
- Table headers: NAME, TYPE, DATE OF BIRTH, EMAIL, PHONE NUMBER, ACTION.
- Table data (6 rows):

NAME	TYPE	DATE OF BIRTH	EMAIL	PHONE NUMBER	ACTION
Abc	Non-Resident	17-03-1960	lakhan123@gmail.com	+9876543210	 
Abcd	Resident	17-03-1960	lakhan123@gmail.com	+9876543210	 
Def	Resident	17-03-1960	lakhan123@gmail.com	+9876543210	 
Defg	Non-Resident	17-03-1960	lakhan123@gmail.com	+9876543210	 
Ijk	Resident	17-03-1960	aeran123@gmail.com	+9876543210	 
Ijkl	Non-Resident	17-03-1960	irankis123@gmail.com	+9876543210	 
- Total count: 144 Total
- Pagination: Page 1 of 12

At the bottom left is a 'Logout' button.

- **Event creation:** this page is to create events from the admin side.

Events You Manage

- Intrahouse chess tournament**
Saturday, March 18, 9:30PM
Place : common room
- Yoga session**
Saturday, March 18, 7:30PM
Place : Gymnasium
- Movie night!**
Movie: Sagorika
Starring: Uttom kumar, Suchitra sen
Saturday, March 18, 9:30PM
Place : Common room
- Weekly book review Session**
Saturday, March 18, 9:30PM
ONLINE EVENT - Attend anywhere
- BestSeller Book Bootcamp - write, Market & Publish Your Book -Lucknow**
Saturday, March 18, 9:30PM
ONLINE EVENT - Attend anywhere

CREATE NEW EVENT

Changes in Meal Manager Module

- **Food issue:** A meal manager can issue meals one by one, if the issued meal conflicts with some users restricted food list, it will be shown in the dietary restriction conflict part.

Home Settings BELA SHESHE

+ New Item

profile Events Schedule Set meal Notification Complain

Today's meal Check diet Special request •

Search content.

Breakfast: Bread

Lunch: Rice

Snacks: Omthon

Dinner: Rice

Check

Home Settings BELA SHESHE

+ New Item

profile Events Schedule Set meal Notification Complain

Today's meal Check diet Special request •

Search content.

Breakfast: Bread

Lunch: Rice

Snacks: Omthon

Dinner: Rice

Check

Dietary Restriction Conflict

1. Name:

Restriction:

Add Special Menu

Suggestion:

Request:

Add to Menu: 1.

Log out

- Daily expense list:

Generate daily list

15-07-2023 Saturday

Generate

USERS DIET

ITEM NAME	AMOUNT	COST
Rice	32 kg	1500/-
Vegetable	15 kg	1000/-
Fish	4 kg	3000/-
Chicken	5 kg	3000/-

[View more →](#)

Total cost: 8500/-

Order

Log out

- Monthly expense list:

The screenshot shows the BELA SHESHE mobile application interface. At the top, there is a navigation bar with 'Home' and 'Settings' on the left, and the BELA SHESHE logo on the right. A search bar is located in the top right corner. On the left side, there is a vertical sidebar with the following menu items: '+ New Item', 'profile', 'Events', 'Schedule', 'Set meal', 'Notification' (which is selected, indicated by a blue dot), and 'Complain'. The main content area is titled 'Generate montly list' and shows a large blue button with the text 'July' in white. Below this button is a 'Generate' button. The section titled 'USERS DIET' contains a table with three columns: 'ITEM NAME', 'AMOUNT', and 'COST'. The table shows one item: 'Rice' with '150 kg' and a cost of '7500/='. Below the table is a 'View more →' link. At the bottom of the screen, there is a 'Logout' button.

ITEM NAME	AMOUNT	COST
Rice	150 kg	7500/=

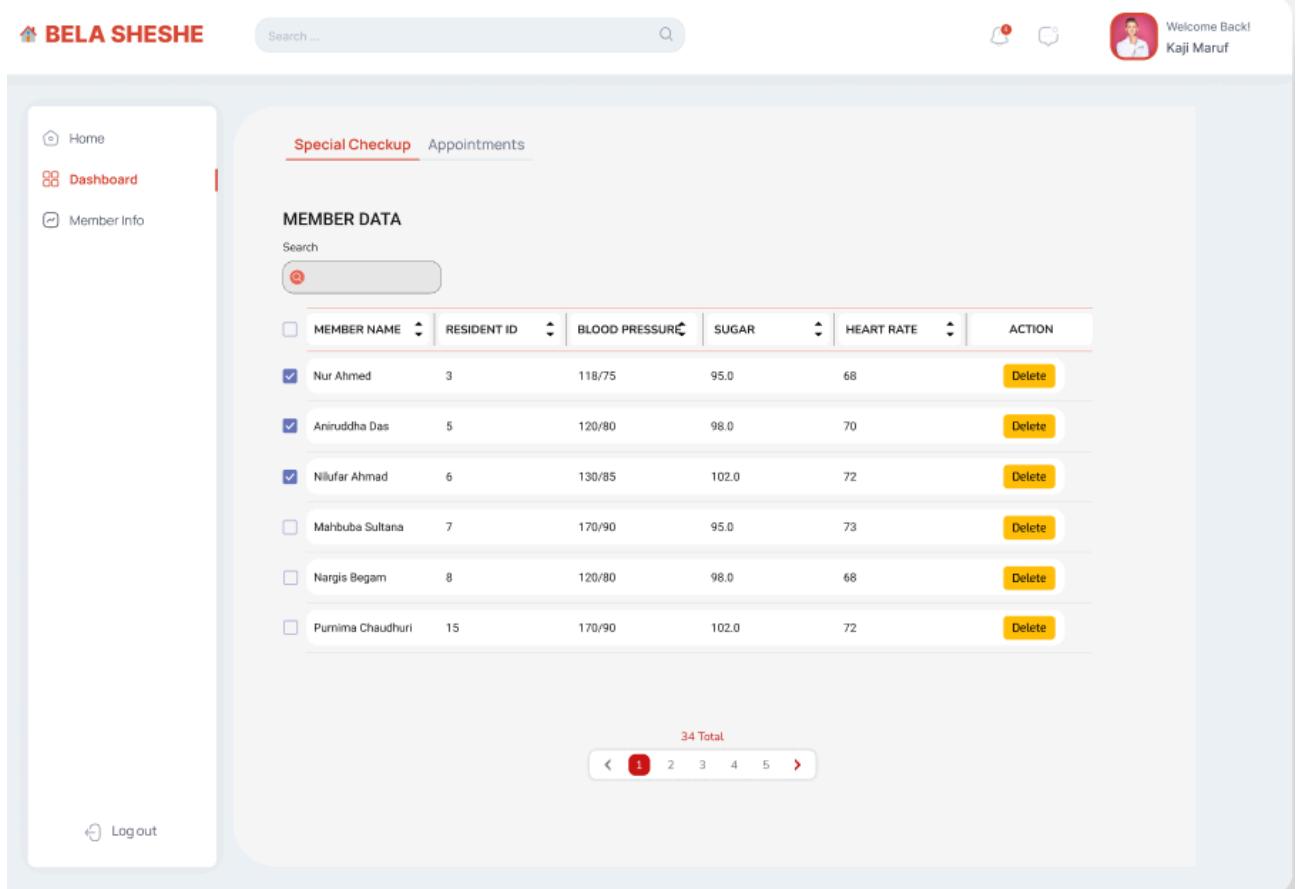
Total cost: 7500/=

Order

Logout

Changes in Doctor module

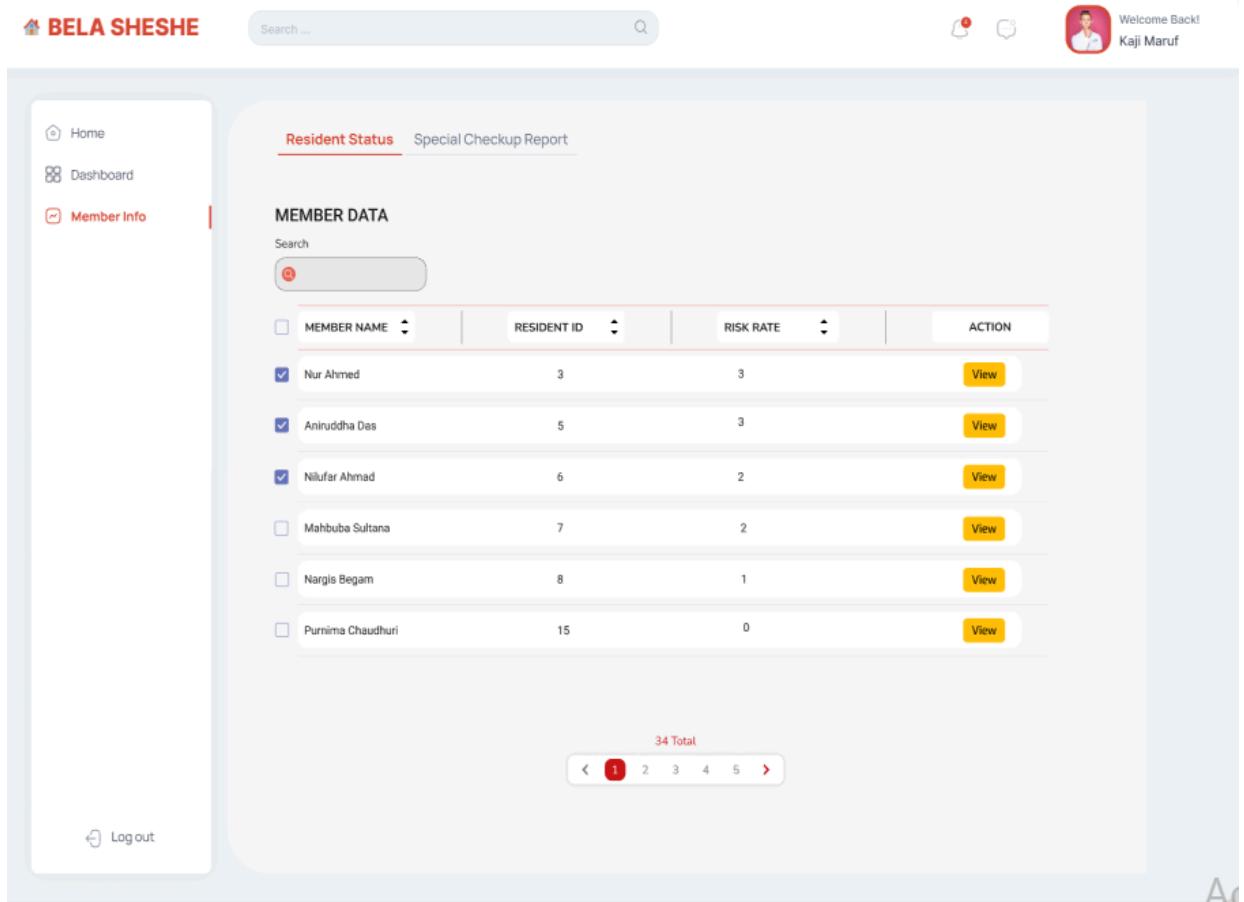
- **Dashboard:** Doctor can view the details of his patients based on the risk rate and prioritize the patients with the most risk rate.



The screenshot shows the BELA SHESHE Doctor module interface. At the top, there is a header with the logo 'BELA SHESHE', a search bar, and a welcome message 'Welcome Back! Kaji Maruf'. The main content area is titled 'Special Checkup' and 'Appointments'. On the left, a sidebar menu includes 'Home', 'Dashboard' (which is selected and highlighted in red), and 'Member Info'. The central part of the screen displays a table titled 'MEMBER DATA' with columns: MEMBER NAME, RESIDENT ID, BLOOD PRESSURE, SUGAR, HEART RATE, and ACTION. The table lists six patients with their details and a 'Delete' button for each. At the bottom, there is a pagination bar showing '34 Total' and page numbers 1, 2, 3, 4, 5, with the first page highlighted in red.

