Heuristic Evaluation Report for: Laundry Savior

1. Problem Statement

This heuristic evaluation is about an app called Laundry Savior,it helps users to check the availability of the washing machine and dryer in the dorm, which also supports E-payment to ease laundry chores for students who live in dormitories.
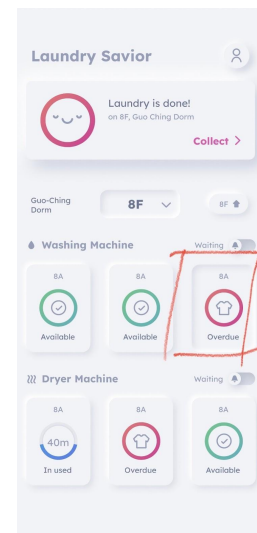
2. Violations Found

1. **H1 Help and documentation / Severity 2 / Found by C**
   Description: It seems that it is not easy to understand which washing machine is mine on the interface. In fact, there is a problem of insufficient contrast when using neumorphism.
   Screenshots:
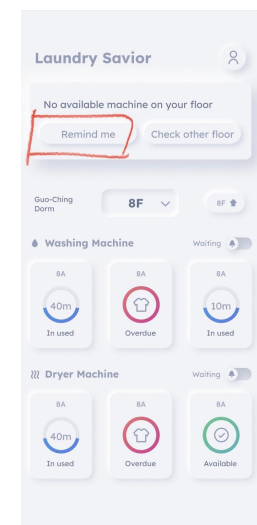   **Fix**: Add hints such as symbols.

2. **H7 Flexibility and efficiency of use / Severity 3 / Found by C**
   Description: Does Remind me only apply to washing machines, not sure which laundry equipment the available machine will be assigned to.
   Screenshots:
   Fix: Add a block for the dryer, or more precisely express what the machine to remind is.
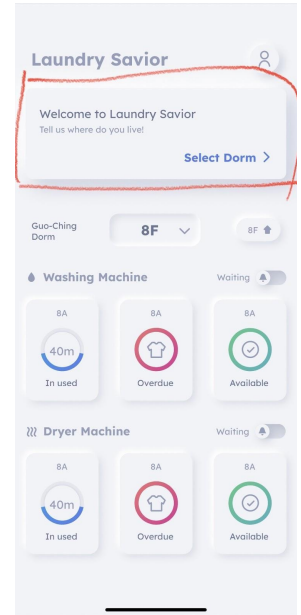
3. **H8 Aesthetic & Minimalist Design / Severity 1 / Found by C**

Description: The rounded corners of the notification window do not seem to be consistent and look a bit obtrusive.
Screenshots:
Fix: Let the UI component design be consistent such that the rounded corner and shadow contrast should be the same as the washing machine and dryer machine components..
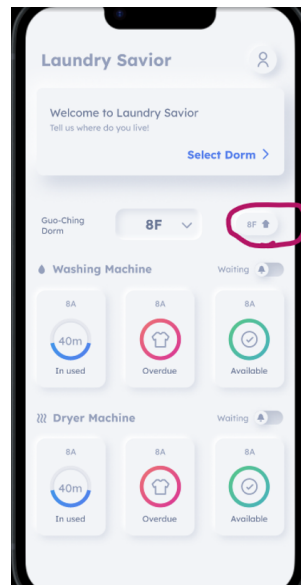

4. **Match between system and the real world / Severity 1 /Found by B, D**

Description: There are two "8F" buttons in the status page, while the right can't be pressed, it will be confusing for users to know what it is for, but when the users are at the 9F page, the users can click the icon to go back to 8F. Also, the icon on the right is misinterpreted as an 'up' icon for evaluator B.

Screenshots:

Fix: Maybe separate the dorm selection and floor selection into two buttons, and keep only one 8F in the screen.
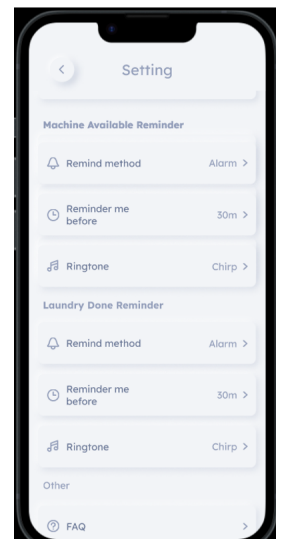

5. **H2 Match Sys & World / Severity 1 / Found by D**

Description: Not every reminder method needs to set a "Ringtone", it might be worried that if this ringtone also has an effect on other methods? If the app will ring out anyway even if the alarm method is not chosen?

Screenshots:
Fix: Maybe make the ringtone a sub-setting for those methods that utilize ringtone.

6. **H4 Consistency & Standards / Severity 2 / Found by B, D**

Description: The interfaces for selecting floors are not consistent in "setup/setting" and "check others", where "check others" doesn't provide the status of machines, it should be the same function.

