



# UI/UX Design & Evaluation (5530)

CARE+

Deliverable A02

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## Title and General Description

- The application is named 'Care+'
- The application will aid the caregivers
- The application will include 7 main features:
  1. Nutrition
  2. Medicinal
  3. Sleep Patterns
  4. Statistical Feedback
  5. Fall Detection
  6. Emergency
  7. Patient Events
- End goal is to help people with memory problems by making their caregivers life easier

## Interview / Survey Questionnaire

### Survey Questions

#### iCare +

Questions Complimenting Assignment2

##### Gender

- ☐ Male
- ☐ Female

##### Age

- ☐ 18-27
- ☐ 28-37
- ☐ 38-47
- ☐ 48-57
- ☐ 58-67
- ☐ 68+

##### What is your highest qualification?

- ☐ High School
- ☐ Undergraduate
- ☐ Graduate or above
- ☐ Other: \_\_\_\_\_

##### Is the patient(s) a family member?

- ☐ Yes
- ☐ No

Does your patient(s) show symptoms of memory loss?

☐ Yes

☐ No

How many years have you been caregiving?

Your answer \_\_\_\_\_

What is maximum number of patients you handle simultaneously?

Your answer \_\_\_\_\_

How many hours do you spend with the patient(s) per day?

Your answer \_\_\_\_\_

How long have you been taking care of your current patient(s)?

☐ 0 - 6 months

☐ 7 - 11 months

☐ 1 - 2 years

☐ 3 - 5 years

☐ More than 5 years

☐ Other: \_\_\_\_\_

How many hours do you sleep every day?

Your answer \_\_\_\_\_

How many hours does the patient(s) sleep every day?

Your answer

How often does your patient have difficulty sleeping at night ?

- ☐ Never
- ☐ Rarely
- ☐ Often
- ☐ Usually
- ☐ Always

What meals does your patient(s) have in a day?

- ☐ Breakfast
- ☐ Mid-Morning Snack
- ☐ Lunch
- ☐ Afternoon Snack
- ☐ Dinner
- ☐ Evening Snack
- ☐ Other
- ☐ Other: \_\_\_\_\_

How much time do you spend on your patient(s)'s meals in a day?

- ☐ Less than an hour
- ☐ 1-2 hours
- ☐ 2-3 hours
- ☐ 3-4 hours
- ☐ More than 4 hours
- ☐ Other:

Does the patient(s) have dietary requirements? (e.g. Gluten-Free, Lactose Intolerant etc.)

- ☐ Yes (Please indicate below)
- ☐ No
- ☐ Other: \_\_\_\_\_

How many times on average does the patient(s) need their medication in a day?

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ More than 5
- ☐ Every hour
- ☐ Other: \_\_\_\_\_

How difficult is it to monitor patient's dosage?

	1	2	3	4	5	
Easy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Difficult

Does your patient(s) get aggressive/moody?

- ☐ Yes
- ☐ No
- ☐ Other: \_\_\_\_\_

Does the patient(s) wander around? (Move around aimlessly or sleepwalk)

- ☐ Yes
- ☐ No
- ☐ Other: \_\_\_\_\_

What is your approach towards your patient(s)?

	1	2	3	4	5	
Emotional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Professional

Do you or the emergency services get notified when there is an emergency? (SOS)

- ☐ Yes
- ☐ No
- ☐ Other: \_\_\_\_\_

Would you find it helpful to get feedback about your caregiving?

- ☐ Yes
- ☐ No
- ☐ Maybe



# Survey answers

**UI/UX Diagnosis Questionnaire**  
Questions Complimenting Assignment1

**1. Gender**  
*Mark only one oval.*

☐ Male  
☒ Female

**2. Age**  
*Mark only one oval.*

☐ 18-27  
☐ 28-37  
☐ 38-47  
☒ 48-57  
☐ 58-67  
☐ 68+

**3. What is your highest qualification?**  
*Mark only one oval.*

☐ High School  
☐ Undergraduate  
☒ Graduate or above  
☐ Other: \_\_\_\_\_

**4. Is the patient(s) a family member?**  
*Mark only one oval.*

☒ Yes  
☐ No

**5. Does your patient(s) show symptoms of memory loss?**  
*Mark only one oval.*

☒ Yes  
☐ No

**6. How many years have you been caregiving?**  
32 yrs \_\_\_\_\_

7. What is maximum number of patients you handle simultaneously?

1

8. How many hours do you spend with the patient(s) per day?

2-4 hrs

9. How long have you been taking care of your current patient(s)?

Mark only one oval.

