UI/UX Design & Evaluation (5530)

CARE+

Deliverable A03
Heuristic Evaluation

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Ten Usability Heuristics By Jakob Nielsen

1. Visibility of system status
The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.

2. Match between system and the real world
The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

3. User control and freedom
Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.

4. Consistency and standards
Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.

5. Error prevention
Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.

6. Recognition rather than recall
Minimize the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.

7. Flexibility and efficiency of use
Accelerators – unseen by the novice user – may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.

8. Aesthetic and minimalist design
Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

9. Help users recognize, diagnose, and recover from errors
Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.

10. Help and documentation
Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.

Heuristics Evaluation of [Group 2 Members]

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Brief explanation of a scenario (<u>filled by the group who designed UI</u>)

- Susan McCormack arrives the hospital
- She gets the daily report from the previous shifts' caregiver
- She goes to check on patients then she opens Care+ application
- She notices for patient X one medication is changed
- She deletes the previous input for that specific medication, then she creates a new input by entering medication name and dosage
- She then notices for patient Y insulin level got higher
- She switches to meal tab, and changes the patient selection
- She selects breakfast then updates the meal plan
- After talking with Patient Z she notices that he is showing signs of depression
- She navigates to the events tab and adds a behaviour input for the given day
- She also sets up a reminder to check back the patient in 6 hours

- She quickly checks the sleeping patterns of patients and make sure they got enough sleep last night
- Suddenly, she gets a notification when she is having her lunch
- The notification informs her that patient fell down
- Then she rushes to the patient to check on her

1. Visibility of system status

Always keep users informed about what is going on.
Provide appropriate feedback within reasonable time.

Evaluation

[Enter your observation and evaluation of the degree to which this Heuristic has been satisfied. Use as much space as you see fit.]

(CAI)

We will be informing our users on their interaction with the content. For example, when they create a meal plan, they can get a notification such as “Meal plan created successfully”
Also, we will show them appropriate status while the system is loading. This may specifically apply for the statistics page since it will be fetching data.

(RG)

- After the user enters his credentials on the login page and click Login. It should display a load buffer symbol, to indicate the user to wait till the credentials are being verified.
- Show the Added or Updated or Deleted status when the user is entering, editing or deleting the patient’s data as a confirmation.
- There should be switch button to switch the month and year in calendar

(PB)

- The tab color gets changed based on the selection
- The graphics gets changed based on the selection

(MNH)

- I feel the system is quite good at this task
- Should have a buffer symbol between pages to show user its loading
- Countdown feature for each medicine record in the medicine tab to be implemented
- Add notification sounds

(AS)

The user can easily navigate through the different features of the application and knows which features tab he is on. The user can easily backtrack his actions in case of any accidents. Adding sounds to some certain user actions helps in aiding with user recall.

GROUP SUMMARY

- Add loading symbol each time there is loading*
- Change tab color when selected – Highlight section within selected tab
- Add pie chart for countdown for medicine tracking
- Add complimentary sounds to processes*

2. Match between system and the real world

Speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms.

Follow real-world conventions, making information appear in a natural and logical order.

Evaluation

(CAI)

We will try to use a simple and positive language throughout the application.
When providing users personal feedback, we will use motivational phrases.
When notifying a user with a statistic instead of prompting "You are in the 90th percentile on spending time with the patient" we should use "You spend more time with your patient then 90% of other caregivers.

(RG)

- In Med tab, write “Edit patient details” instead on “edit table entries”
- The Med tab should not have 3 add buttons. One button to add the entry suffices
- Events tab, instead of “Behavior”, it should be “patient behavior”
- Stats tab, instead of “Mood”, it should be “Behavior”
- There should be a calendar symbol on From and To dropdowns
- On the login page, there should be username/email, instead of Login in the first entry box

(MNH)

- Simple login page conforms to the norm of any login page nowadays
- Events tab could be designed better as the user cannot see what the events might be
- Logos to be incorporated in the bottom tab bar as opposed to only text
- Meal page and event page calendar are very similar to real world and fit this heuristic

(PB)

- The information provided for each stat report should be made simple so that easily understood.
- Help documentation regarding each app feature should be easy. Add Explanation icon next to specific statistic ((i) button – tooltip)

(AS)

The layout of the application relies heavily on familiar images and icons to simplify user actions. Features such as graphs are to be represented in an easily understandable user-friendly manner such as pie charts that is understandable to the layperson without burdening the user with complicated graphs and technical jargon.

GROUP SUMMARY

- User Friendly language on statistics
- “Edit patient details” instead on “edit table entries”
- The Med tab should not have 3 add buttons. One button to add the entry suffices
- Stats tab, instead of “Mood”, it should be “Behavior”
- On the login page, there should be username/email, instead of Login in the first entry box
- Use icons instead of text for feature tabs

3. User control and freedom

Users often choose system functions by mistake.

Provide a clearly marked "out" to leave an unwanted state without having to go through an extended dialogue.

Support undo and redo.

