Heuristic Evaluation of SleepMate

Evaluator A
Evaluator B
Evaluator C
Evaluator D

1. Problem/Prototype Description

We are evaluating the Medium-Fidelity prototype of SleepMate, an app where users can share their sleeping preferences and status with their roommates and view roommates' sleeping statuses as well.

2. Violations Found

1. **H1 Visibility of System Status / Severity 3 / Found by: C**

   The average bedtime is available for roommates to see, but there is no average wake-up time. Adding this information would be helpful since one's sleep may be disturbed by their roommates in the morning in addition to being disturbed at night.

   Fix: Add a field in the Roommate profile section under "Average Bedtime" that indicates "Average Wakeup Time".

2. **H1 Visibility of System Status / Severity 4 / Found by: C, D**

   When a User presses the "Sleep" button to indicate that they are sleeping, there is no way to access other parts of the app. The navigation bar is gone, and the only button you can press is "I'm Awake." Users should be able to access other parts of the app even when they update their status to sleeping. For example, if you are trying to sleep but your roommates are being noisy, you should have access to the chat feature so you can message them without marking yourself as "awake".

   Fix: Allow users to access the navbar and other parts of the app even after pressing "I'm Asleep".

3. **H1 Visibility of System Status / Severity 1 / Found by: B, D**

   In the roommate adding task flow, when there is no search query, users are presented with a blank screen. Users may think the app is not functioning properly when they see a blank screen. They may also not know what to do after landing on the "Add Roommate" screen with only a search bar.

   Fix: Add helper text for the blank screen to indicate the system is working fine, such as "Use the search bar to find your roommate".

4. **H2 Match Between System and the Real World / Severity 2 / Found by: B, C**

   On the Stats screen, it has a section saying "Ambient Noise". According to the team's slides, this should mean how loud the roommates are when the user is sleeping. However, for many sleep tracking apps, they provide noise tracking as well, but in the sense of recording the user's noise and indicating how good users' sleeping quality is (lower noise level means better deeper sleep). Users may be confused by the word if they have had experience with other sleep tracking apps.

   Fix: Clarify the text "Ambient Noise" a bit more, such as adding a caption text stating the noise includes both the user's and the roommates'.

5. **H2 Match Between System and the Real World / Severity 3 / Found by: A**

   What does "Moderate" noise level even mean? Should I be aiming for "Low" noise level? This information has no practical use.

   Fix: Replace meaningless words with actionable words that suggest what noise level to aim for and what noise level is bad.

6. **H2 Match Between System and the Real World / Severity 3 / Found by: A, B**

   On the Stats screen, there is a "sleep quality" which is presented as a percentage. Users may be very curious about what the percentage means for sleep quality, as this is not a commonly known quantifiable measurement. What does "72% sleep quality" even mean? Is "100%" supposed to be the goal? Should I seek medical attention if my sleep quality is below x%? These numbers are trivial without further information.

   Fix: Use more general terms to describe the sleep quality, like what you did for "noise level", such as "not so good", "okay", "great", etc., which demonstrate actionable next steps.

7. **H2 Match Between System and the Real World / Severity 2 / Found by: C, D**

   Lack of consistency with language in the "Sleep" tab. Button changes from "Sleep" to "I'm Awake".

   Fix: Consider changing to "I'm Asleep"/"I'm Awake", or "Asleep"/"Awake".

8. **H2 Match Between System and the Real World / Severity 2 / Found by: C**

   The phrasing for "Sleep Quality" in the Preferences section is slightly misleading. How sensitive you are to sleep is not indicative of your sleep quality, for example those with Sleep Apnea can be heavy sleepers but have poor sleep quality.

   Fix: Consider changing "Sleep Quality" to "Sleep Sensitivity".

9. **H3 User Control and Freedom / Severity 3 / Found by: A, D, C**

   Once users search a person in the "Roomies" tab, they cannot go back to the previous screen.

Fix: Add a back button.

10. H3 User Control and Freedom / Severity 2 / Found by: A, D

Once I remove one roommate from the "Roomies" tab, it does not allow me to remove anyone else unless I press Remove All.

Fix: Allow users to remove more than one roommate.

11. H3 User Control and Freedom / Severity 2 / Found by: A, D

Once I remove one roommate from the "Roomies" tab, it does not allow me to view any other profiles.

Fix: Allow users to view profiles after deleting one roommate.

12. H3 User Control and Freedom / Severity 2 / Found by: A, C, D

There is no button to change profile picture.

Fix: Allow users to change profile picture.