- ☐ 0 - 6 months  
☐ 7 - 11 months  
☐ 1 - 2 years  
☒ 3 - 5 years  
☐ More than 5 years  
☐ Other: \_\_\_\_\_

10. How many hours do you sleep every day?

6 hrs

11. How many hours does the patient(s) sleep every day?

10-14 hrs

12. How often does your patient have difficulty sleeping at night ?

Mark only one oval.

- ☐ Never  
☐ Rarely  
☐ Often  
☒ Usually  
☐ Always

13. What meals does your patient(s) have in a day?

Check all that apply.

- ☐ Breakfast  
☒ Mid-Morning Snack  
☐ Lunch  
☒ Afternoon Snack  
☒ Dinner  
☒ Evening Snack  
☐ Other  
☐ Other: \_\_\_\_\_



14. How much time do you spend on your patient(s)'s meals in a day?  
Mark only one oval.

- ☐ Less than an hour  
☐ 1-2 hours  
☒ 2-3 hours  
☐ 3-4 hours  
☐ More than 4 hours  
☐ Other: \_\_\_\_\_

15. Does the patient(s) have dietary requirements? (e.g. Gluten-Free, Lactose Intolerant etc.)  
Mark only one oval.

- ☒ Yes (Please indicate below)  
☐ No  
☐ Other: Low Cholesterol

16. How many times on average does the patient(s) need their medication in a day?  
Mark only one oval.

- ☐ 1  
☒ 2  
☐ 3  
☐ 4  
☐ 5  
☐ More than 5  
☐ Every hour  
☐ Other: \_\_\_\_\_

17. How difficult is it to monitor patient's dosage?  
Mark only one oval.

- |      |                                  |                       |                       |                       |                       |           |
|------|----------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------|
|      | 1                                | 2                     | 3                     | 4                     | 5                     |           |
| Easy | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Difficult |

18. Does your patient(s) get aggressive/moody?  
Mark only one oval.

- ☒ Yes  
☐ No  
☐ Other: moody

19. Does the patient(s) wander around? (Move around aimlessly or sleepwalk)

Mark only one oval.

☐

Yes

☒

No

☐

Other: \_\_\_\_\_

20. What is your approach towards your patient(s)?

Mark only one oval.

1

2

3

4

5

Emotional

☒☐☐☐☐

Professional

21. Do you or the emergency services get notified when there is an emergency? (SOS)

Mark only one oval.

☒

Yes

☐

No

☐

Other: \_\_\_\_\_

22. Would you find it helpful to get feedback about your caregiving?

Mark only one oval.

☐

Yes

☐

No

☒

Maybe

Powered by



Google Forms



## Interview

Interview Conducted with Mr. Terrence Goldsmith at MN119, McNelly Building, Saint Mary's University, Halifax, Nova Scotia at 14:30 PM, 29<sup>th</sup> October 2018.

We conducted an interview with Mr. Terrence Goldsmith, a faculty member at Saint Mary's University, NS. Mr. Goldsmith works as a caregiver at Northwood Homecare Centre and has caregiving qualifications. Mr. Goldsmith also took care of his father who was not well for a long time. He spoke to us about his past experiences and provided numerous inputs from which we have recorded the most valuable points below:

1. Mr. Goldsmith told us that the feature of having a meal reminder was redundant as a caregiver would not forget to give a meal to a patient. However, he did feel that it was a necessity to have a feature where the caregiver can tick off the various components of a meal. This was needed as caregivers sometimes forgot to give part of a meal to a patient. We have modified our meal reminder feature accordingly.
2. Mr. Goldsmith felt that there was a need for having general statistics about caregivers recorded from the various users which would be compared with how long he took on certain tasks. Since Mr. Goldsmith worked at Saint Mary's University as a Software Engineering faculty member, he understood the technological backing our app required and what was possible. Mr. Goldsmith suggested that having generalized statistics derived from all the caregivers using our app and comparing it with his own statistics would be quite useful. An example given was how long it took him to complete a meal with his patient versus the average time to complete a meal by a caregiver in general.
3. Lastly, Mr. Goldsmith stated that we needed a GPS tracking feature and was very important. We expressed to him that these features were privacy intrusive and should be considered with caution. However, Mr. Goldsmith convinced us that this feature is needed as it is something that can save an individual's life when used. He also agreed with the similarity of it being like a fire extinguisher, where one hopes to never use the item but is glad it exists.

# Analysis

## List of requirements

### 1. Functional

The application assists the caregiver in managing patient(s) through means of a variety of functionalities including managing medication, meal prep organizer, sleep tracking, calendar synchronization and real time patient geolocation signaling. Users of the application will fall into 2 categories. Professional caregiver and non-professional caregiver. Some of the features will be tailored based on the caregiver category.