Evaluation

(CAI)

On the critical points such as when a user is deleting their previously created meal plan or medication we need to confirm their action and make sure they don't touch by mistake.
On the events section when they create an event, we might need to provide option to edit the event details.

(RG)

- Ask for a confirmation when the user edits or deletes patient's data in any of the tabs
- We can incorporate an "edits tab" which records the updated records or deleted records

(MNH)

- The bac button functionality needs to be improved. Needs to have swiping feature as the new standard
- Double swipe to switch between tabs
- Single swipe to go back

(PB)

- For a sub feature, say to go back from sleep stat page to main stat page pressing the stat tab should do it.
- Quick access buttons for stat reports should be implemented (e.g. one week or month report)

(AS)

In case of a mistake, the user can easily backtrack his actions and undo any error previously inputted to the app using a simple finger swipe with icons indicating so. This allows the user to undo any accidental actions and go back to the previous screen in the application. The action is intuitive and easy to remember. Help for novice users who are stuck is provided under the Support and FAQ section under the Settings menu.

GROUP SUMMARY

- Edit event details after creation of event*
- Show users their previous edits
- Quick access day – week – month on stats
- Put icon for undo also swiping back should do the same*

4. Consistency and standards

Users should not have to wonder whether different words, situations, or actions mean the same thing.

Follow platform conventions.

Evaluation

(CAI)

We need to make sure users are comfortable with their experience. The login/signup page should follow the conventions. In medication and meal pages when users input data their experience should be intuitive and consistent.
Also, in the statistics pages the visuals given should be easy to interpret for anybody.

(RG)

- We need to make sure the graphs are easy to interpret on the Stats page. Since not everyone is comfortable with all the graphs

(MNH)

- The application conforms to the norms and standards of today
- The tabular system is very effective as it is simple and intuitive

(PB)

- Consistent conventions have been tried everywhere.

(AS)

The different features of the application should follow the same convention in terms of the layout and organization on user's phone (same template). Dark and light mode options should be added and applied throughout the app for ease of readability in different lighting conditions. Themes can be added for changing font and layout appearances as per the user's preference.

GROUP SUMMARY

- Dark and Light mode options
- Different Themes with different fonts and layout

5. Error prevention

Even better than good error messages is a careful design which prevents a problem from occurring in the first place.

Evaluation

(CAI)

We need to notify a user for the required format when setting up a username and password before they submit. Also, we need to notify them for invalid characters and upper lower limits and when they are setting up medication related information.

(RG)

- When adding the patient's medication, we can show suggestions with medicine names, so the user does not have to type long medicine names. Same can be done for the meals.
- When the user is adding the medicinal or meal data, we can highlight the fields to indicate that an entry needs to be made.

(MNH)

- The app will restrict the patient from leaving blank fields in the medicine tab

(PB)

- The app won't allow to select specific foods for specific category of patients.
- The application prevents errors such as not allowing missing fields in medicine tracking.

(AS)

Option should be provided to stay logged in for user to mitigate any login errors and save time. Error logs sent from usage histories of different users should be analyzed and frequent errors should be addressed by developers of the application.

GROUP SUMMARY

- Username – Password specifications indicated before submission*
- Warn users about missing data such as dosage for a medicine*
- Warn users about inconsistent selections with patients' meal plan*

6. Recognition rather than recall

Make objects, actions, and options visible.

User should not have to remember information from one part of the dialogue to another.

Instructions for use of the system should be visible or easily retrievable whenever appropriate.

Evaluation

(CAI)

We need to provide our users for the possible option when they are creating a meal plan for the patient. Selecting from possible templates would allow users to create and edit a meal plan quickly.

(RG)

- Instead of patient dropdown on each tab. We can have it on the first tab and display the data of the same patient on the other tabs.

(MNH)

- The application has a strong recognition rather than recall ability for the users as it allows the user to easily find what they want on each page.

(AS)

Natural Language Processing integration using Siri can be added to the application. Using voice recognition, the caregiver can perform certain application functions such as feature selection, patient selection and checking for reminders.

(PB)

- While selecting meal plan based on the patient’s condition the app provides suggestion for specific food types.

GROUP SUMMARY

- Selecting a meal plan should suggest certain items*
- Auto complete medication / meal input*
- Dropdown select medicine dosage / meal calories*
- Remember password
- Remember previous date – patient selection when clicked main screen on stats page*

7. Flexibility and efficiency of use

Accelerators -- unseen by the novice user -- may often speed up the interaction for the expert user so that the system can cater to both inexperienced and experienced users.

Allow users to tailor frequent actions.

Evaluation

(CAI)

When user is creating an event, the application should be smart enough to assist them with their decision by making use of their past selections.
Also, when creating meal plan, it will be helpful to suggest the user their mostly selected options.

(RG)

- We can have a Customize button in the settings tab, if the user needs to customize some tabs, like bring the Events tab on the first position.
- The customize tab will also allow the user to delete a tab if they feel it is not required.