MEMBER NAME	RESIDENT ID	BLOOD PRESSURE	SUGAR	HEART RATE	ACTION
Nur Ahmed	3	118/75	95.0	68	<button>Delete</button>
Aniruddha Das	5	120/80	98.0	70	<button>Delete</button>
Nilufar Ahmad	6	130/85	102.0	72	<button>Delete</button>
Mahbuba Sultana	7	170/90	95.0	73	<button>Delete</button>
Nargis Begam	8	120/80	98.0	68	<button>Delete</button>
Purnima Chaudhuri	15	170/90	102.0	72	<button>Delete</button>

- Patient info:



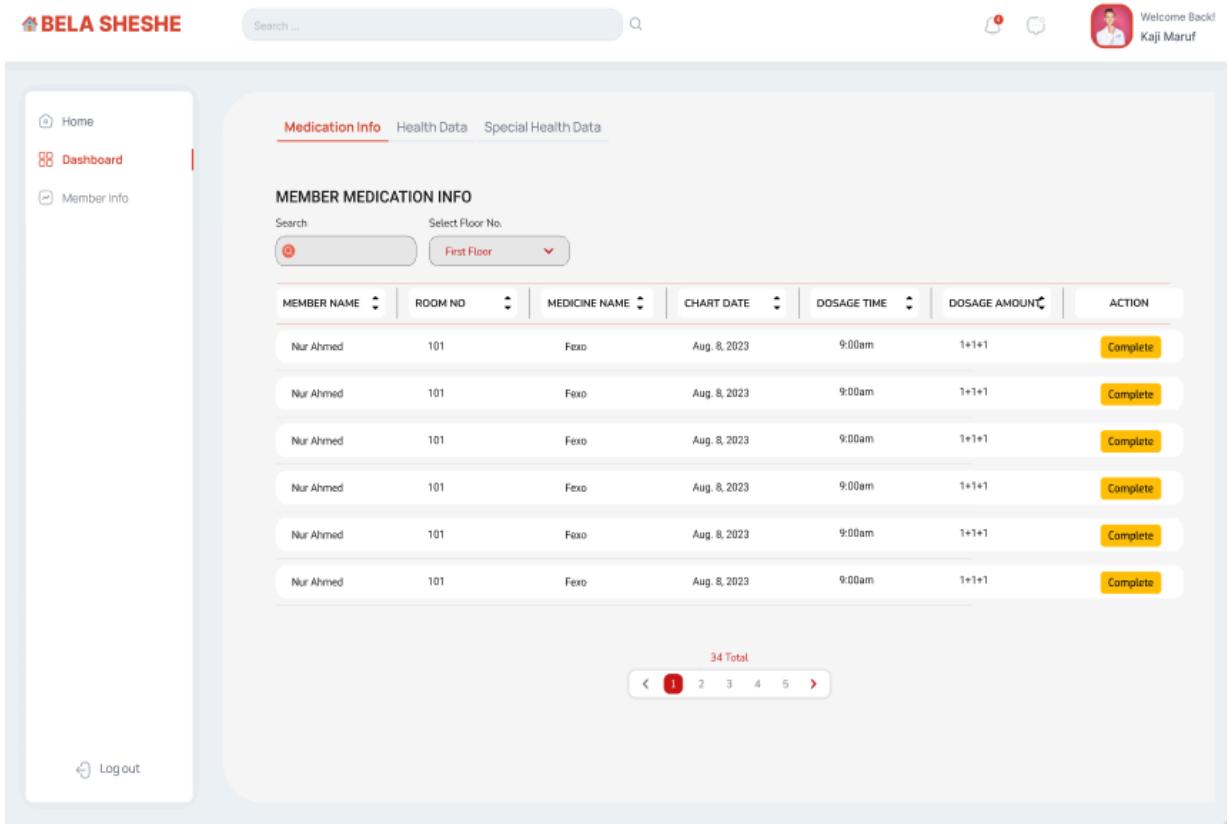
The screenshot shows the BELA SHESHE application interface. At the top, there is a navigation bar with a search bar and icons for location, message, and profile. The profile icon shows a doctor's image and the text "Welcome Back! Kaji Maruf". On the left, a sidebar has links for "Home", "Dashboard", and "Member Info". The main content area has tabs for "Resident Status" and "Special Checkup Report", with "Resident Status" selected. Below this is a "MEMBER DATA" section with a search bar. A table lists member information with columns: MEMBER NAME, RESIDENT ID, RISK RATE, and ACTION (View button). The table shows the following data:

MEMBER NAME	RESIDENT ID	RISK RATE	ACTION
Nur Ahmed	3	3	<button>View</button>
Aniruddha Das	5	3	<button>View</button>
Nilufar Ahmad	6	2	<button>View</button>
Mahbuba Sultana	7	2	<button>View</button>
Nargis Begam	8	1	<button>View</button>
Purnima Chaudhuri	15	0	<button>View</button>

At the bottom, there is a pagination bar showing "34 Total" and page numbers 1 through 5.

Changes in Nurse module

- **Dashboard:** This page is the daily medicine schedule of the nurse.



The screenshot shows the BELA SHESHE nurse dashboard. The top navigation bar includes 'BELA SHESHE', a search bar, and a 'Welcome Back! Kaji Maruf' greeting with a profile icon. The left sidebar has links for 'Home', 'Dashboard' (which is active and highlighted in red), and 'Member Info'. The main content area is titled 'Medication Info' and shows a sub-section 'MEMBER MEDICATION INFO'. It features a search bar, a dropdown for 'Select Floor No.' (set to 'First Floor'), and a table with the following data:

MEMBER NAME	ROOM NO	MEDICINE NAME	CHART DATE	DOSAGE TIME	DOSAGE AMOUNT	ACTION
Nur Ahmed	101	Fexo	Aug. 8, 2023	9:00am	1+1+1	<button>Complete</button>
Nur Ahmed	101	Fexo	Aug. 8, 2023	9:00am	1+1+1	<button>Complete</button>
Nur Ahmed	101	Fexo	Aug. 8, 2023	9:00am	1+1+1	<button>Complete</button>
Nur Ahmed	101	Fexo	Aug. 8, 2023	9:00am	1+1+1	<button>Complete</button>
Nur Ahmed	101	Fexo	Aug. 8, 2023	9:00am	1+1+1	<button>Complete</button>
Nur Ahmed	101	Fexo	Aug. 8, 2023	9:00am	1+1+1	<button>Complete</button>

At the bottom, there is a page footer with a 'Logout' button.

- **Patient info:** This page is created so that a nurse can view the info of the members that they are assigned with. They can sort the members based on blood pressure, sugar or heart-rate and then fix appointment(s) for them by selecting the corresponding entry from the table. A nurse can also edit the checkup data for any member after they are done with collecting the data.

BELA SHESHE

Search ...

Welcome Back!
Kaji Maruf

Home

Dashboard

Member Info

Checkup Data Diet Restrictions

MEMBER CHECKUP DATA

Search Select Floor No.

First Floor

+ Request Appointment

MEMBER NAME	ROOM NO	BLOOD PRESSURE	SUGAR	HEART RATE	ACTION
Nur Ahmed	101	118/75	95.0	68	<button>Edit</button>
Aniruddha Das	102	120/80	98.0	70	<button>Edit</button>
Nilufar Ahmad	103	130/85	102.0	72	<button>Edit</button>
Mahbuba Sultana	104	170/90	95.0	73	<button>Edit</button>
Nargis Begam	105	120/80	98.0	68	<button>Edit</button>
Purnima Chaudhuri	106	170/90	102.0	72	<button>Edit</button>

34 Total

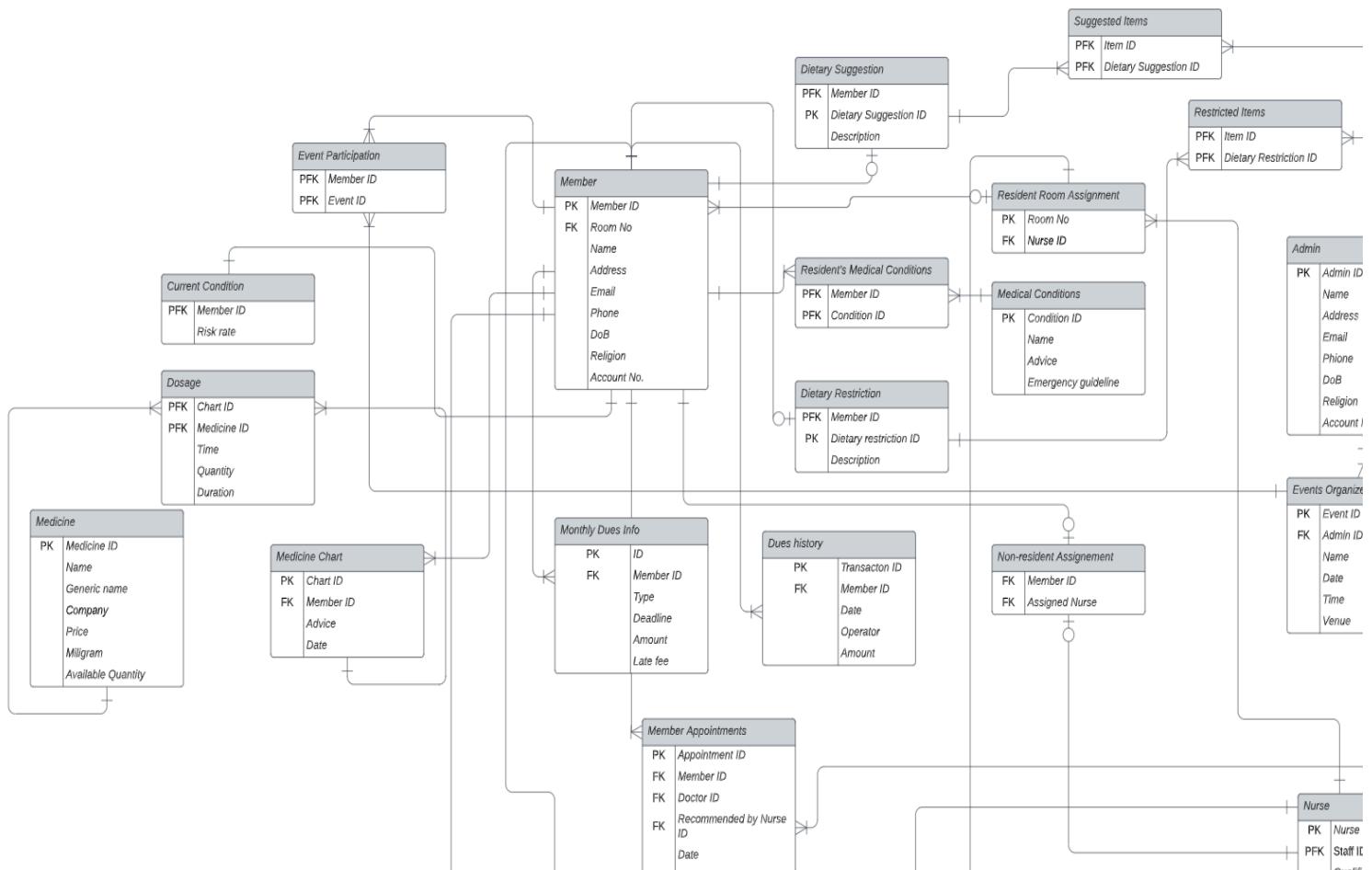
1 2 3 4 5

Log out

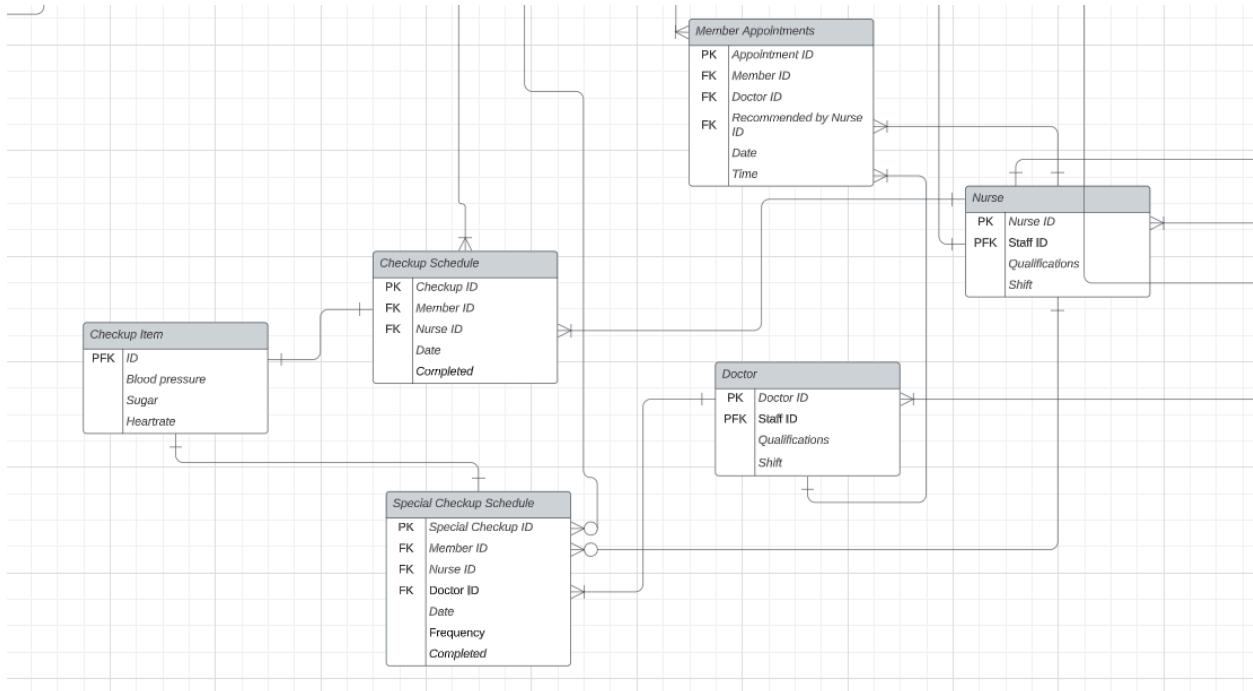
ER Diagram

In the ER diagram we only had to change a few names of the Entities. The ER diagram is given:

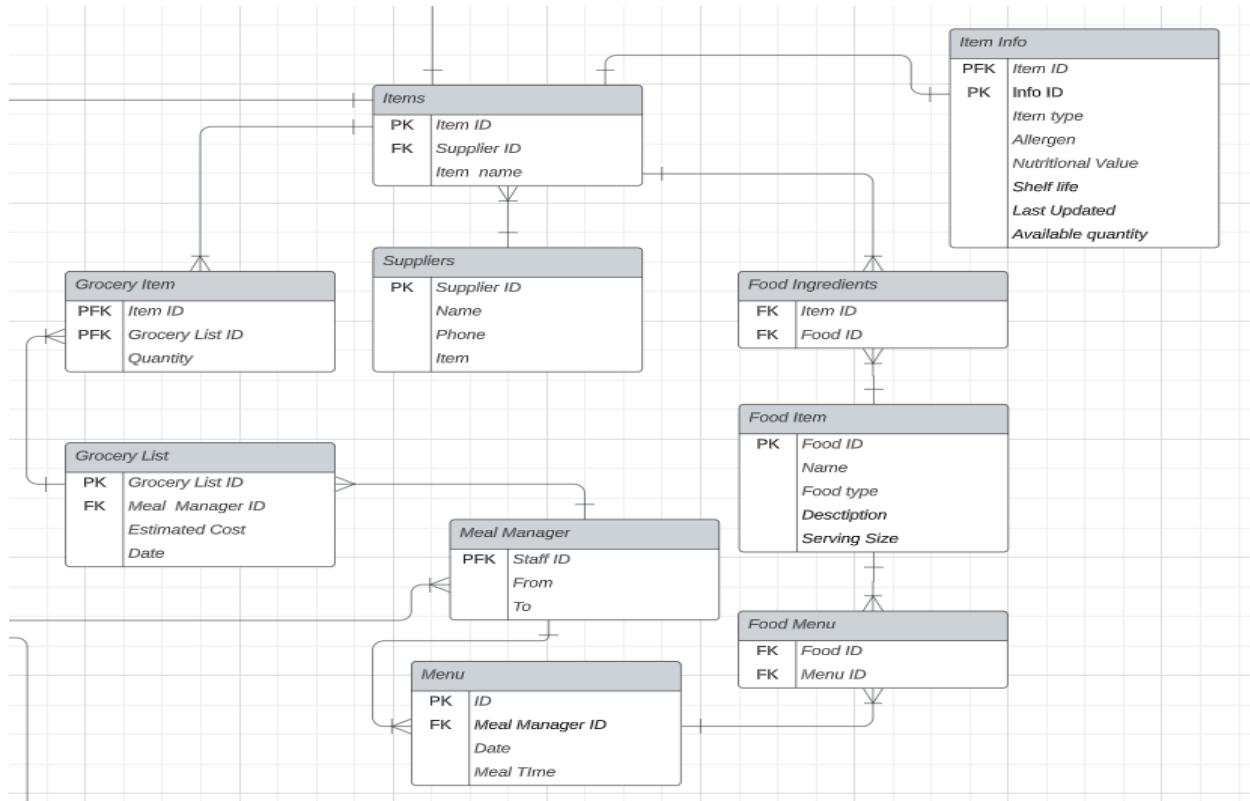
- **Member:**



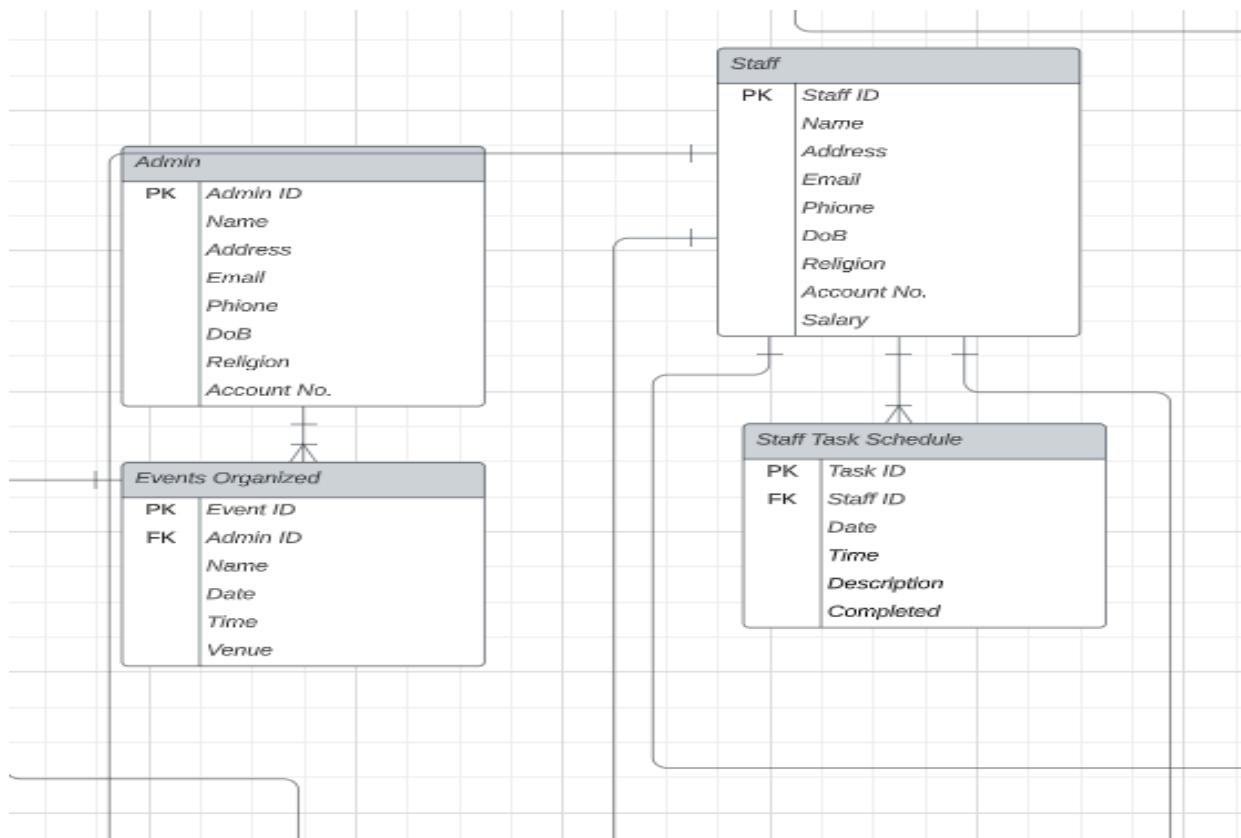
- **Nurse and Doctor (Combined):**



- Meal Management:



- Admin:

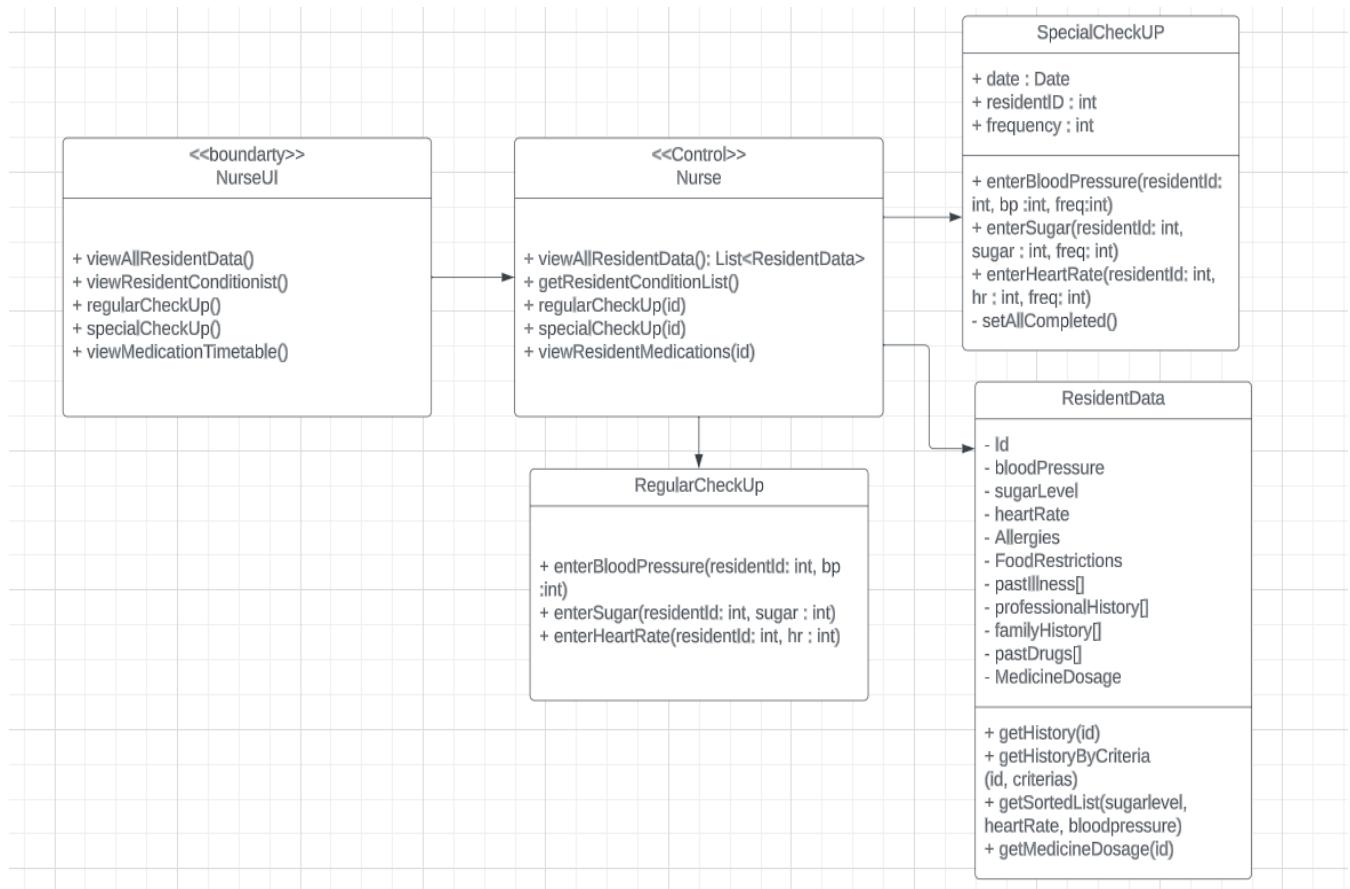


Class Diagram

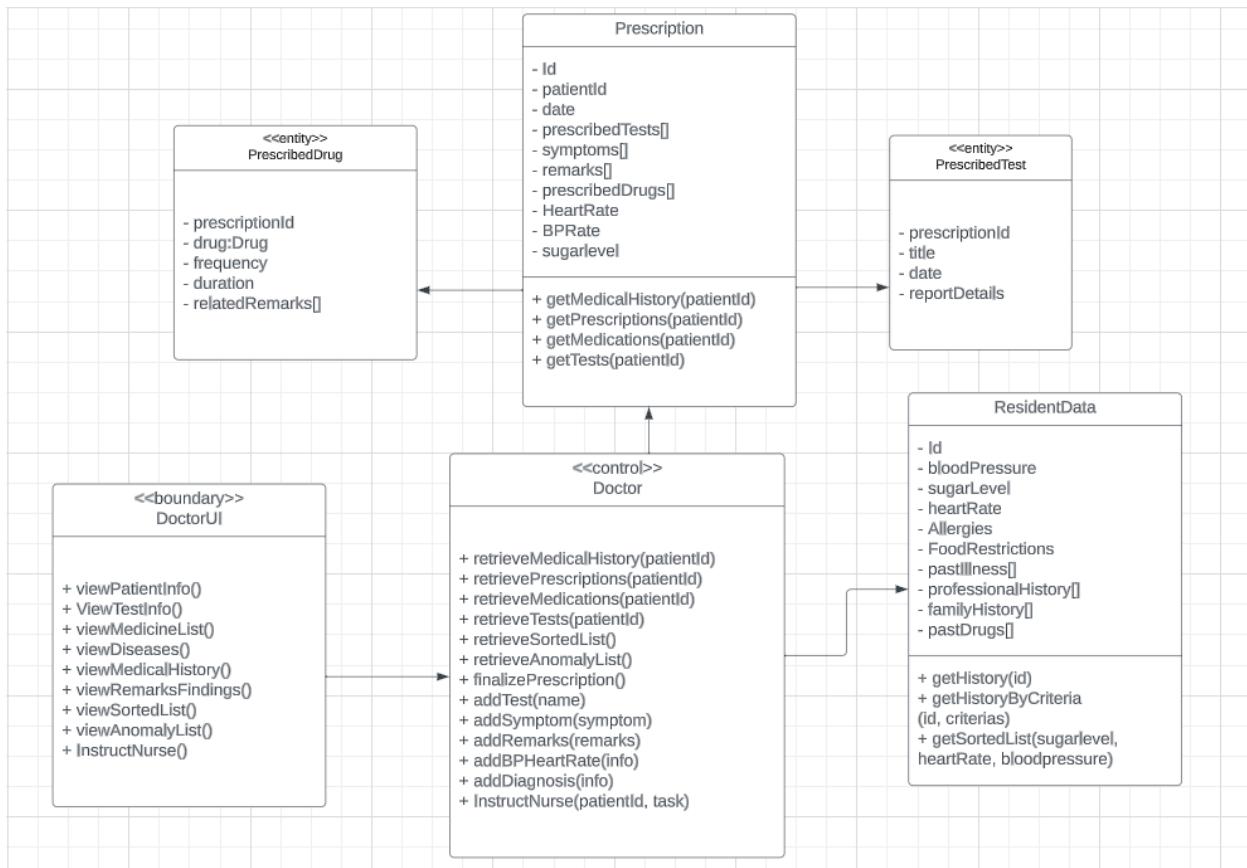
In our class diagram, we had problems regarding properly showing the flow of calling functions and also had problems regarding naming of the functions. The corrected Class Diagram is given below:

Changes in Class Diagram

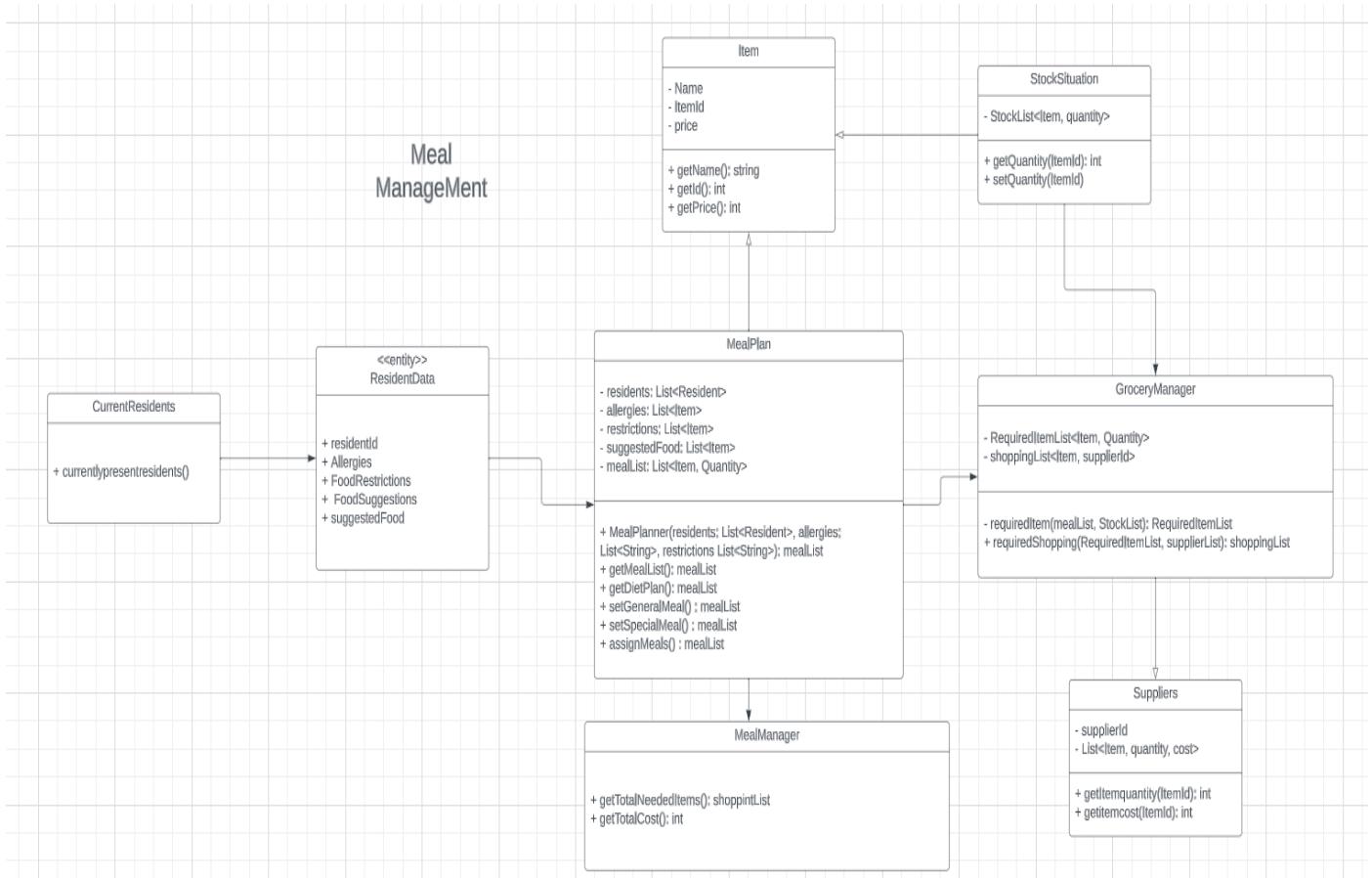
- **Nurse**



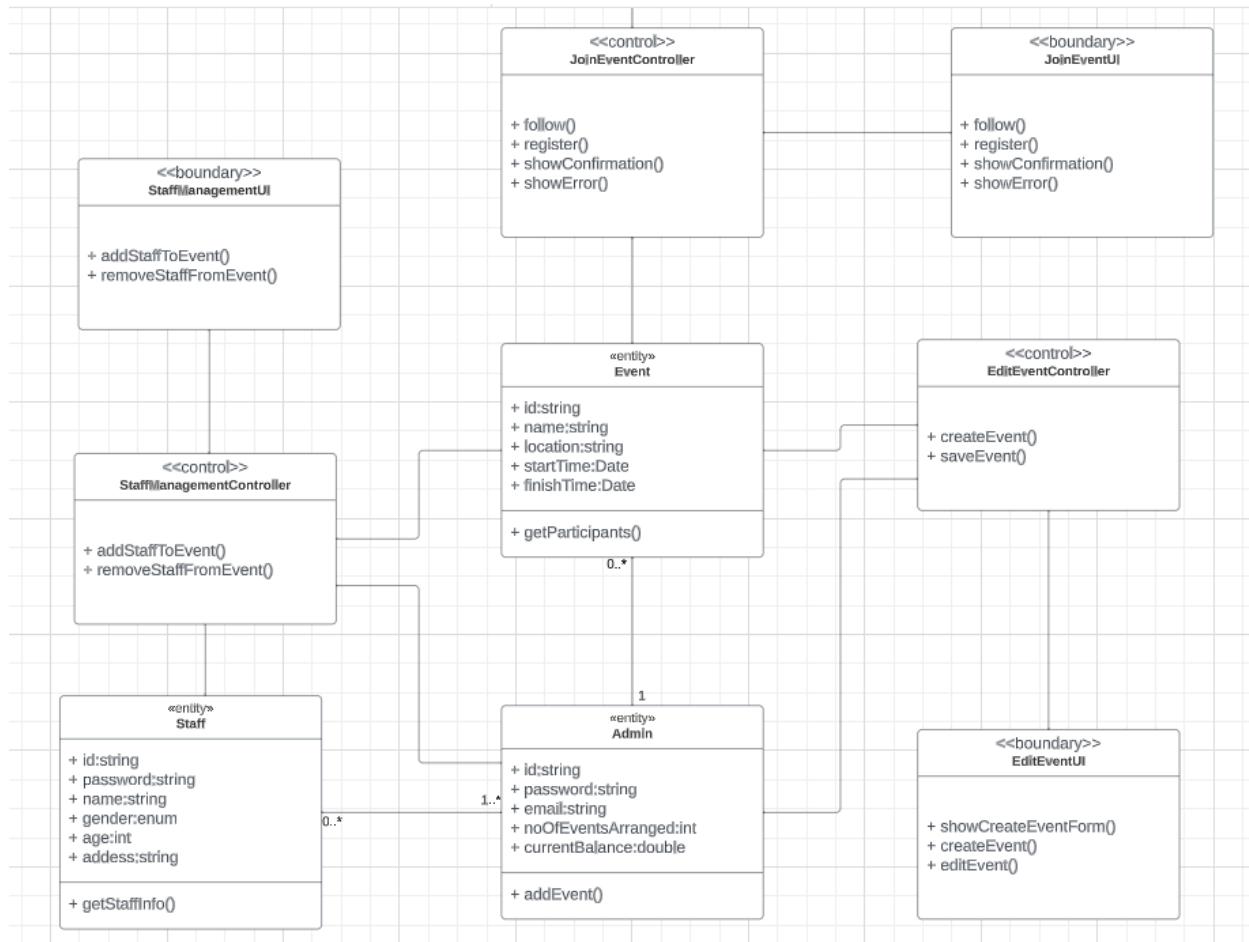
- Doctor



- **Meal Management**



- Event Management



Collaboration Diagram

No changes were required in our collaboration diagram. The diagrams are given:

- **Nurse Module:**

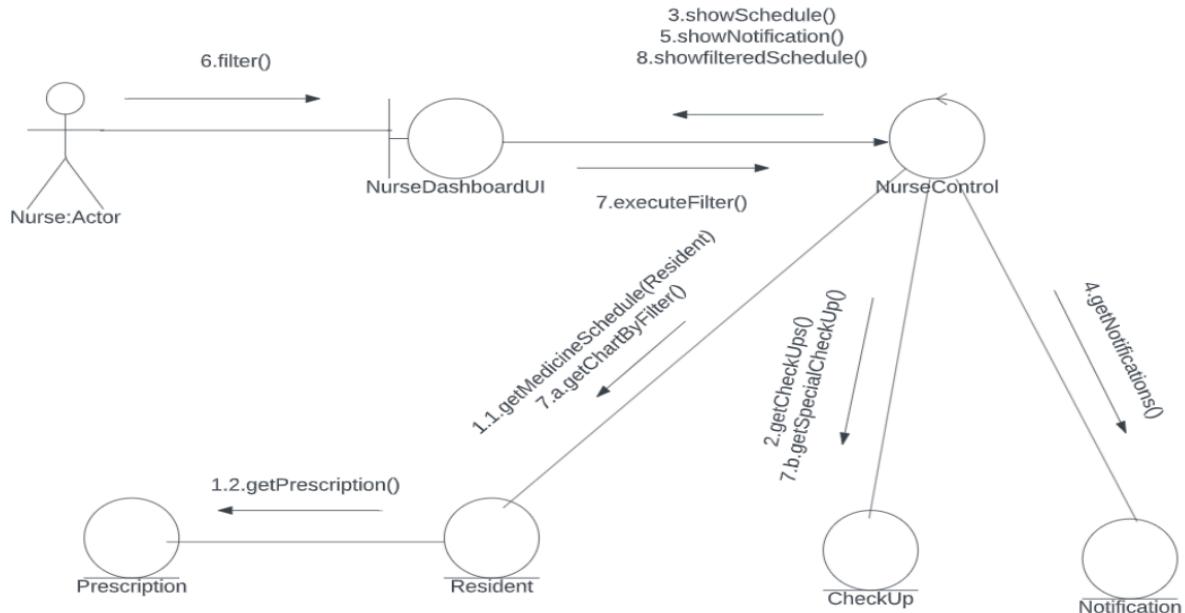


Figure: See schedule, Medicine Chart and Notifications

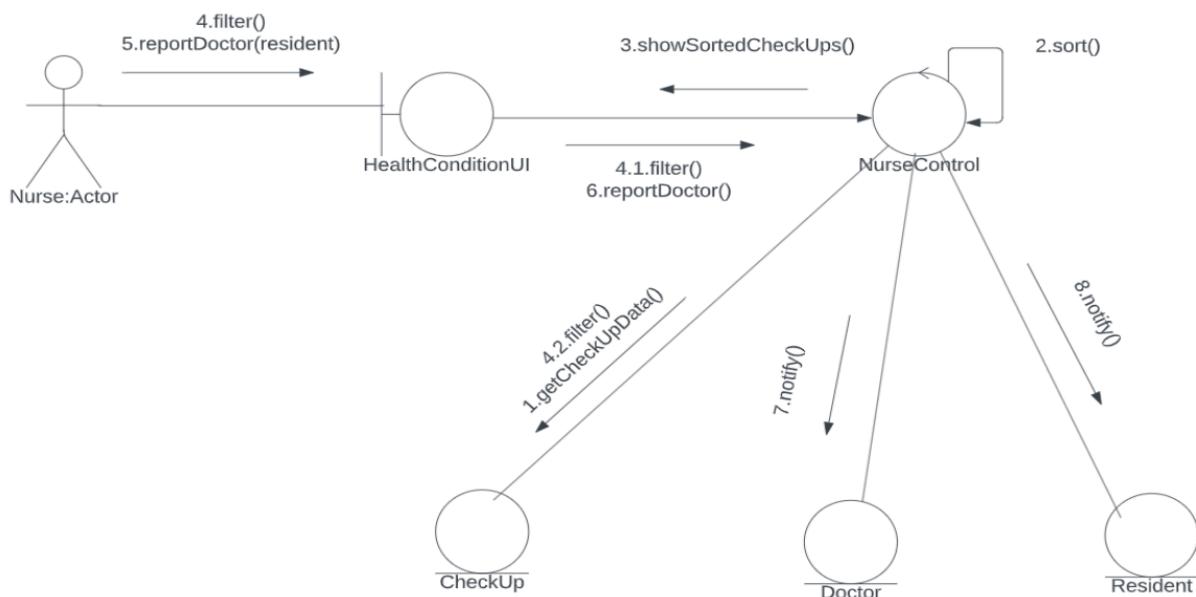


Figure: Get CheckUp Info and report to Doctor

- **Doctor Module:**

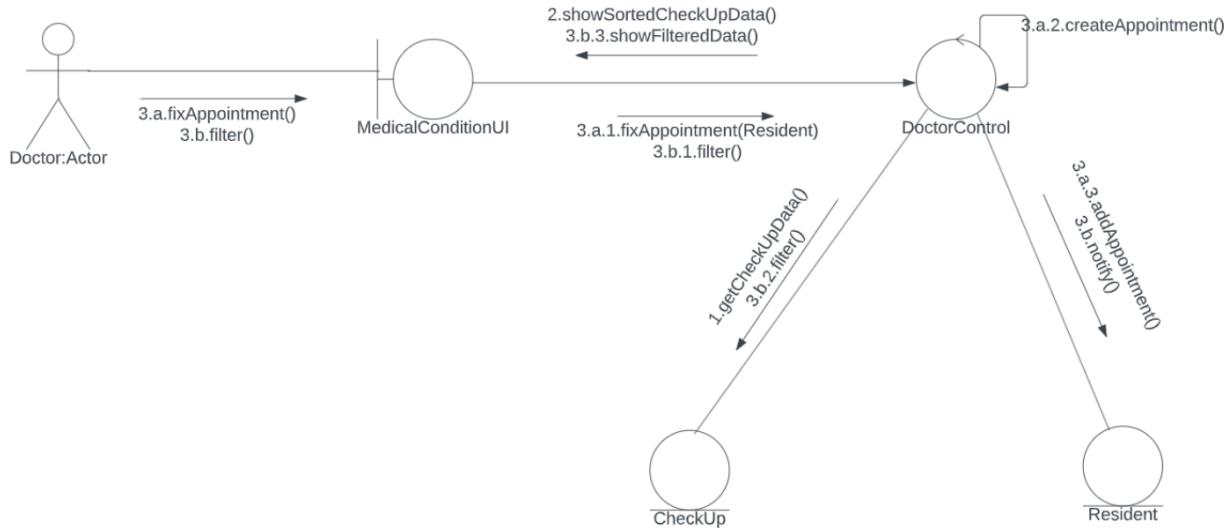


Figure: See Resident's Health condition and Appointments

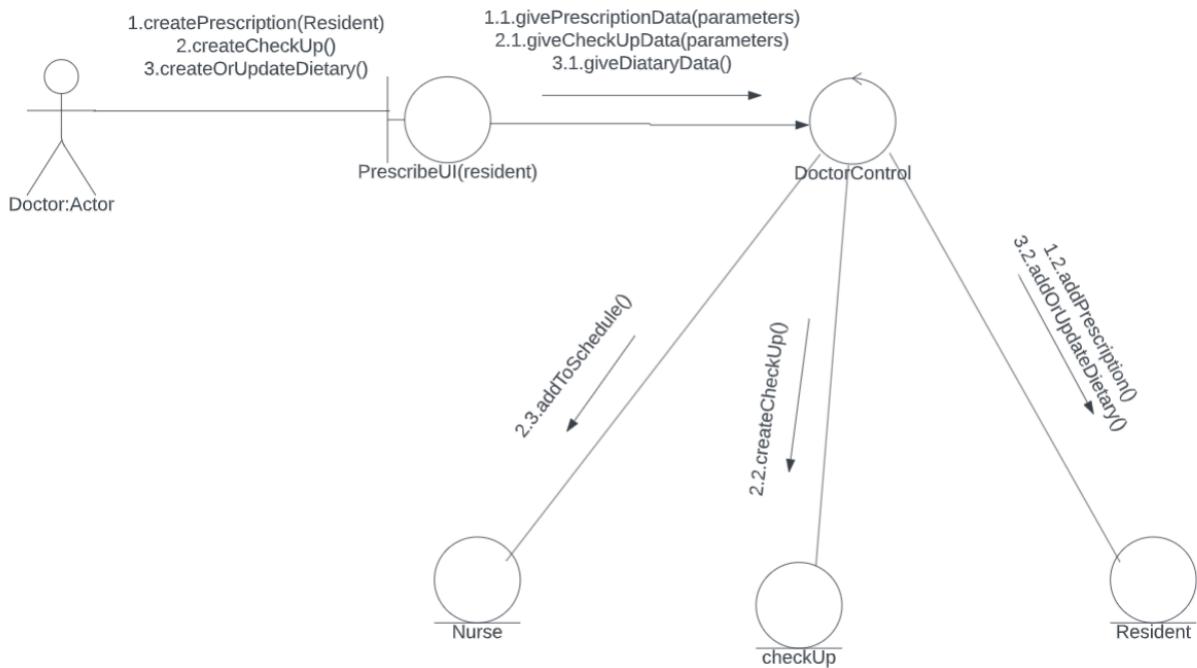


Figure: Setting prescription, checkup and dietary instructions

- **Meal Manager:**

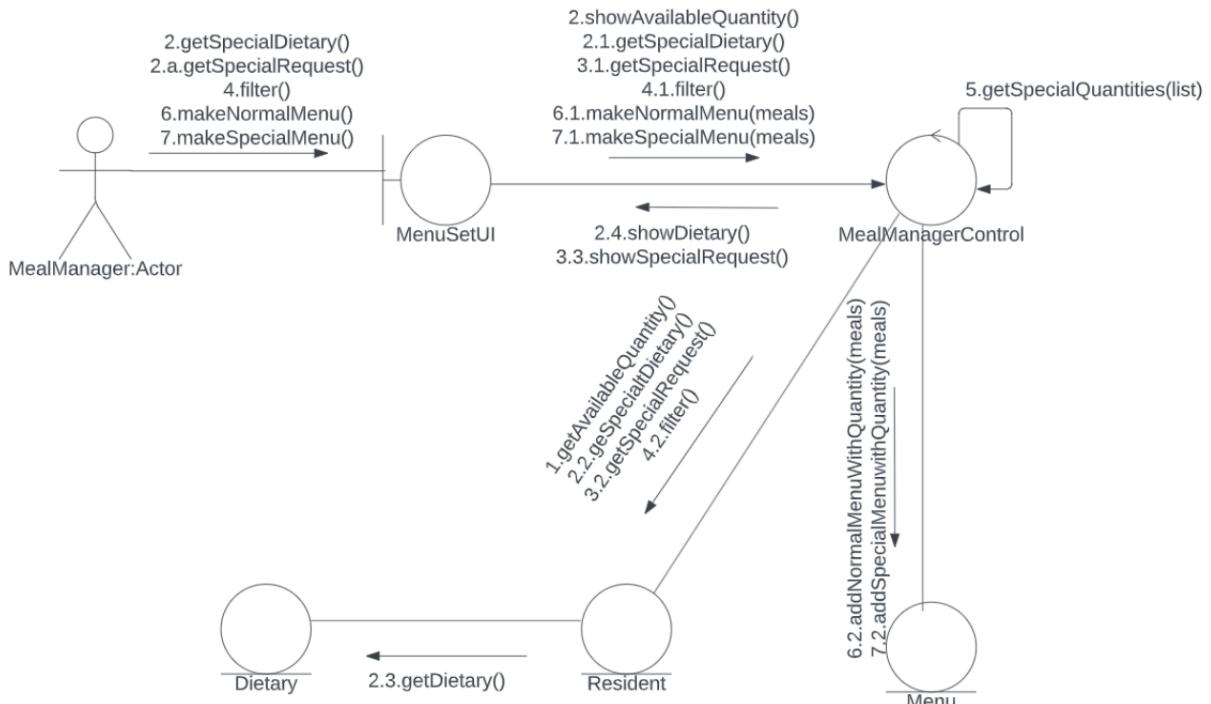


Figure: Create Daily Menu

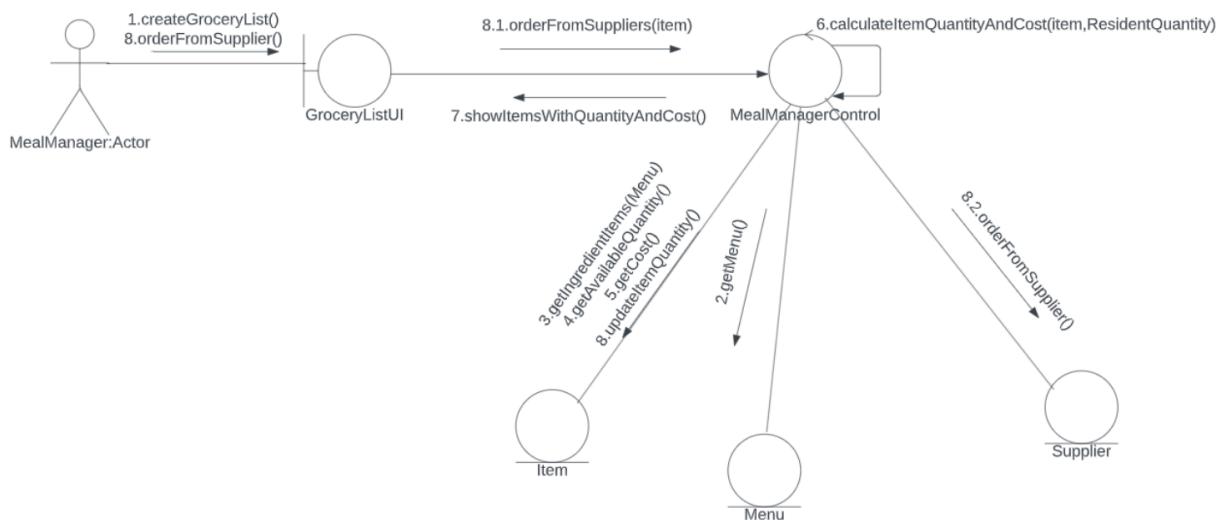


Figure: Create Grocery Lists

- **Resident Module:**

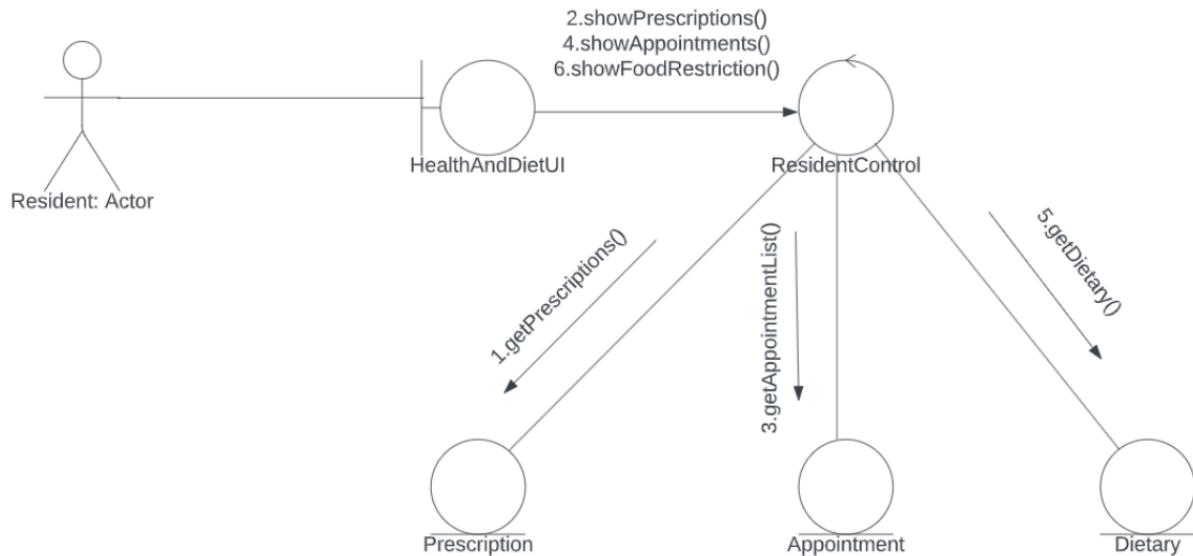


Figure: See medical information and appointments