- **Managing Medication:** The medication list and dosage requirements for each patient will be recorded. This data will be used for making medication tracking easier for the caregiver.
- **Meal Prep Organizer:** The application will provide patient specific recommendation with minimum input. As the input size gets larger the relevancy will increase. The recommendations will be optimized by considering the patient's needs, taste and ease of preparation.
- **Sleep tracking:** Sleep tracking will monitor sleeping cycle for each patient for the caregiver and notify any abnormalities. Additionally, application will be displaying patient's real-time sleep by monitoring the heart rate.
- **Calendar Synchronization:** The calendar functionality will take reminder, goal and behavioral input. The caregiver will get notified later on, as well receive statistical feedback based on these inputs. The patient will also be able to create calendar notes through voice memo's by using their smart watch. This feature will address aiding the short-term memory issues of the patient.
- **Real Time Patient Geolocation signaling:** This feature will be kept optional for the privacy concerns. When turned on, it will enable caregiver to dynamically track patient(s)'s location.

## 2. Data

Feedback gathered from interviews and surveys have directed the team to develop features that align to the caregiver's requirements for both categories. The following have been inferred from the questionnaires deployed:

- Most of the memory patients have special dietary requirements
- Managing patient's medications and dosages is a moderately challenging task
- Patients usually have trouble sleeping at night and caregivers can't get enough sleep
- Patients often have mood swings and gets aggressive and moody
- Caregivers sampled say that emergency services get notified during an emergency.

## 3. Environmental

Since significant portion of the users of the application will be professionals in a hospital setting, emphasis must be placed on the app being non-intrusive to patients and medical staff. To meet with this requirement:

- Notifications are kept silent except for emergencies.
- We require data connectivity, through Wi-fi or mobile networks to ensure that the app is synchronized with the latest inputs from the caregiver and patient(s).

## 4. User

The end user of our application is the caregiver of the memory loss patients. The application gives flexibility to the caregiver by offering them advanced customization setting.

## 5. Usability

The application assumes a moderate degree of comfort with technology on the side of the caregiver. The application is paired with a smart watch on the patient's side. The patient's interaction with the watch is kept on the most intuitive and simple level.

The application is designed for a mobile interface. Mobile application usability and simple interface make it easy for the caregiver for getting used to the application quickly. User testing can be carried out in later phases and be iteratively added to the application.



# Design thinking process

## Persona

### Personal Info

- Name: Susan McCormack
- Age: 35
- Working Mother
- Lives in Toronto
- Social, Strong, Energetic, good with people
- Husband owns a cleaning company

### Professional Life

- Certified Nurse.
- Monitors 10 patients
- Looks after patient's meals, medicine and personal needs.
- Drives 2-3 hours every day depending on traffic
- Works overtime
- She needs improve herself with special training for different patients.

### What Do They Do

- General Nurse by Profession
- Tech-Savvy, loves being up to date on tech news
- Uses apps for daily routine
- Is pleased when her patients show progress
- Does household chores after work

## Temperaments

- Compassionate
- Stresses easily
- Goes to psychologist

## Life Away from Work

- Enjoys weekend brunches with her friends
- Hires a babysitter to take care of her children
- She likes to listen to music, play guitar, play hockey, read novels
- Weekday morning routine includes cooking, getting kids ready for school
- She has a pug named Bruno
- Weekends are quite busy catching up with family and friends in general

## Her Needs

- Needs certifications to get promoted
- Needs a vacation every year to a sunny location
- Needs to lead her day in an organized fashion
- Needs to spend time alone at times with her thoughts

## Empathy Path (Say, Think, Do & Feel)

### Say

#### *Study*

- I need to be a better nurse for my career growth
- I need to study more for better qualifications

#### *Self-Management*

- I want to get at least 7 hours of sleep
- I need to spend more time with my children
- I need to work better hours
- I need to get back home in time to see my children

#### *Interests*

- My favorite movie series is Star Wars
- I want to watch the Maple Leaf game tonight

#### *Others*

- I need to take my dog to the vet
- I want to visit my psychologist
- I go brunching on Saturdays to socialize with my friends
- I cannot imagine surviving a day without the help of my tracking help

## Think

### *Lack of time*

- It is difficult, but I can manage my work-life balance
- I wish I would get more time to study
- I always help way too much people
- I don't think I can make it to my psychologist this week
- I need to spend more time with my husband
- I think I might not be able to get much sleep
- I think my patients need me
- I think I am not going to complete my courses

### *Personal*

- I think people need to be more compassionate
- I wish my family is okay with me being busy always at work
- I will miss the next vet appointment
- I wonder how it would be like living outside the city