(MNH)

- The application unfortunately does not distinguish between an expert and novice user.
- Give user ability to customize

(AS)

Gestures such as pinch to zoom, three finger-swipe etc. are incorporated for expert users to save valuable time.

(PB)

- From setting user can stop some features if she/he wants.

GROUP SUMMARY

- Remember frequently created events / meal selection*
- Allow users to edit which features to use actively from settings*
- Future versions should allow more customization and allow gestures based on feedback collected

8. Aesthetic and minimalist design

Dialogues should not contain information which is irrelevant or rarely needed.

Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

Evaluation

(CAI)

We will guide our users with the appropriate icons for certain tasks and providing them a neat user experience with a minimalist design.

(RG)

- We do not require to show the “Start Time” and “End Time” explicitly on the Meal tab

(MNH)

- The application design has used the minimalist design to the best possible way it can.

(PB)

- The icons and tabs are designed to meet the requirement for aesthetics. The number for the same have also been optimized.

(AS)

Every feature tab is minimalistic in design and hides the underlying features from the user. No unnecessary information is displayed to the user. Same template must be used on all feature tabs.

GROUP SUMMARY

- When designing the application, we put emphasis on the aesthetics and minimalistic design

9. Help users recognize, diagnose, and recover from errors

Expressed in plain language (no codes)
Precisely indicate the problem
Constructively suggest a solution.

Evaluation

(CAI)

Errors will be expressed in plain language
Errors will precisely indicate the problem
Errors will constructively suggest a solution

(RG)

On the login page, if the username info entered is incorrect, it should prompt the user that the username is not correct.
If the user mistakenly puts say, 100,000 calories for one patient. Which is not possible, so we should have validation messages for such errors.

(MNH)

Errors will be shown at every stage to give the user feedback

(AS)

Error boxes that are displayed are expressed in simple English that succinctly describes the error that the user ran into. For example, when the user skips a field in med tracking, the application notifies the user with a pop-up tab indicating that he skipped a field and suggesting that he fill the missing field.

(PB)

- Efforts have been made to make the interface look cleaner.

GROUP SUMMARY

- Username – Password specifications indicated before submission*
- Warn users about missing data such as dosage for a medicine*
- Warn users about inconsistent selections with patients' meal plan*
- Ask for permission of collecting user data for future improvements

10. Help and documentation

Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation.

Help information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.

Evaluation

(CAI)

We can design a help page when users can discuss in a forum format. Also, a FAQ page can be added to help troubleshoot common user problems.

(RG)

- There should be a FAQ section in the settings tab to help the user with general queries
- There should be a Feedback section in the settings page for better user satisfaction
- There should be a Support section in the settings page, so a person can write to the application admins.

(MNH)

- Help feature has to be implemented in settings
- Information button has to be added throughout

(AS)

User manuals are available under the settings tab to provide instructions to the user. The manuals describe the operations of each feature in the application in a simple manner. Option must be added to report bugs.

(PB)

- A Help button should appear for each choice at the bottom right corner.

GROUP SUMMARY

- Adding FAQ for troubleshooting
- Adding ((i) button – tooltip) for statistics
- Option to report feedback and bugs