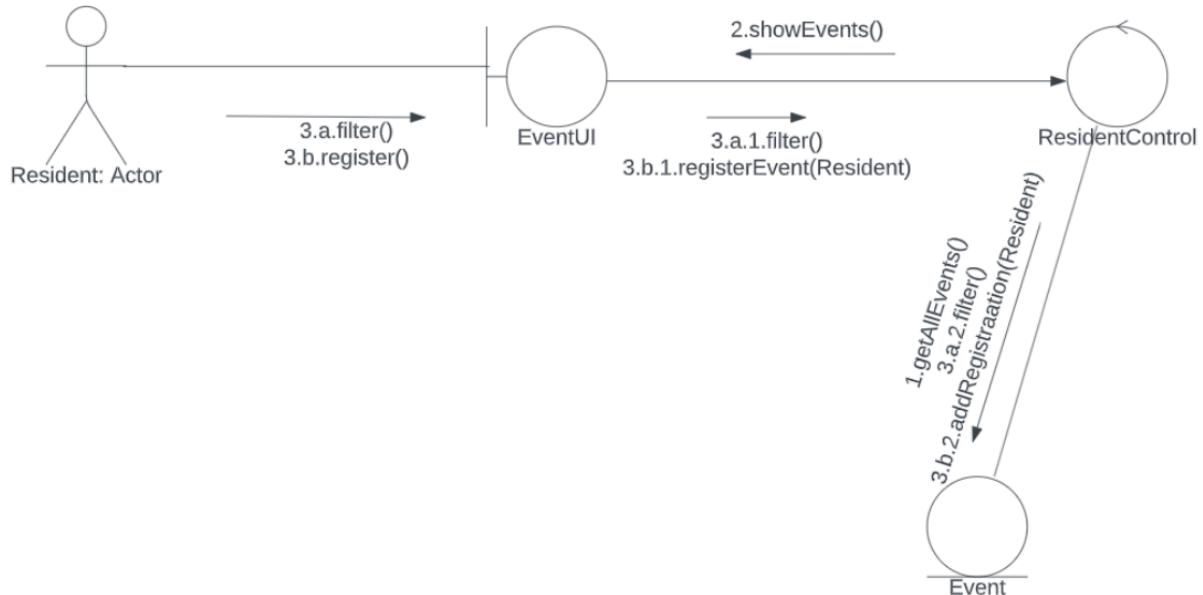


Figure: View and register for events

- **Admin Module (Event Management):**

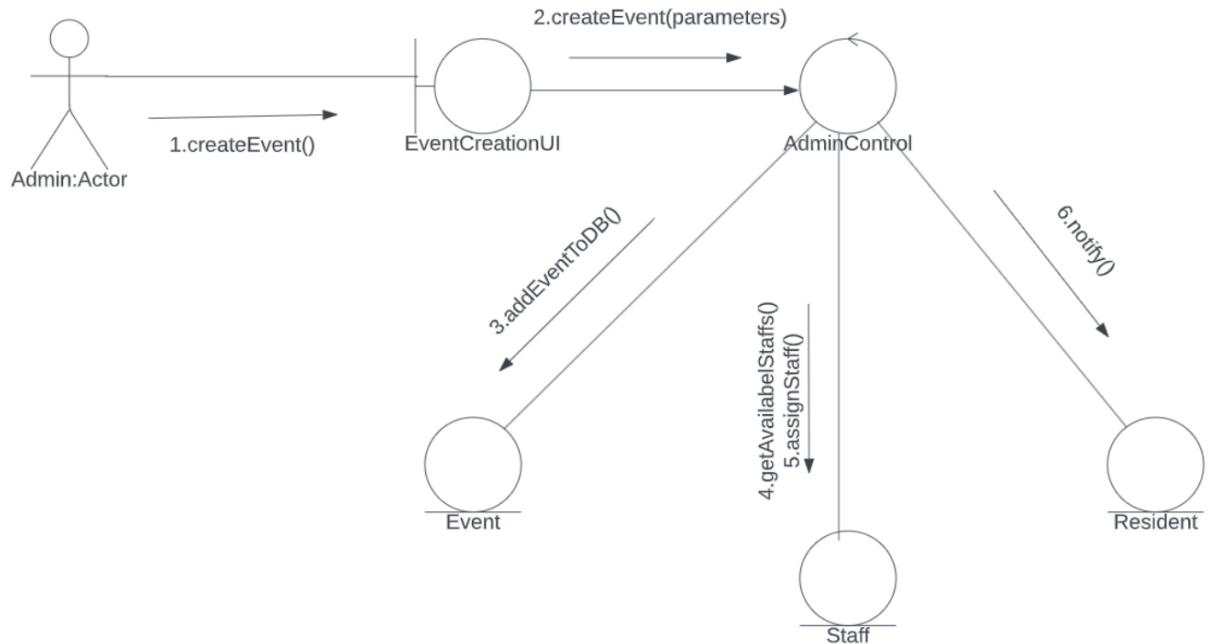


Figure: Create and manage events

Sequence Diagram + State Diagram

In our presented diagram, some problems were found regarding the sequence of meal management and grocery management. The sequence diagram has been corrected to avoid confusion regarding the processes that will occur automatically.

Changes In Sequence Diagram

- **Meal Manager:**

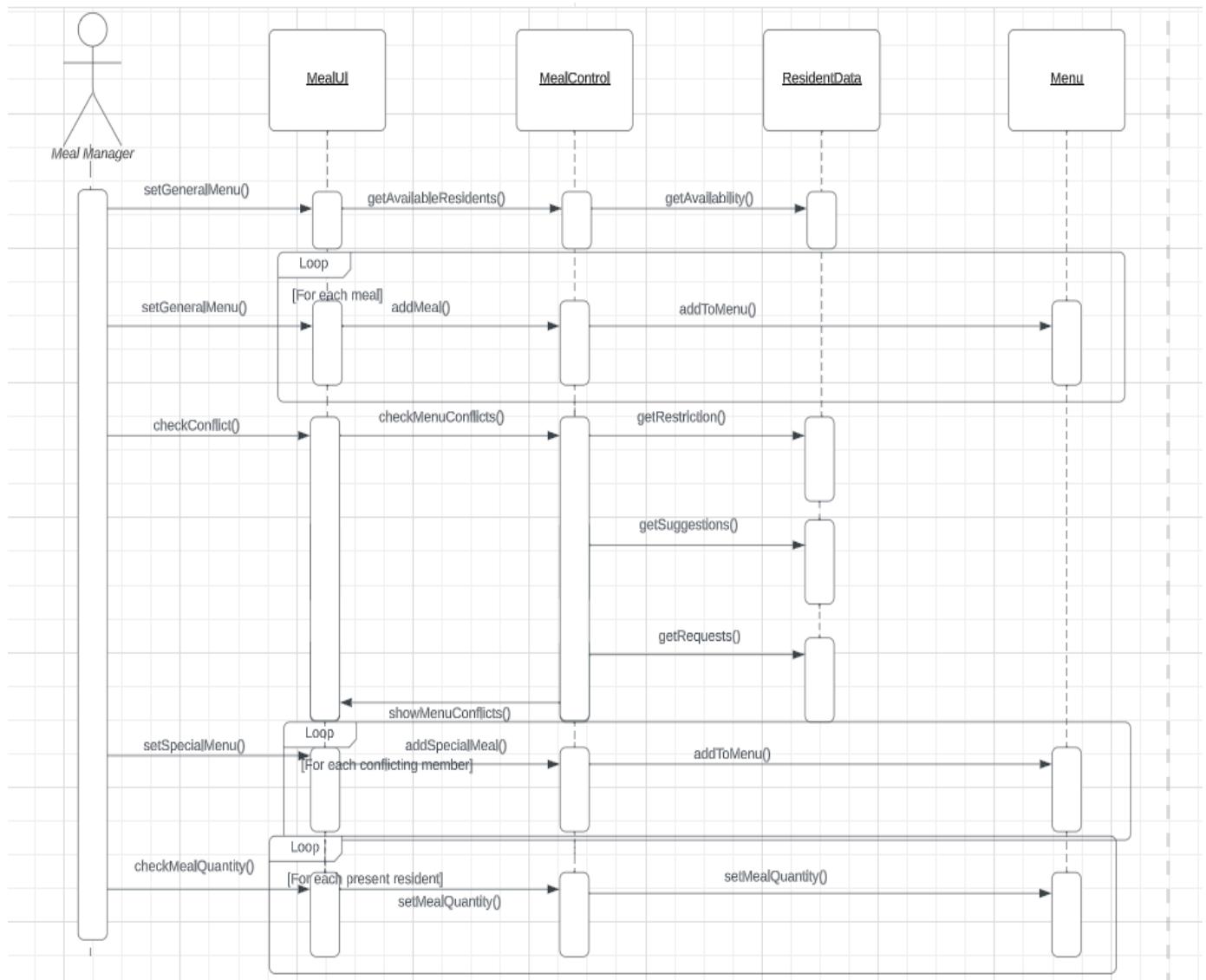


Figure: Making Daily Meal Plan

- **Grocery Manager:**

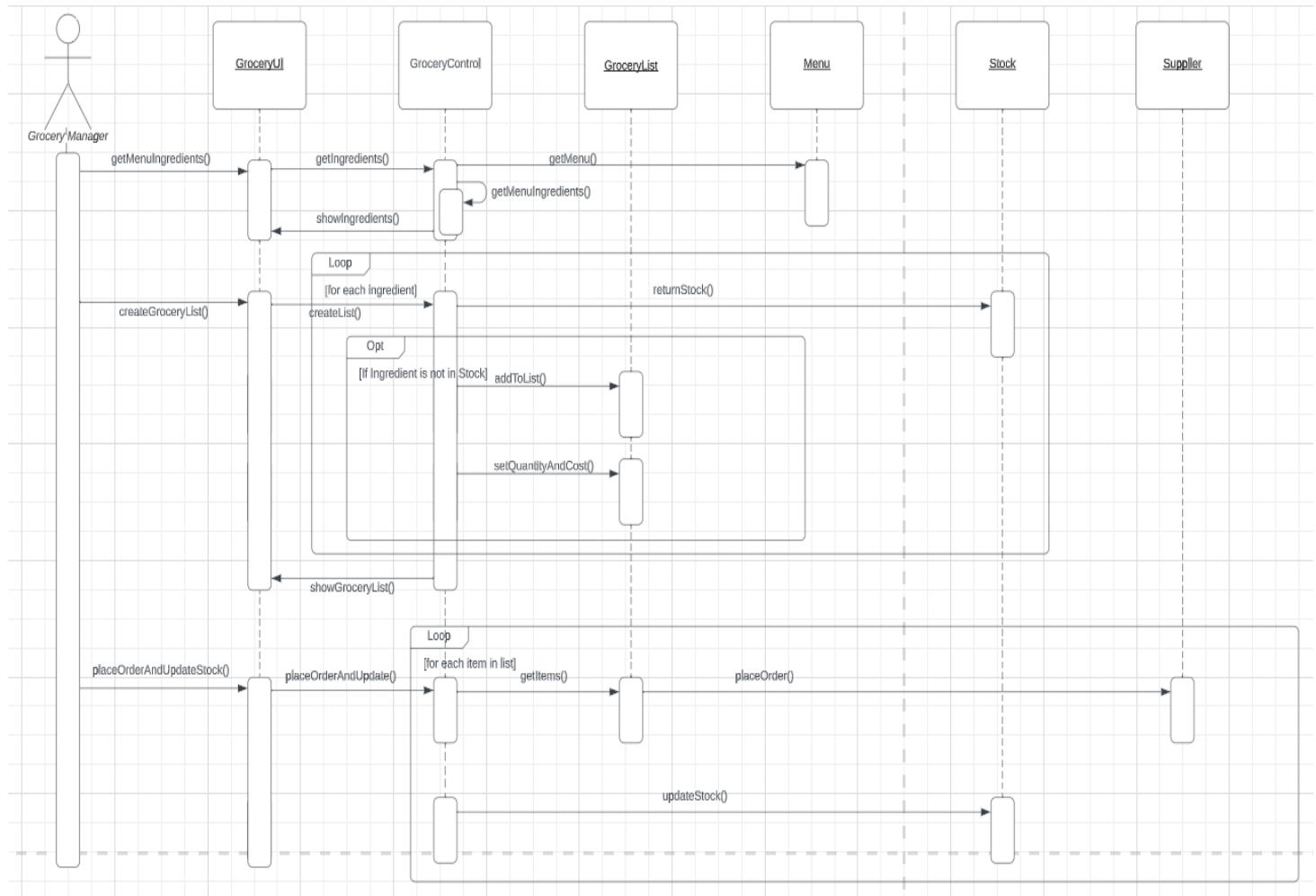


Figure: Creating grocery list

The other unchanged sequence diagrams are given:

- **Nurse Module:**

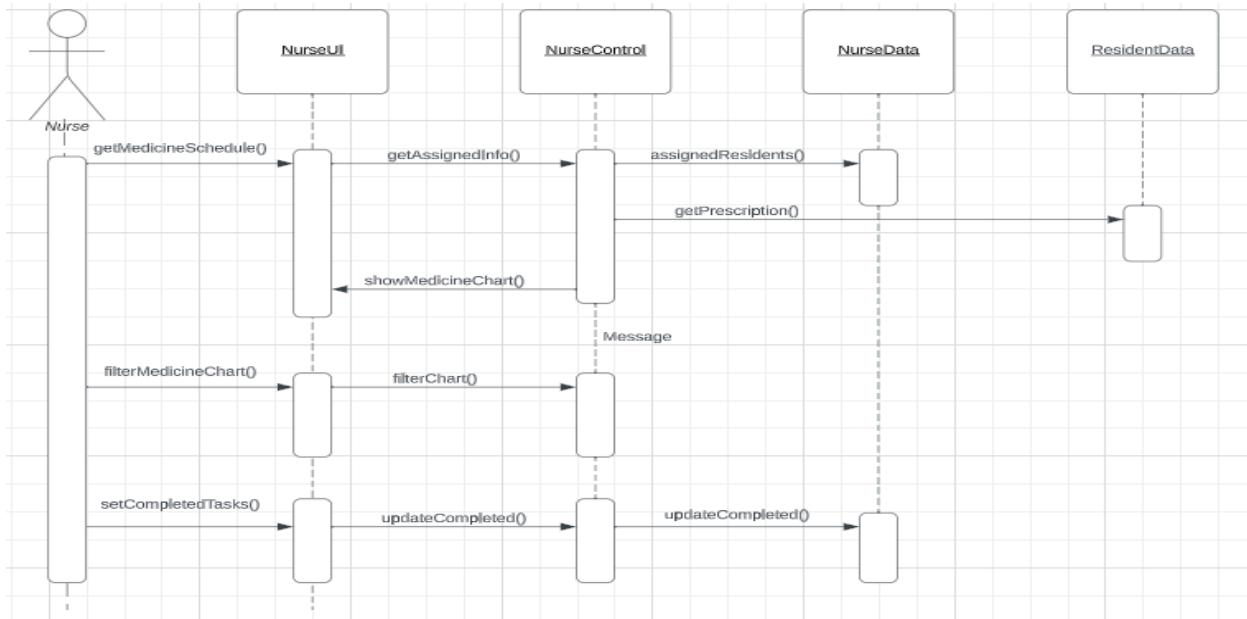


Figure: View tasks and medication table

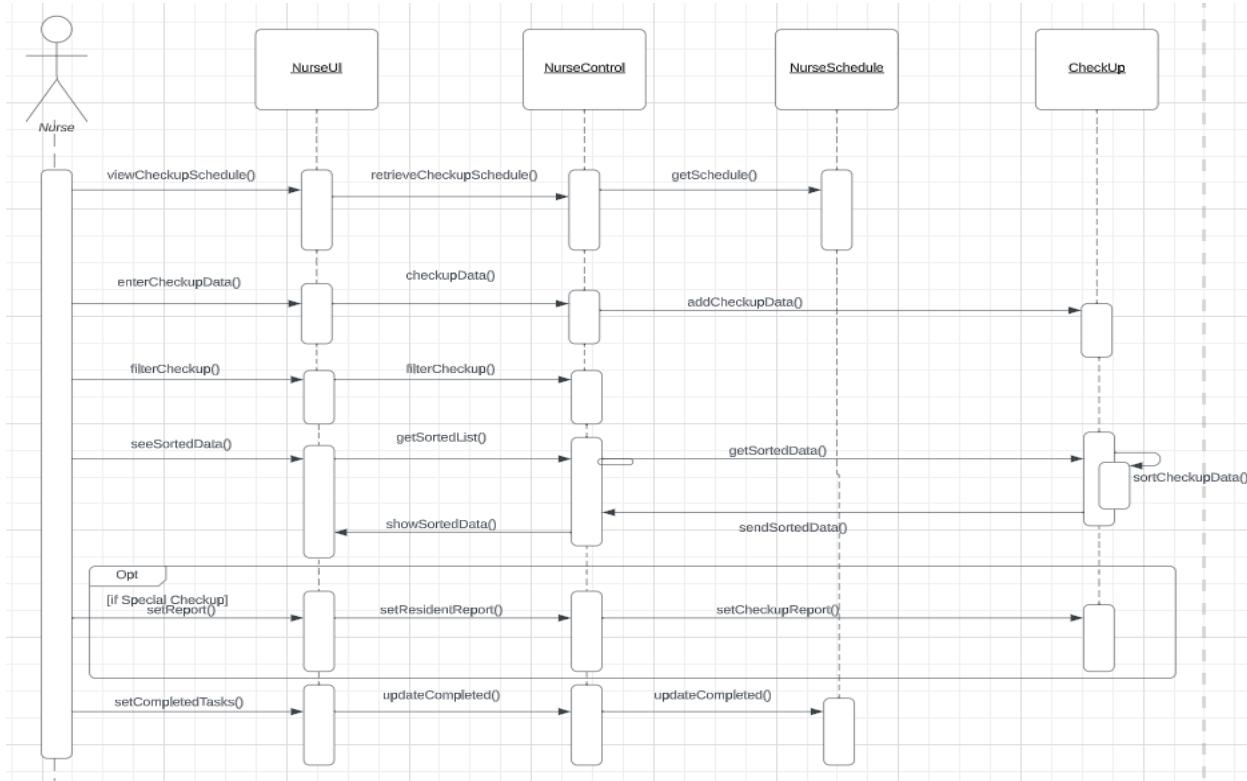


Figure: Enter Checkup data and see sorted data, set report

- **Doctor Module:**

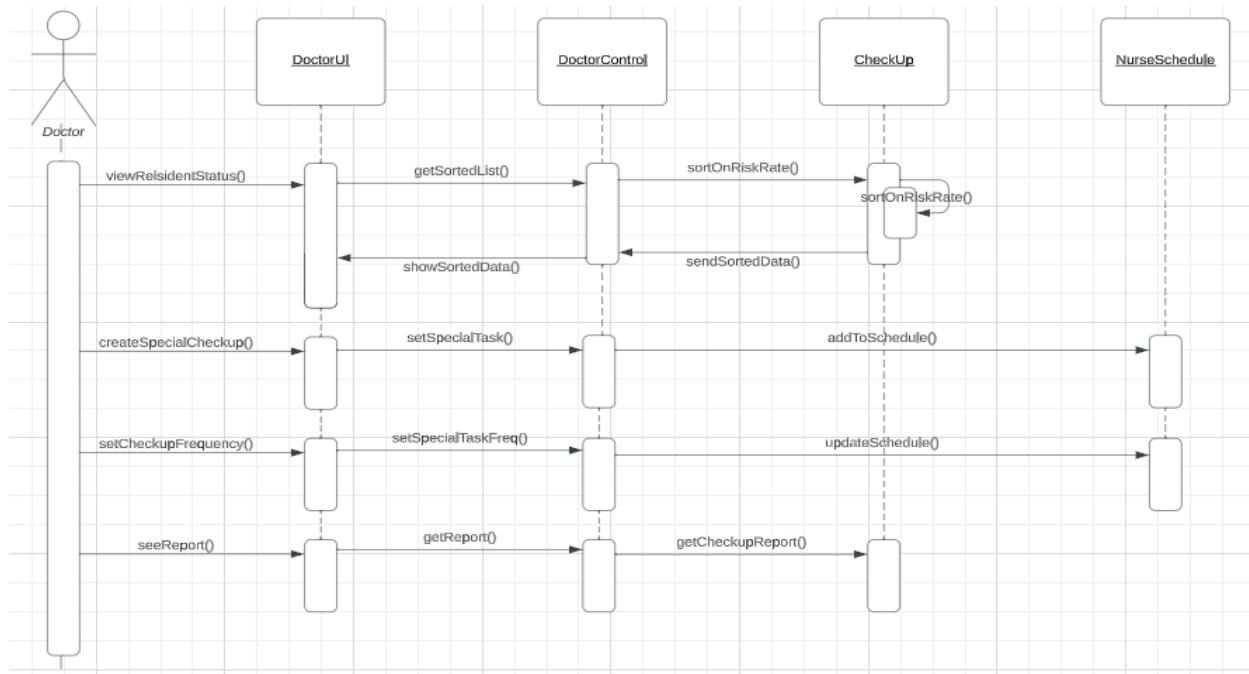


Figure: See resident health status, set special checkup and view report

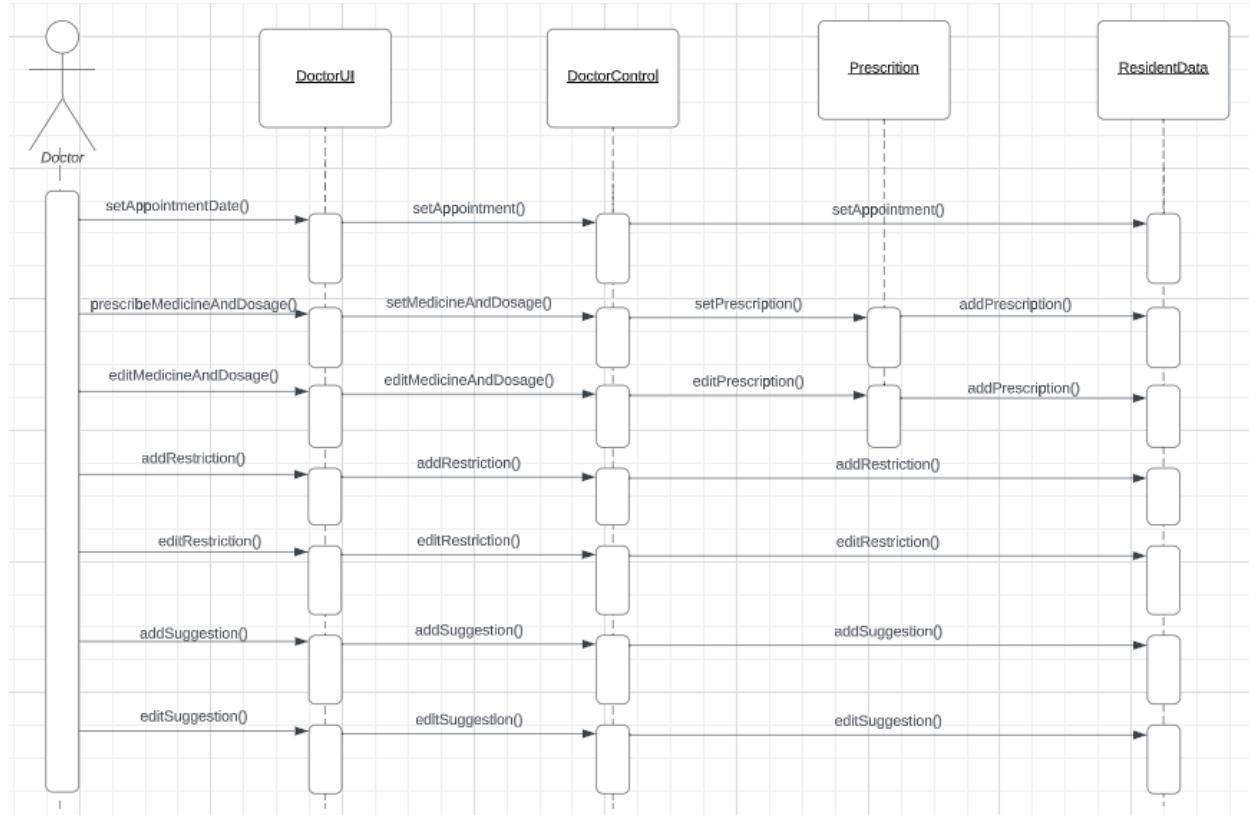
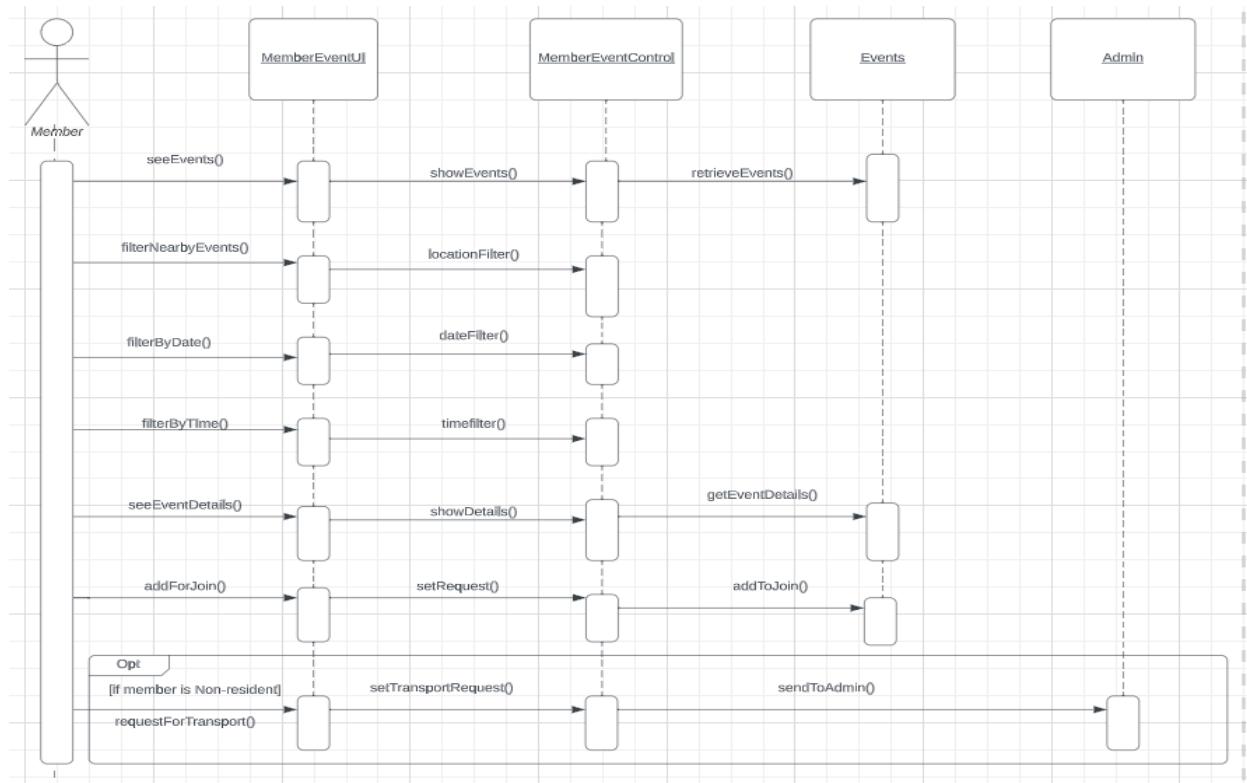
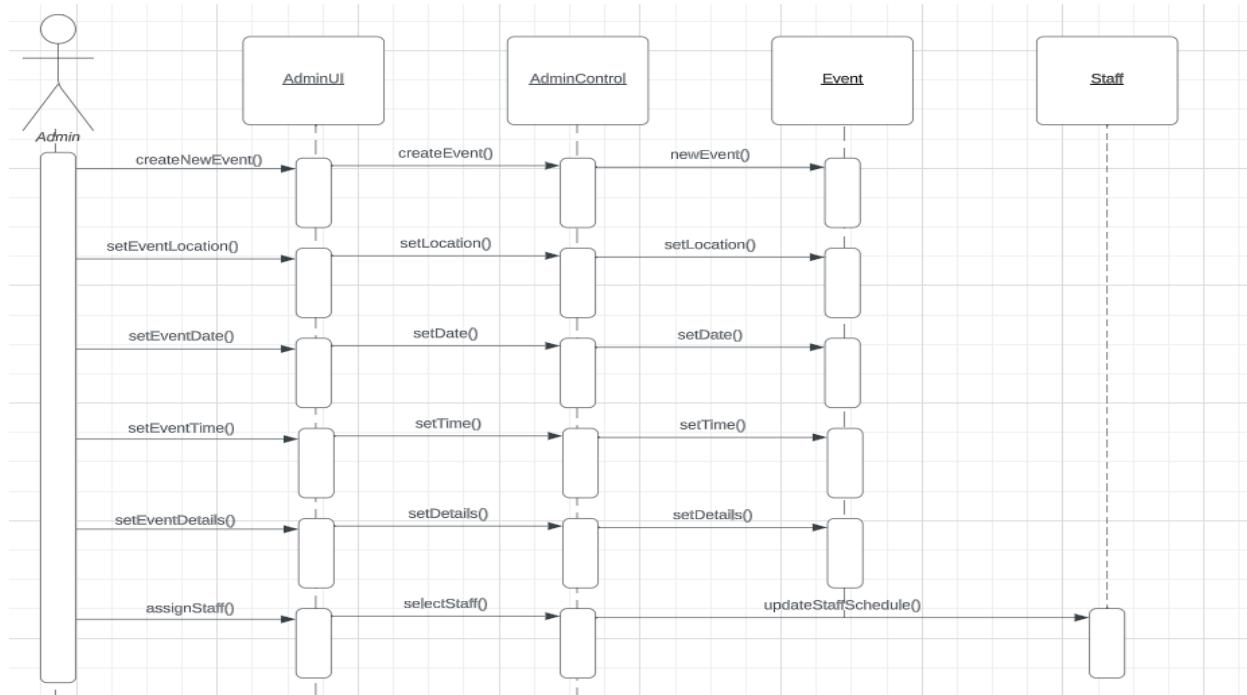


Figure: Set appointment, prescriptions, dietary restrictions and suggestions

- **Member Module (view and join events) :**



- **Admin Module (event management) :**