13. H3 User Control and Freedom / Severity 3 / Found by: A, D

Once the user edits the profile once, the user is unable to edit it again.

Fix: Keep the edit button available after the first edit.

14. H3 User Control and Freedom / Severity 3 / Found by: A, D

Once I remove all roommates from the "Roomies" tab, it does not allow me to add anyone else.

Fix: Allow users to add roommates after removing all roommates.

15. H3 User Control and Freedom / Severity 3 / Found by: A, D

On the "Profile" tab, after you press the drop down under "Notify Roommates", you are unable to select all the options since it goes off screen and does not allow scrolling.

Fix: Allow scrolling to reach other buttons.

16. H3 User Control and Freedom / Severity 3 / Found by: A, C, D

The back button on most screens does not work.

Fix: Make the back button functional.

17. H3 User Control and Freedom / Severity 2 / Found by: B, D

When users go to sleep, there is no option to cancel the "Notify Roommates" feature. Users may want to temporarily disable the notification feature without completely turning it off in the Profile.

Fix: Add a switch to allow users to temporarily disable notification when they are on the Sleep screen.

18. **H4 Consistency and Standards / Severity 2 / Found by: A, D**

On the profile screen, they are called "Roommates" but on the bottom navigation bar, they are called "Roomies".

Fix: Just call it "Roommates" throughout the app.

19. **H4 Consistency and Standards / Severity 2 / Found by A, B, D**

On the Notifications screen, users not only see the notifications from the system, but also messages from other roommates. They can even send "messages" as notifications. Users may be confused by the messaging functionality on a Notifications screen; the former makes it sounds like a two-directional (incoming and outgoing) system while the latter usually means a one-directional (broadcast and subscription) system.

Fix: Unify messages and notifications into something neutral such as "communications", "chats", or just "messages", so that the screen holds the messages both from the system and from other roommates.

20. **H4 Consistency and Standards / Severity 2 / Found by: A, C, D**

On the Profile screen, the "Notify Roommates" button changes to "Notify After". This is not consistent.

Fix: Make wording consistent.

21. **H4 Consistency and Standards / Severity 2 / Found by: B, D**

On the Stats screen, the date is shown with two consecutive days (e.g. Feb 10-11) while the graphs and the text show the sleep happened only on Feb 11 from 1AM-7AM. Users may find it confusing to have two days in the date when they only sleep on one day.

Fix: List stats as per one day instead of two consecutive days, but indicate what timespan the sleep actually takes place in detailed text.

22. **H4 Consistency and Standards / Severity 3 / Found by: B, C, D**

On the Profile screen without any set preferences, the primary button is "Edit Preferences", but on the same screen with set preferences, the button is "Edit Profile". Users may be confused by the different terminology for the same function.

Fix: Use "Edit Preferences" on all screens.

23. **H4 Consistency and Standards / Severity 3 / Found by: C, D**

For removing roommates, there are two places this can be done. You either remove all roommates from the roomies section, or you click on individual roommates to remove them. This is confusing, it may be cumbersome to delete multiple roommates but not all of them.

Fix: Implement a remove button on the roomies page that allows you to select everyone you want to remove and remove them at once.

24. **H4 Consistency and Standards / Severity 2 / Found by: B**

In the Roommates task flow, when deleting roommates, a confirmation says "Are you sure you want to delete all roommates from your contacts?". The word "contact" seems out of place and users may confuse roommates in this app with their phone contacts.

Fix: Use "roommates" on all confirmations of the roommate list.

25. **H4 Consistency and Standards / Severity 2 / Found by: B**

In the Roommates task flow, when removing roommates, the button reads "Remove", but the confirmation says "Delete". These two words share the same meaning but it may give users a brief doubt or illusion on whether they are really "removing" someone.

Fix: Use "remove" or "delete" for all actions.

26. **H5 Error Prevention / Severity 3 / Found by: B**

After the user selects who to invite into the household, there is no confirmation dialog. Users may accidentally add the wrong person which may cause privacy problems. Most importantly, the user that gets invited would be troubled by an unnecessary incorrect invitation.

Fix: Add a confirmation dialog for roommate inviting.

27. **H5 Error Prevention / Severity 3 / Found by: B**

On the roommate adding screen, there are only photos and names of people, with no additional identifier. Users may have a hard time trying to find and add a roommate who shares a common name and hasn't uploaded his/her photo, and it may result in them inviting the wrong person.

Fix: Show a unique identifier (username, id number, etc.) on the roommate adding screen.