### *Hobbies*

- I want to listen to music
- I want to read a book
- I want to play guitar
- I need more time for hobbies
- I want to finish watching game of thrones

Do

### *Time Management*

- She doesn't get time to socialize
- She doesn't get time for hobbies

### *Professional Life*

- Changes patients' medications
- Administer morning medicines
- Keeps track of patient's schedule
- Tracks new medicine given by doctors to various patients

### *Hobbies*

- Read novels by James Patterson
- Take Bruno for a walk after dinner
- Watch Clone Wars

### *Others*

- Get 4 hours of sleep
- Reads tech blogs
- I do care about my children's ideas

## Feel

### *Wishes*

- I wish I lived nearer to the hospital
- I wish my husband appreciated my efforts more

### *Feelings*

- I feel overwhelmed
- I feel I need to be better at my job
- I love my family more than anything

### *Positives at Work*

- She feels happy when a patient's treatment is successful
- I bond with my patients

## As Is Scenario Map

### Medicinal

- Administers medicines
- Checks in on patients
- Helping patients with physical needs
- Managing medicines is tough

### Dietary Requirements

- Pass dietary requirements to the kitchen
- Get dietary requirements from the doctor
- Hard to keep track of patient dietary requirements
- I hope I don't make a mistake
- Sometimes patients don't understand that it is for their well-being

### Interaction

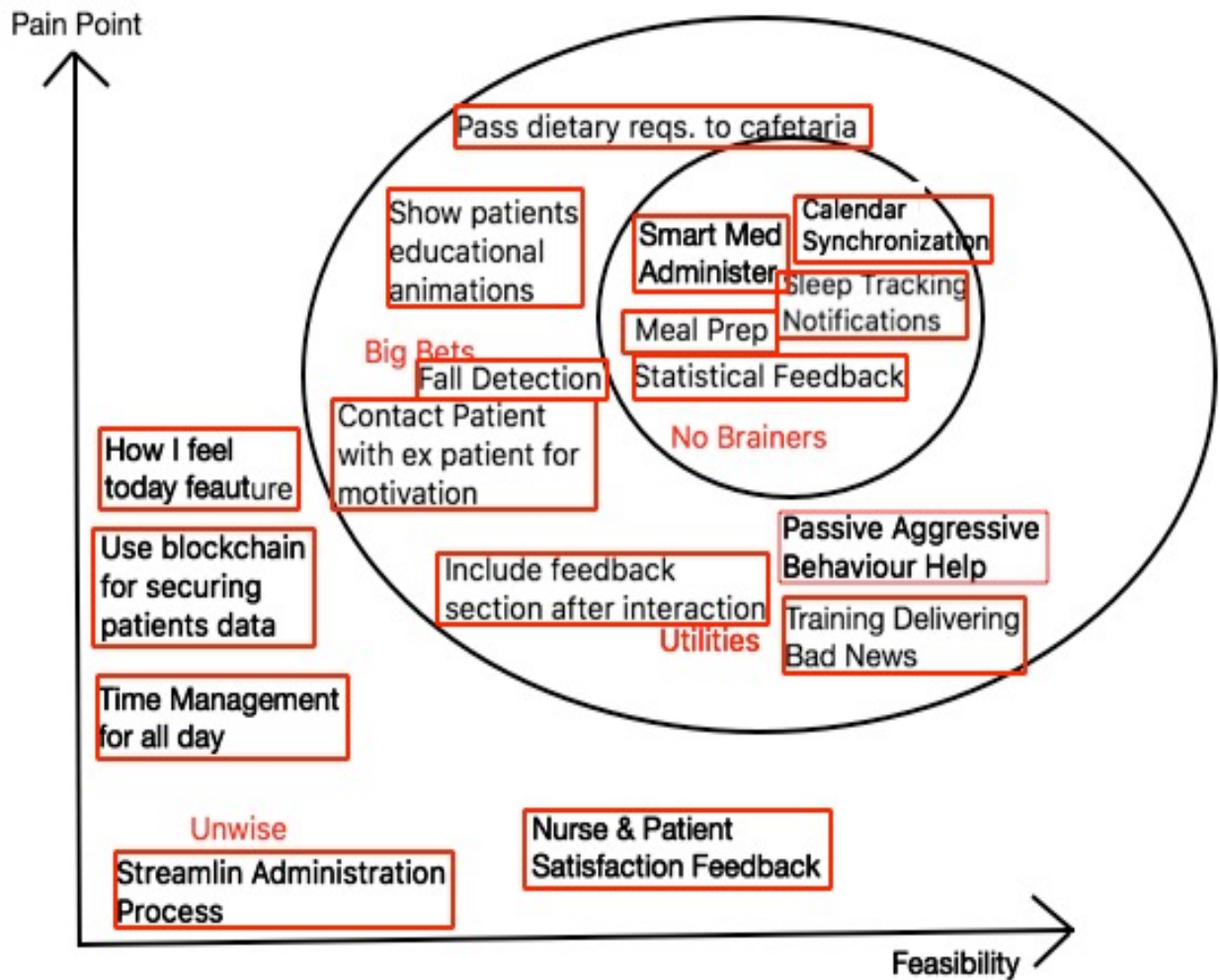
- Asks patient about their sleep
- Checks in on patient
- Guide patient about a medical procedure
- Get medical consent from doctor
- How to be more sensitive on their vulnerabilities
- How do I make them understand?
- How do I deliver the bad news?
- I bond with my patients well
- Feels happy when patient's operation is successful
- I feel I should be less empathetic
- I should be more professional