Changes in State Diagram

In the State Diagram, there were problems regarding naming of the states for the Menu object. Also, in the Checkup objects there were problems regarding the proper assignment of checkup. The corrected state diagram is shown below:

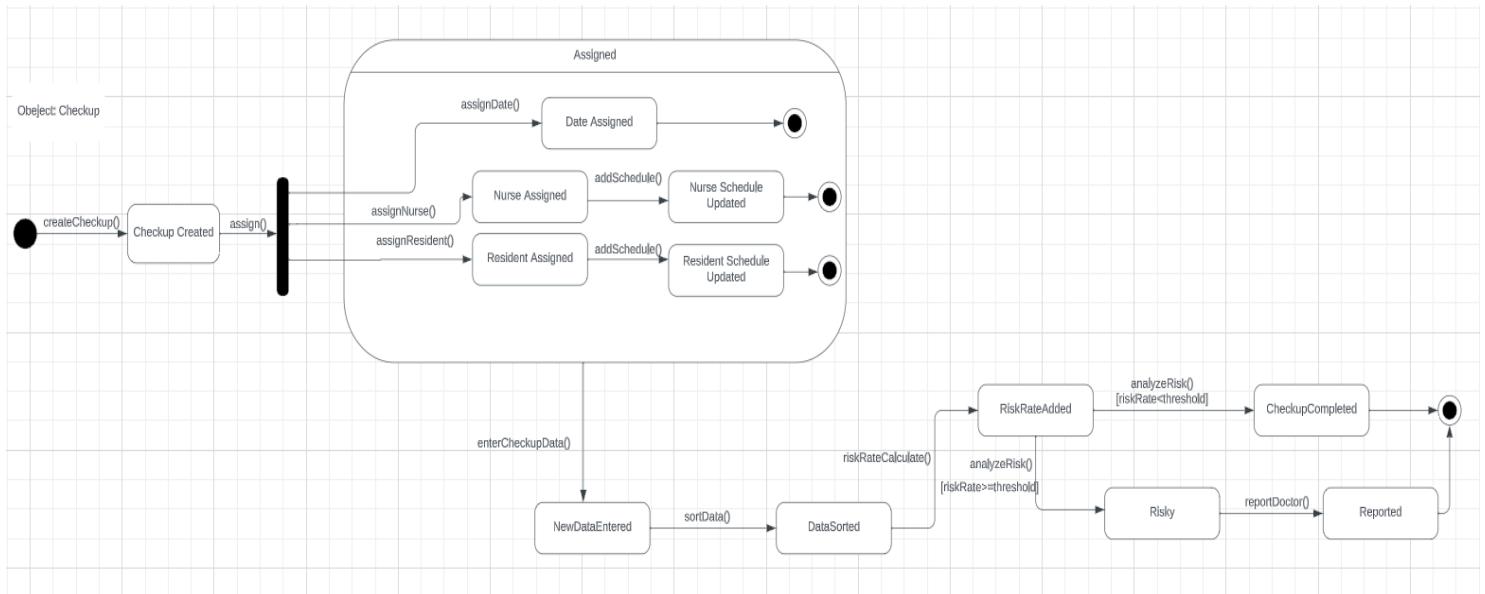


Figure: State Diagram of Checkup Object

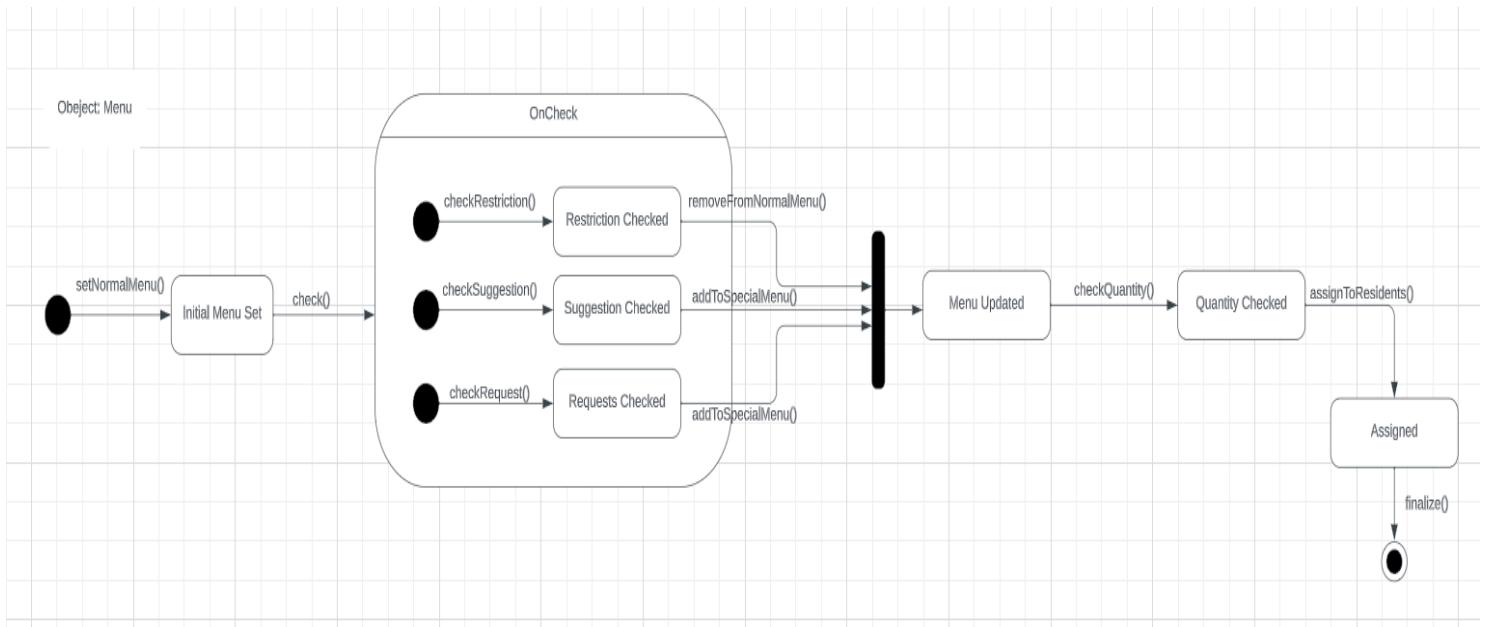


Figure: State Diagram of Menu object

Implementation

In our implementation of one working module, we implemented the Health module i.e Doctor-Nurse part.

- Framework : Django
- Frontend : HTML, CSS
- Backend : Python, SQLite3