28. **H5 Error Prevention / Severity 2 / Found by: B**

When editing preferences on the profile screen, there is a switch with text saying "Notify Roommates". Users may be confused whether this means notifying roommates about their incoming preference changes, or notifying roommates whenever they want to sleep.

Fix: Make the text clearer, like "Notify Roommates When I Go To Sleep".

29. **H5 Error Prevention / Severity 3 / Found by: B**

After searching for a user on the Notifications screen, the message users send becomes a direct reply (with a special curve indicating that it's a direct reply). Users may accidentally send an unexpected direct reply when they intended a group message.

Fix: Add an additional pop-up menu for direct message replies; remove/disable message sending when searching notifications.

30. **H5 Error Prevention / Severity 2 / Found by: B**

When removing a roommate from the household, the users are presented with the confirmation dialog. The text color of the "Delete" and "Cancel" buttons are both white. There is no clear indication which one is the destructive action. Users may have a hard time distinguishing between these two actions and therefore accidentally remove a roommate.

Fix: Use some alerting color like red for the "Delete" button to show it as destructive.

31. **H6 Recognition Rather Than Recall / Severity 3 / Found by: C**

While daily stats are available, there is no average available to the user. A user is able to view their roommates' average sleep time, but not their own.

Fix: Allow users to see the averages of their stats, and allow them to view the same information about themselves that they can view about their roommates.

32. **H6 Recognition Rather Than Recall / Severity 3 / Found by: A, B**

On the Roommates screen, there is a sleepy face on top right of the roommate's photo. Users may not know what the face represents without much context. There is no indication of the meaning of the face anywhere either.

Fix: Explain what icon means; or keep only the face on the roommate list screen, but add a status text such as "sleeping" along with the sleepy face on the roommate's profile screen to tell users the sleepy face means "sleeping".

33. **H6 Recognition Rather Than Recall / Severity 3 / Found by: B, C**

When editing preferences on the profile screen, there is a dropdown menu with text saying "Notify After". Users may not recognize what this means without context and it may take them some time to recall it is actually referring to "Notify Roommates That I'm Sleeping After I Go To Sleep For (some time)".

Fix: Make the text clearer, like "Notify Roommates That I'm Sleeping After".

34. **H7 Flexibility and Efficiency of Use / Severity 3 / Found by: A, C**

Users must go back to the "Sleep" tab in order to navigate to other tabs.

Fix: Make each tab on bottom navigation be able to navigate to any other tab.

35. **H7 Flexibility and Efficiency of Use / Severity 3 / Found by: A, B, C**

When viewing the sleeping stats, users can only use the stepper on the top to go to the previous or the next day. It may be troublesome for users to go to a specific date since they may need to click multiple times to achieve that.

Fix: Add a calendar view for date selection, or allow users to manually set the date via some input or date picker.

36. **H7 Flexibility and Efficiency of Use / Severity 2 / Found by: A**

The Stats screen provides day to day information but does not allow me to see whether I am improving in sleep quality.

Fix: Add a weekly stats section that shows progress over days/weeks/months.

37. **H7 Flexibility and Efficiency of Use / Severity 2 / Found by: B**

When removing roommates, users can only use the "Remove All" button to remove all roommates. Users may have a hard time trying to remove a batch of roommates, say removing all roommates but Emily.

Fix: Add an editing (multiple selections) state of the screen to allow users to choose however many/few roommates that they want to remove, besides a "Remove All" button.

38. **H8 Aesthetic and Minimalist Design / Severity 2 / Found by: A**

On the "Sleep" screen, when you press "Sleep" the background becomes a gradient. This does not fit with all other screens on the app since no other screen has a gradient background.

Fix: Make solid color.

39. **H8 Aesthetic and Minimalist Design / Severity 2 / Found by: A**

There is no need to have a welcome message every time the user opens the profile screen. This is unnecessary.

Fix: Remove welcome message and replace it with more meaningful content.

40. **H8 Aesthetic and Minimalist Design / Severity 3 / Found by: A**

The plus icon on the Roomies screen does nothing.

Fix: Remove plus icon on Roomies screen.

41. **H8 Aesthetic and Minimalist Design / Severity 3 / Found by: A**

There is way too much information on one page for the Stats screen.

Fix: Separate graphs on separate screens.

42. **H8 Aesthetic and Minimalist Design / Severity 2 / Found by: A**

The "Sleep" button is disproportionately small compared to the large screen it occupies. Since the Sleep screen only has one button, the screen looks very empty.

Fix: Enlarge the button (maybe make it a large circle).