## Personal

- Getting the kids ready for the school
- Cook for family
- Feeding the dog
- Study for at least 1 hour before going to the bed
- Drive to hospital
- Stop for fuel
- Very little time for family
- I think I spend too much time travelling
- I have too much to study
- I may not be able to study with my schedule
- I feel overwhelmed
- I feel great if I can keep right pace with study
- I will be able to finish special course in time
- Thinking about what to cook
- I will find traffic on my way
- Should I get a self-driving car?
- Should I move closer to the hospital?
- I might be neglecting my children
- I feel I could spend time better
- Stressed in traffic
- Anxious about forgetting household chores



## Ideas mapped on feasibility/pain-points plane



## Sketches

A hand-drawn sketch of a login page. At the top, the text 'CARE+' is written in a large, simple font. Below this, the word 'Login' is written to the left of a horizontal rectangular input field. Directly below the first field, the word 'Password' is written to the left of a second horizontal rectangular input field. Below the password field, the word 'SUBMIT' is enclosed in a small rectangular box. Underneath the 'SUBMIT' box, the text 'forgot Password?' is written. At the bottom of the sketch, the text 'Don't have an account?' is written, with 'Sign up' written directly below it.

Figure1. Login Page

①

MED TRACKING

Patient <input checked="" type="checkbox"/>	MEDICATION	DOSAGE
-	-	-
-	-	-
-	-	-
<input type="text" value="+"/>	<input type="text" value="+"/>	<input type="text" value="+"/>