Screenshots:

Fix: Just choose one format for the selection interface, and providing a number of machines and dryers at the same time would be better.

7. **H1 Visibility of System Status / Severity 2 / Found by B**

Description: The information provided from the status of other floors' washing machines is too limited. Not quite sure whether washing machines are available if nothing is shown. Take Figure 3 as an example, it's obvious that there is one washing machine available on the 9th floor; however, I'm not quite sure if there is any dryer available on the 9th floor, does showing nothing mean no available machines?
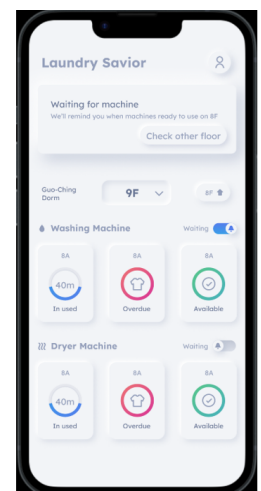**Screenshots:**

Fix: I suggested that for every floor, "(# of available machines)/(# of all machines)" can be shown, and if the number of available machines are 0, then make the display gray.

8. **H7 Flexibility and efficiency of use / Severity 1 / Found by D**

Description: When going to floor 9, the right button of "8F" turned out to be the short-cut to come back, however, it may not be so useful for getting back to certain floor (also, what is the benefit to let user set their home floor？)

Screenshots:

Fix: Maybe constructing a list of "favorite floors" is more useful than "home floor"; Replace the "home floor" with "up stairs" and "down stairs" may be better.

9. **H8 Aesthetic and minimalist design / Severity 2 / Found by D**

   Description: There are "waiting" and an alarm switch to indicate machine status, but what it means for a "waiting" with switch turned off？ How to stop waiting or just cancel the alarm？ Also, status other than "waiting" should be provided.

   Screenshots:

   Fix: Clearly list possible status of users (ex：idle, waiting, finished) or just remove "waiting" is clearer for the users.
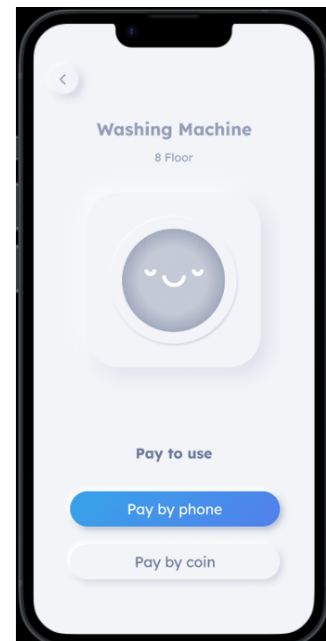
10. **H2 Match Sys & World / Severity 1 / Found by B,D**

   Description: Why the colors of "pay by phone" is different from "pay by coin", is there any reason to use emphasizing color for "by phone", but use the same color as background for "by coin"？
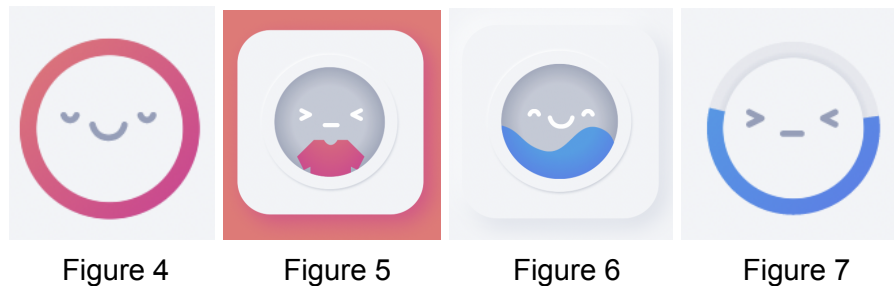
   Screenshots:

   Fix: Maybe both use the same color as the background, or different to the background, or both use different colors, or just use icons.

11. **H4 Consistency & Standards / Severity 1 / Found by A, B, D**

Description: Some inconsistency occurs in the displayed emoji. (Whether the washing machine should display a happy face or a upset face) Figure 4 was shown on the main page before clicking "collect"; Figure 5 is shown after clicking on "collect"; Figure 6 is shown after choosing the washing type; Figure 7 is shown when viewing the washing status at the main page.
Screenshots:

| Figure 4 | Figure 5 | Figure 6 | Figure 7 |

Fix: Make the emoji consistent when displaying in the same color. Or maybe the emoji is not that necessary. (Maybe showing a progress bar will be sufficient enough)