43. H8 Aesthetic and Minimalist Design / Severity 3 / Found by: B, C

On the Stats screen, there are both "Sleep" and "Ambient Noise" charts. If I understand it correctly, the "Sleep" data is actually inferred from the "Ambient Noise", since this is possibly the only way a mobile phone could assess sleeping. Users may be overwhelmed by the fact that there are two strongly-related stats shown together.

Fix: Remove the "Ambient Noise" chart and add a caption text stating the "Sleep" chart is inferred from ambient noise level.

44. H8 Aesthetic and Minimalist Design / Severity 2 / Found by: B

For the roommate removing confirmation dialog, the title of the dialog says "Delete [name]?" and the content says "Are you sure you want to delete [name] from your contacts?". These two are redundant and should be minimalized.

Fix: Use "Delete Roommate" as the title of the dialog and put the specific name in the content.

45. H8 Aesthetic and Minimalist Design / Severity 2 / Found by: B

For the roommate removing confirmation dialog, the title of the dialog uses a smaller yet bolder font than the content. This is a weird combination of font weight and size. Titles are usually emphasized so a bolder font is the way to go, but in the meantime they should also be bigger for the same reason. I believe it is common practice to have a bigger title and smaller content.

Fix: Make the title of the dialog bigger.

46. H8 Aesthetic and Minimalist Design / Severity 1 / Found by: B

On the Notifications screen, the placeholder in the message input area "Type a message…" is colored white, the same as an actual message. Users may be confused whether they have input some text if they cannot distinguish between the placeholder text and the actual text.

Fix: Use some gray color for the message input placeholder.

47. H8 Aesthetic and Minimalist Design / Severity 3 / Found by: C

The search bar seems necessary. It is unlikely that a person will have more than 4 roommates, so the search function will likely be unused/used rarely. It unnecessarily takes up screen space.

Fix: It would be beneficial to remove the search bar, or at least make a small search button in the top left corner that displays a search bar when tapped.

48. H8 Aesthetic and Minimalist Design / Severity 1 / Found by: B

When editing preferences on the Profile screen, the "Sleep Quality" is blank by default. This makes the screen look like it's missing a part.

Fix: Put some placeholder text when users haven't chosen the answer, such as "*Choose Your Sleep Quality*" (italic grayed out).

49. H9 Help Users Recognize, Diagnose, and Recover from Errors / Severity 3 / Found by: A, D

Users might accidentally press "Sleep" on the Sleep screen which may contribute to incorrect information being registered on the Stats screen.

Fix: Have a button to cancel or reset the sleep if accidentally pressed.

50. H9 Help Users Recognize, Diagnose, and Recover from Errors / Severity 2 / Found by: B, C

On the roommate searching screen, there is no indication as to whether the search is successful. Users may assume the app is not functioning properly when they see a blank search screen.

Fix: Add a warning/error message to suggest a solution when the search result is empty, such as "We didn't find any matching user. Please try another keyword."

51. H10 Help and Documentation / Severity 3 / Found by: A, C

What does "Notify Roommates" mean? What and how am I notifying them? There's very little information on this mysterious button.

Fix: Add more context and information around the "Notify Roommates" button.

52. H10 Help and Documentation / Severity 3 / Found by: A, D

The graphs on the Stats screen have way too much information. For a page that looks very information-heavy, there is very little guidance on how to interpret and apply this information.

Fix: Add in tips and guidance on how to interpret and apply information.

53. H10 Help and Documentation / Severity 3 / Found by: A, C

There is a lack of FAQ or help resources.

Fix: Add "FAQ".

54. H10 Help and Documentation / Severity 3 / Found by: B, D

On the main Sleep screen, there is only a button saying "sleep" and a button saying "I'm Awake" on the next screen. Users may struggle to know the implications of pressing the buttons, which can be intimidating.

Fix: Add some helper text or captions to explain what each button does on the corresponding screens. Explain to users what will happen if they press these buttons.

55. **H11 Accessible / Severity 2 / Found by: A, B, C, D**

   The font sizes on the graphs in the Statistics section are really small, and the graph itself is also quite small. This could be difficult for low vision users to interpret.

   Fix: Add a way to enlarge each graph and make sure the text is enlarged as well.

56. **H12 Fairness and Inclusion / Severity 2 / Found by: A**

   Older users may not be able to recognize the "Notifs" slang.

   Fix: Use the word "Notifications".

57. **H12 Fairness and Inclusion / Severity 2 / Found by: A**

   Older users may not be able to recognize the "Roomies" slang.

   Fix: Use the word "Roommates".