EDIT TABLE ENTRIES

MED	MEAL	EVENTS	SLEEP	STATS
-----	------	--------	-------	-------

Figure2. Medicine Page UI Sketch

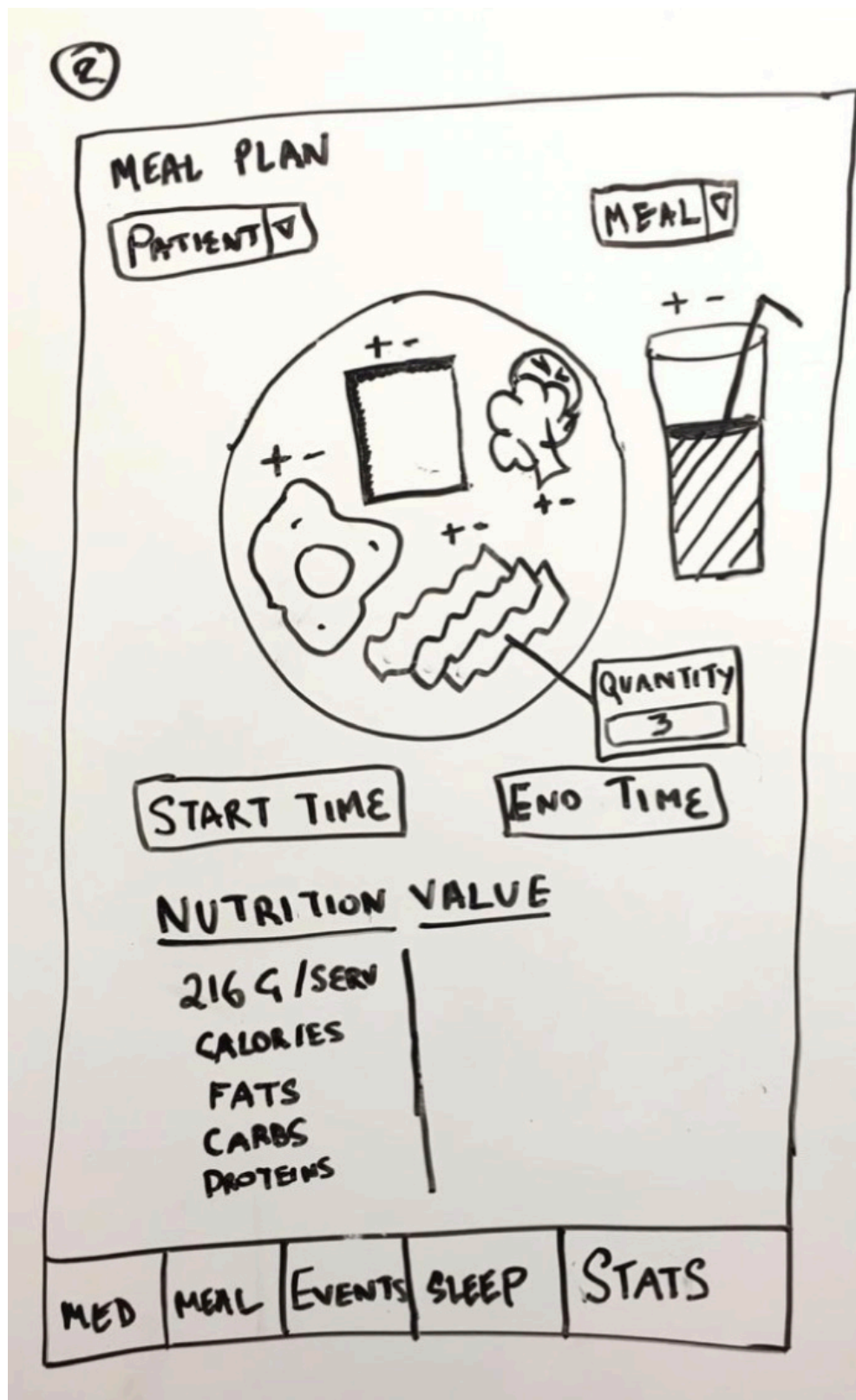


Figure3. Meal Page UI Sketch



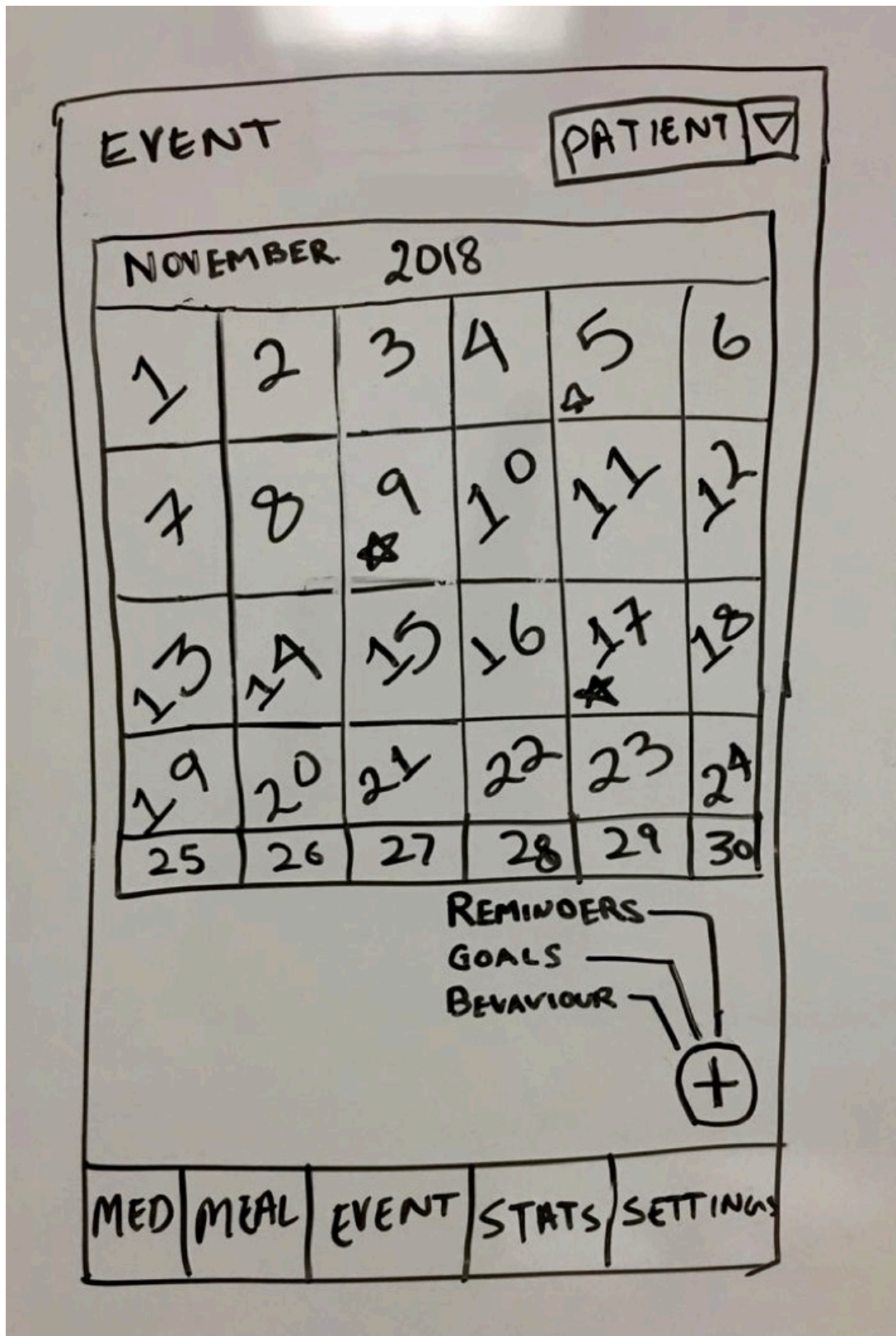


Figure4. Event Page UI Sketch