* **Indicates the change will be implemented on the prototype version**

Sketches

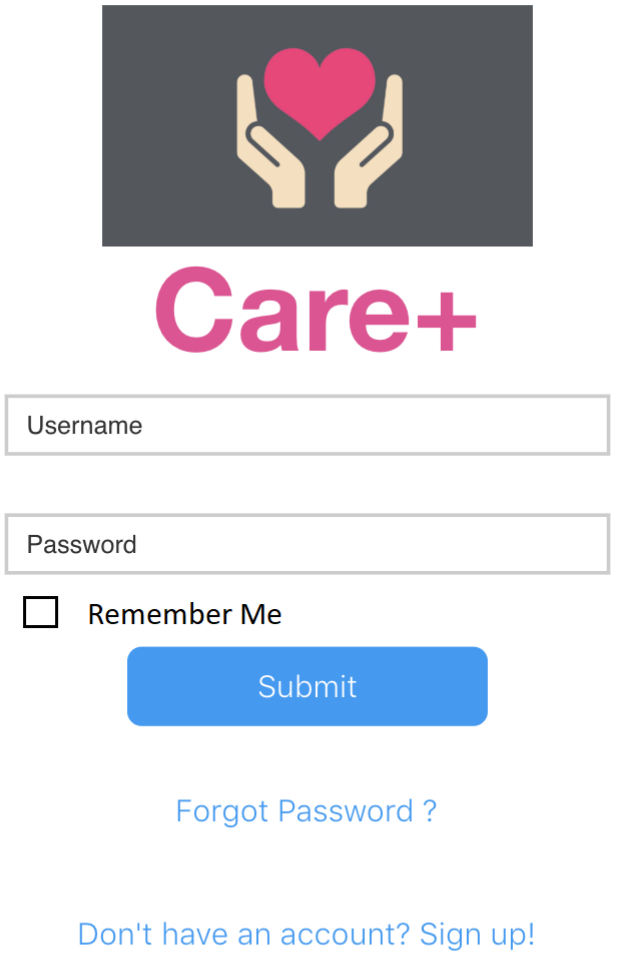

Figure 1: Login Page

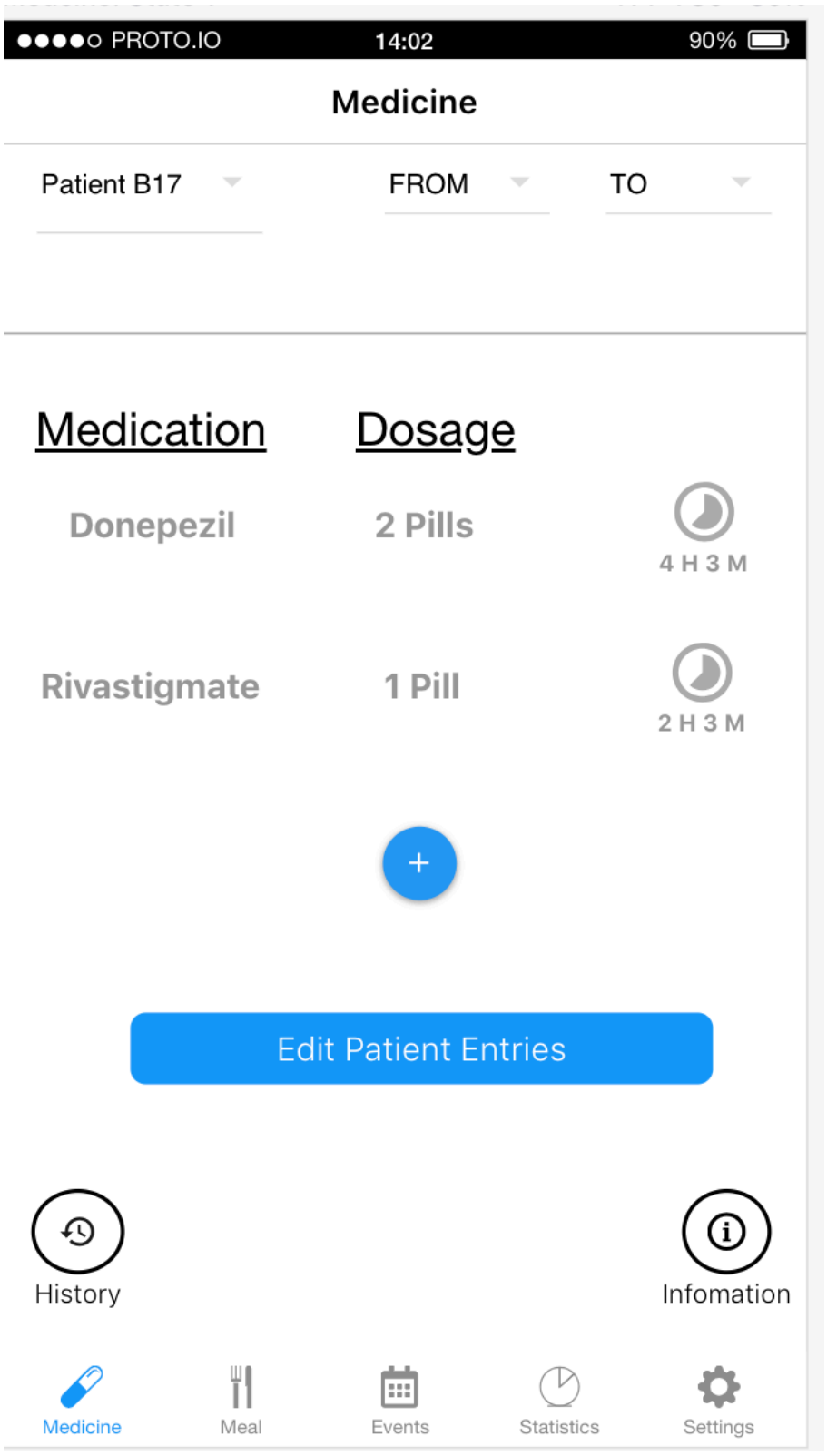

Figure 2: Medicine Feature

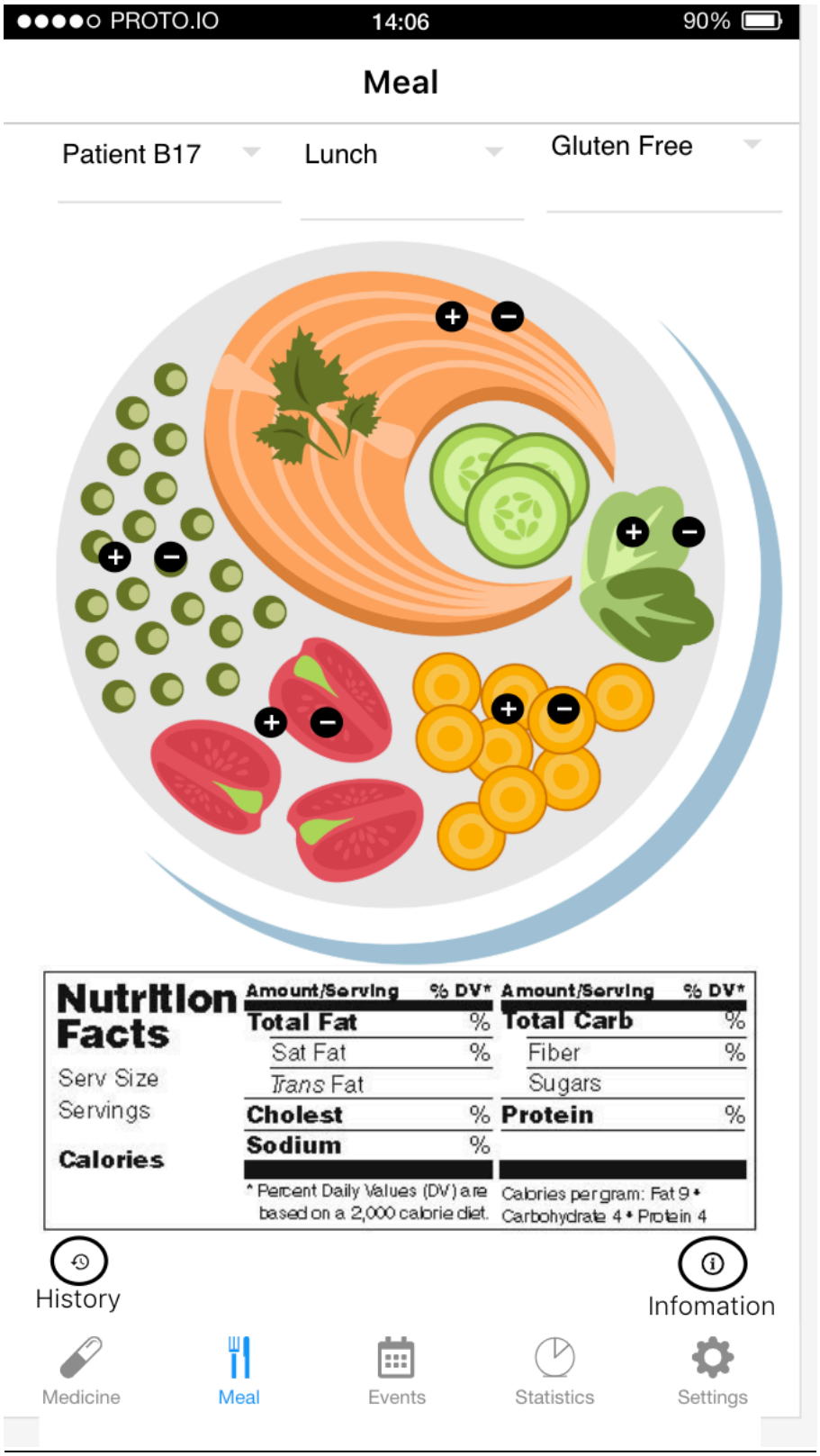

Figure 3: Meal Feature