58. **H12 Fairness and Inclusion / Severity 2 / Found by: C**

   This app assumes that you are living in one place. Certain users may be in situations where they are moving back and forth between several housing locations.

   Fix: Allow users to group roommates and select where they are currently living as to not notify roommates about their sleep schedule when they aren't currently living with them.

59. **H12 Fairness and Inclusion / Severity 3 / Found by: A, B, C**

   The user profile makes the user's photo and name stand out. It may be a dealbreaker for users who are socially introverted and do not want to share their photos and real names with roommates. This is especially common for roommates who keep their own personal lives apart.

   Fix: Allow an empty avatar or provide a default user avatar, and allow users to use a nickname for the profile.

3. Summary of Violations

Category	# Viol. (sev 0)	# Viol. (sev 1)	# Viol. (sev 2)	# Viol. (sev 3)	# Viol. (sev 4)	# Viol. (total)
H1: Visibility of Status	0	1	0	1	1	**3**
H2: Match Sys & World	0	0	3	2	0	**5**
H3: User Control	0	0	4	5	0	**9**
H4: Consistency & Standards	0	0	6	2	0	**8**
H5: Error Prevention	0	0	2	3	0	**5**
H6: Recognition not Recall	0	0	0	3	0	**3**
H7: Efficiency of Use	0	0	2	2	0	**4**
H8: Minimalist Design	0	2	5	4	0	**11**
H9: Help Users with Errors	0	0	1	1	0	**2**
H10: Help & Documentation	0	0	0	4	0	**4**
H11: Accessible	0	0	1	0	0	**1**
H12: Fairness & Inclusion	0	0	3	1	0	**4**
H13: Value Alignment	0	0	0	0	0	**0**
Total Violations by Severity	**0**	**3**	**27**	**28**	**1**	**59**

Note: **check your answer for the green box by making sure the sum of the last column is equal to the sum of the last row (not including the green box).**

4. Evaluation Statistics

Severity / Evaluator	Evaluator A	Evaluator B	Evaluator C	Evaluator D
Sev. 0	N/A	N/A	N/A	N/A
Sev. 1	0%	100%	0%	33%
Sev. 2	48%	48%	30%	37%
Sev. 3	61%	39%	50%	36%
Sev. 4	0%	0%	100%	100%
Total (sevs. 3 & 4)	59%	38%	52%	38%
Total (all severity levels)	51%	46%	39%	37%

*Note that the bottom rows are *not* calculated by adding the numbers above it.

5. Summary Recommendations

The med-fi prototype was well done! We like it that you made the app a deeper blue theme so it matches the sleeping topic better and is more suitable to use at night before sleep. The overall design is clear and makes the users understand what they should do and can do in certain situations. The five tabs feature each of its own functionality, making it easy to navigate.

There are just a few details that can be improved, mostly around the text presentation in the app, which causes the most heuristic violations such as Consistency & Standards, Error Prevention and Aesthetic & Minimalist Design. We would suggest revisiting and revising the text in the app and think about what functionalities the text presents are the ones you want. For example, there is an inconsistency of "Edit Preferences" and "Edit Profile" buttons, for which we think you may have mixed and matched two different functionalities while designing the screens. Thinking through the functionalities and presenting them with consistent and unambiguous text can help resolve these violations.

We also found that there is a general lack of intuitive navigation. The screens feel very disconnected as each screen is difficult to navigate to and from due to lack of back buttons and the issues with the bottom navigation bar. As users navigate from one screen to another, it is important for the information to be carried from screen to screen so that the user flow is established. Additionally, there is a lack of mechanisms available for power users. Since this app is based on the daily habit of sleep, the frequency of use will be very high. Thus, it is important to allow users to have more advanced and efficient controls as they become increasingly proficient with the app.

On a broader picture, though, we would like to see more of the dynamics when users click the "Sleep" button and go into sleep mode. In the current prototype, users don't know what will happen after they click on the button. When will the notification of the user's sleeping be sent out? Your complex task states "notify your roommates you're still awake after X hours", but there is no way in the app to check if the user's still awake or to allow the user to confirm that manually when the timer is up. This seems like the core feature of the app and we really recommend taking the time to polish it by making the execution more logical and adding proper helper text to explain the expected behavior.

In addition, we are not sure about the Stats screen. Since users can only view their own sleep stats there, it doesn't really help the cause of your app which is to solve the sleeping problem with roommates. We would suggest a sharing feature of the stats so that roommates would have an idea how well the user actually sleeps. Otherwise, we don't think it's necessary to include the Stats screen.

Overall, you have a solid app. Keep it up!