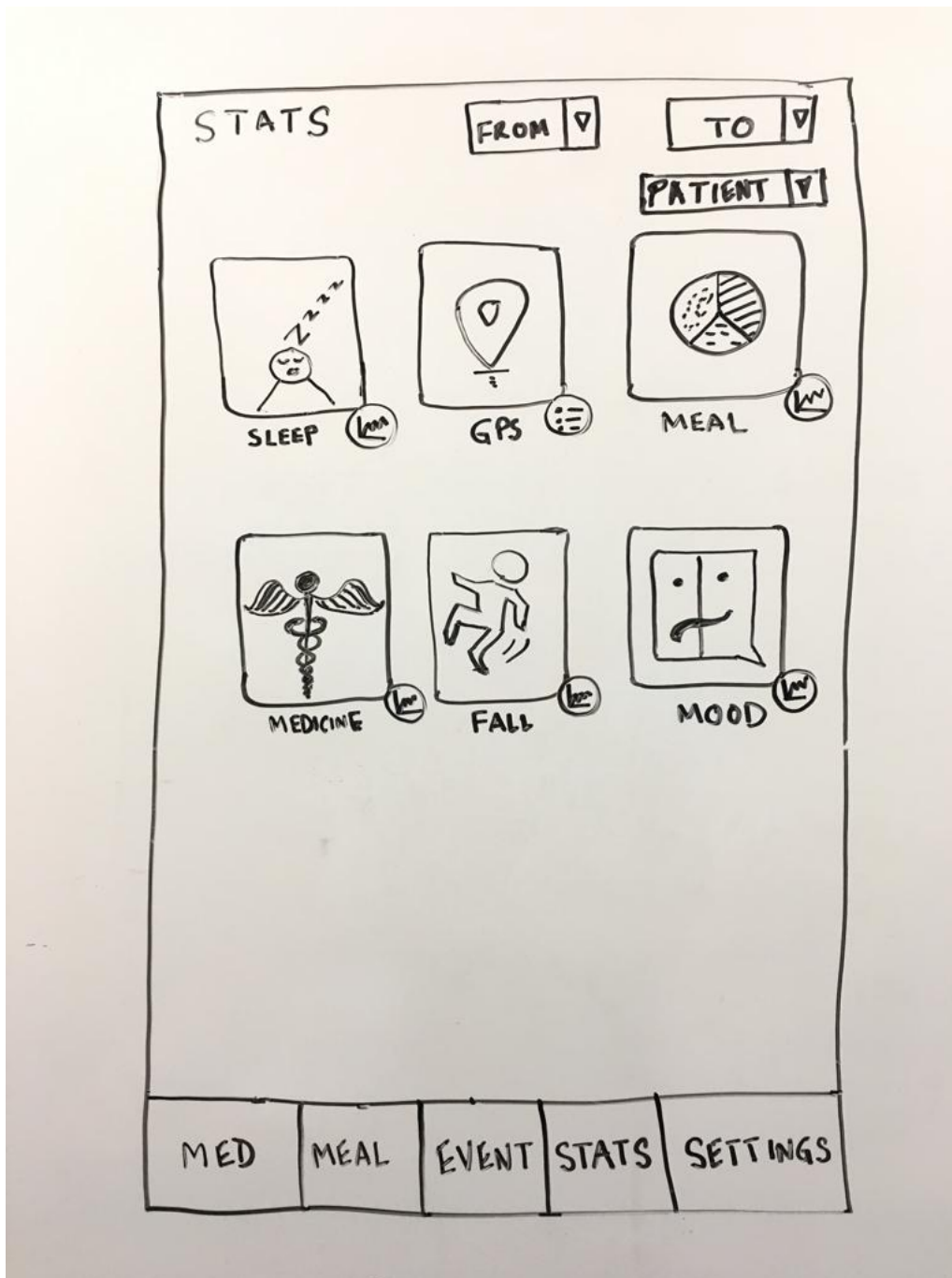


Figure5. Stats Page UI Sketch

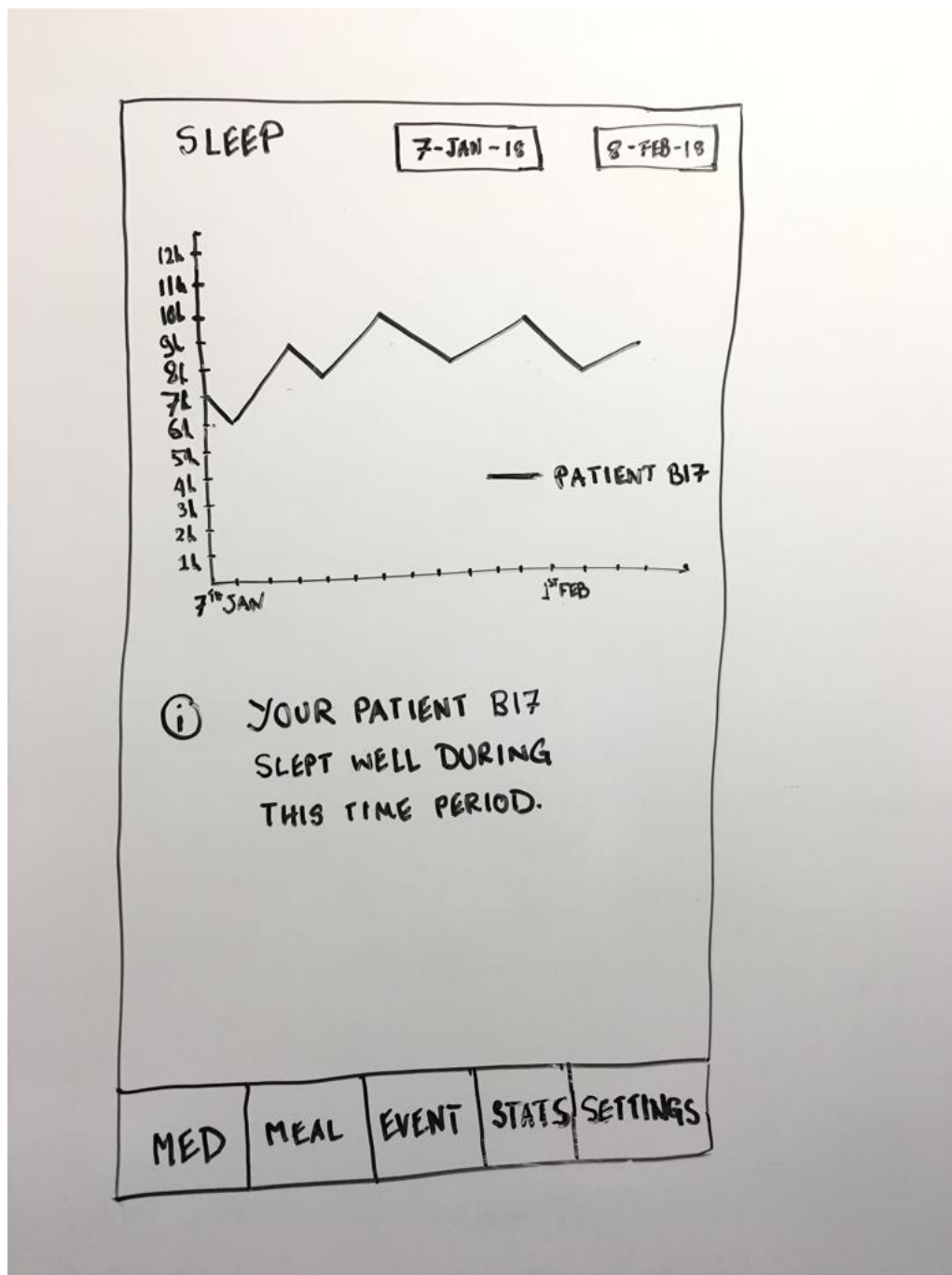


Figure6. Stats Page UI Sketch 2