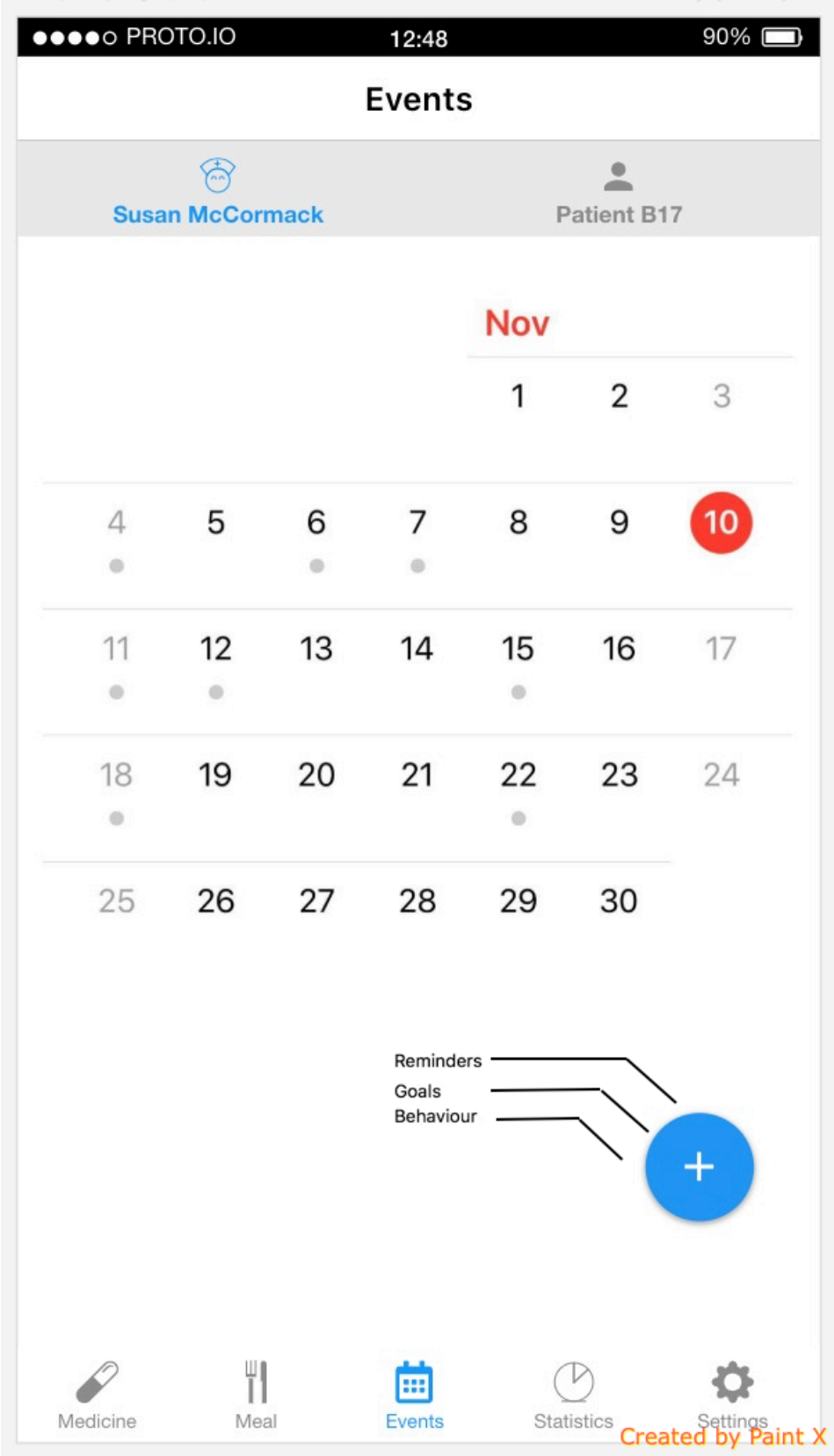

Figure 4: Events Feature

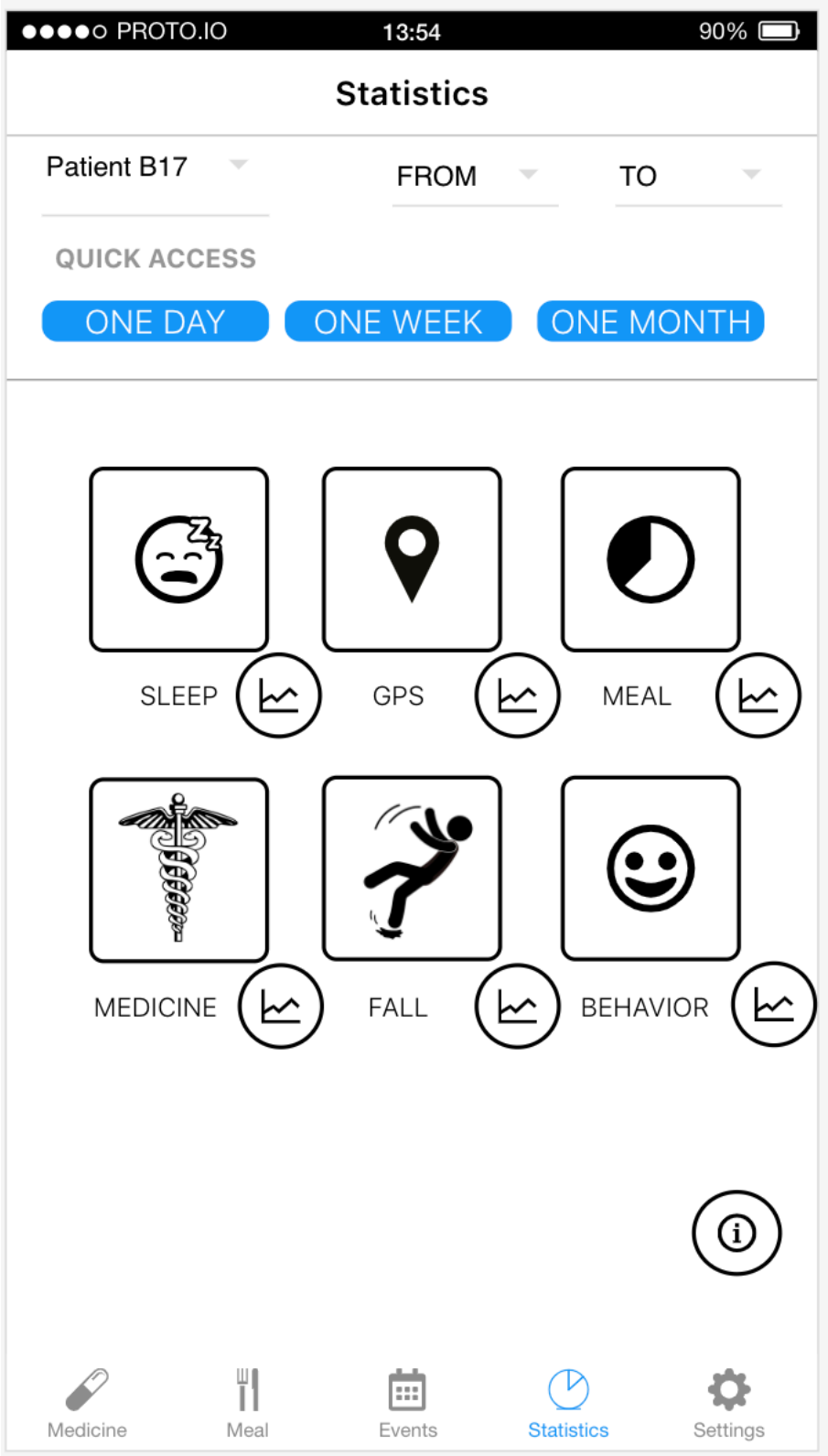

Figure 5: Statistic Feature Main

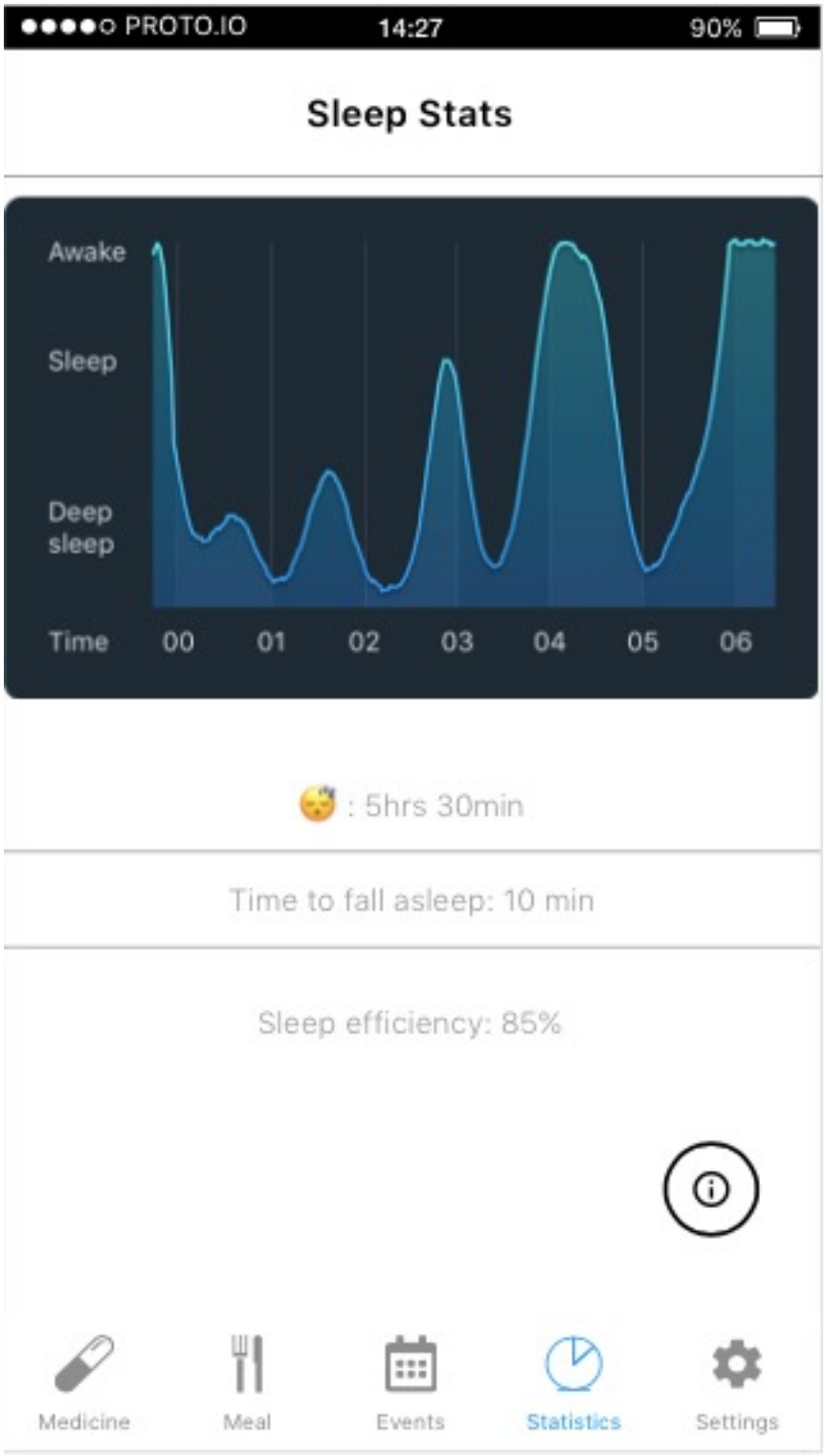

Figure 6: Statistic Feature Sleep Details

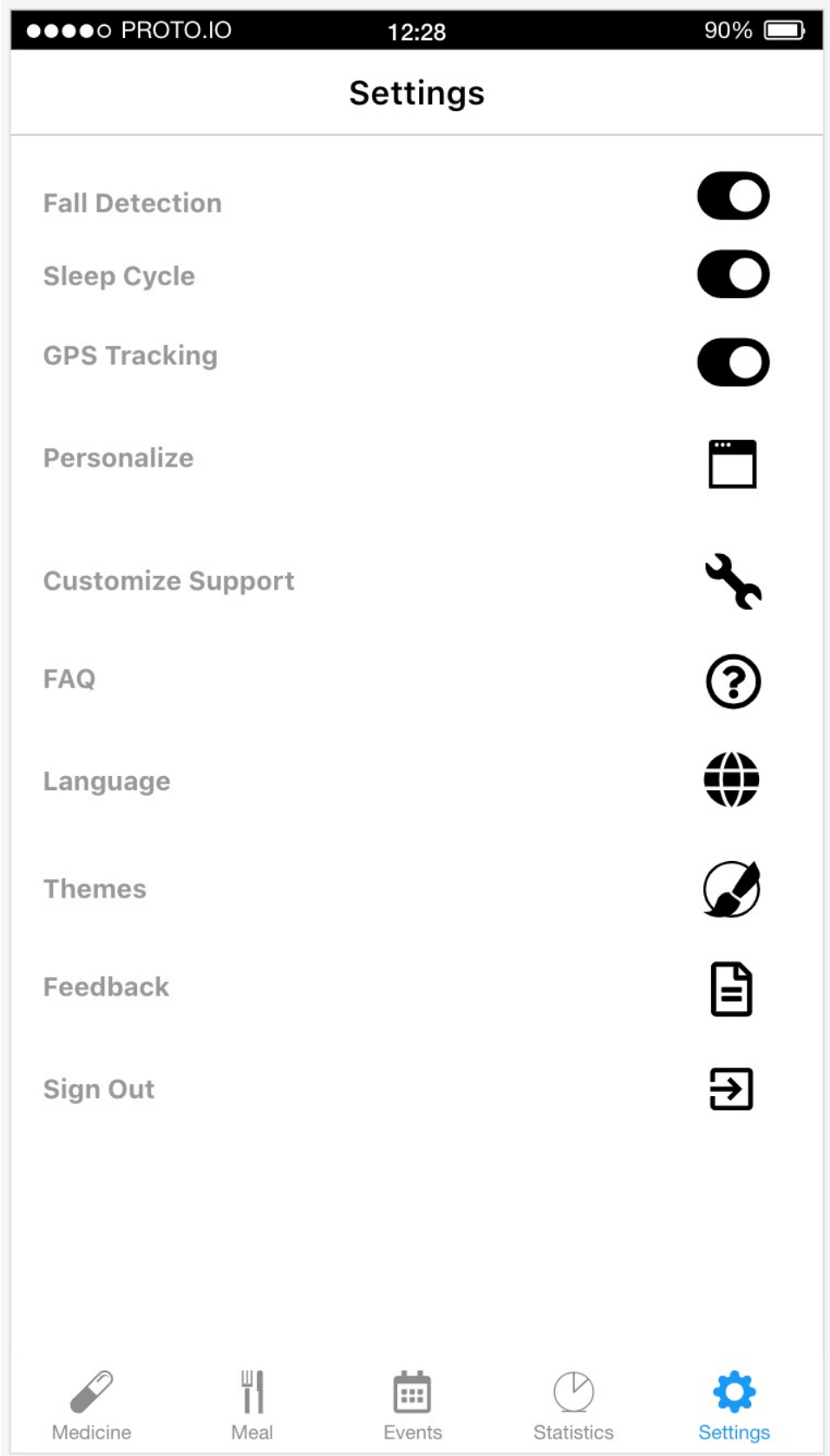

Figure 7: Settings Page

Figure 8: Patients' watch Voice Memo interface

Conclusion

First, we created a comprehensive scenario by discussing within the group.
As a second step, we tried to provide individual heuristic evaluation based on the scenario.

After getting the heuristic evaluation input from each member, we noticed that our initial sketches are missing some detailing. Thereafter, reviewing with the group members we settled upon the most necessary modifications we can incorporate for our application. We included these changes in summaries for each heuristic point.

Finally, we included necessary changes and redesigned our A02 sketches. In this report, we included all details which can be shown without having a prototype. The details which were not possible to demonstrate in this report were marked with an asterisk to be shown in the next iteration.