12. **H10 Help and documentation / Severity 2 / Found by A, B, D**

Description: The indexing system for virtual machines should be linked with the real world, so that people can easily identify the physical machine.Furthermore, three different statuses were shown together on one single machine and it might be misleading for the users. (that is, after people find the machine "8A" in the app, how can they find the right one in physical world？)
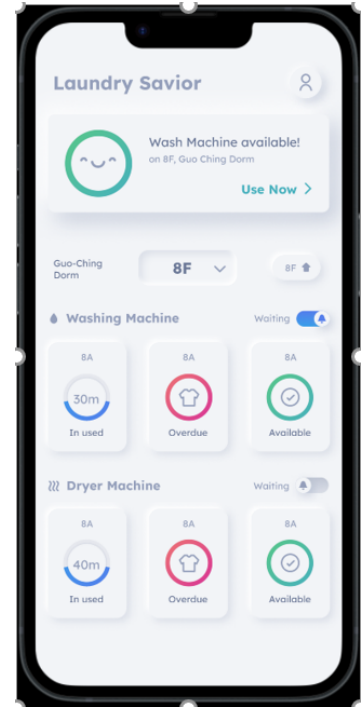
Screenshots:

Fix: Is there stickers on the real machines？(That would be costly and troublesome to set up such system). Or the machines need some sensing tags on it, such as RFID; or the app should provide a map so users can find the machine and not find wrong machines.

13. H5 Error Prevention / Severity 4 / Found by B, D

Description: There should be some gap between "washing machine available" and "use now", because it is very likely that people are not close to the machine when the machine is available, and what if somebody near the machine occupy it before people reach it？

Screenshots:

Fix: Add a "reserve now" feature instead of use now when available. (And it needs some mechanism to prevent people from reserving the machine but not coming to use it quickly). Otherwise the app should remind the user when the machine is occupied again (But that would also be annoying if the available machines are being used …)
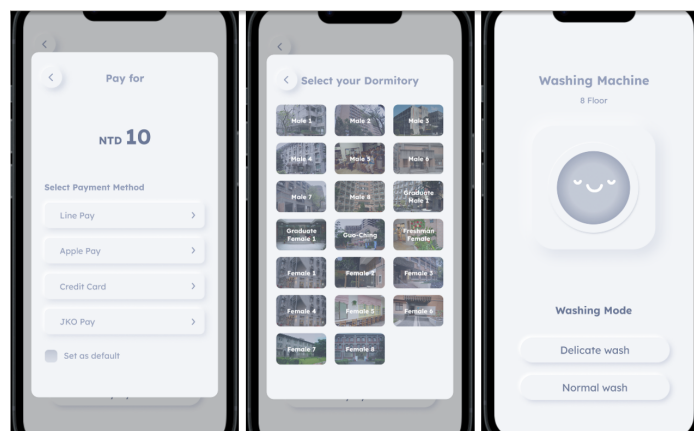
14. H9 Help Users with Errors / Severity 4 / Found by A B C D during discussion

Description: When clicking "back" in the E-payment page, it leads back to the dormitory selection page (Guessing that this is the bug when setting transitions in Figma)

The washing mode selection page directly appears after pressing the "pay by coin" button, but does not give options for users to undo their action if something goes wrong.

Screenshots:

Fix: Users surely need some cancel/refund functions. And it may be helpful to insert some successfully-paid/confirmation pages before entering the washing mode selection page in case people fail to pay.

15. **H7 Flexibility and efficiency of use [Severity 1] / Found by A**
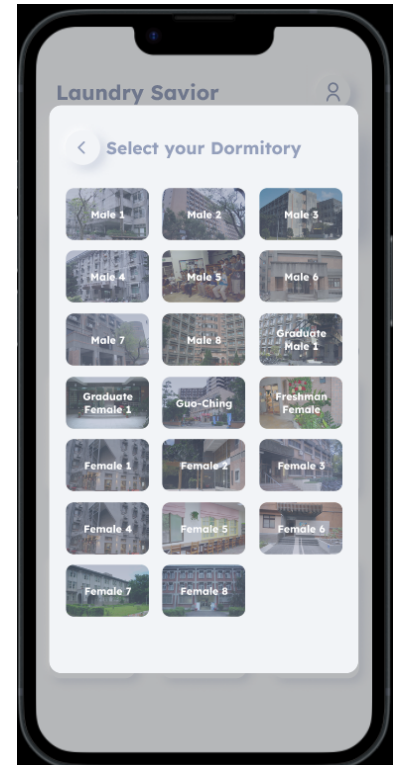
    Description:
    There are too many repeated descriptions of dorms such as male and female, the users have to read through the whole section to find his/ her dorm.

    Screenshots:
    If the users live in female 8, she has to read from top till bottom in order to find her dorms

    Fix:
    Usage of dropdown lists or hamburger menus would help with classifying the dorm info and help the users to find his/her dorm faster.

16. **H7 Flexibility and efficiency of use [Severity 1] / Found by A**
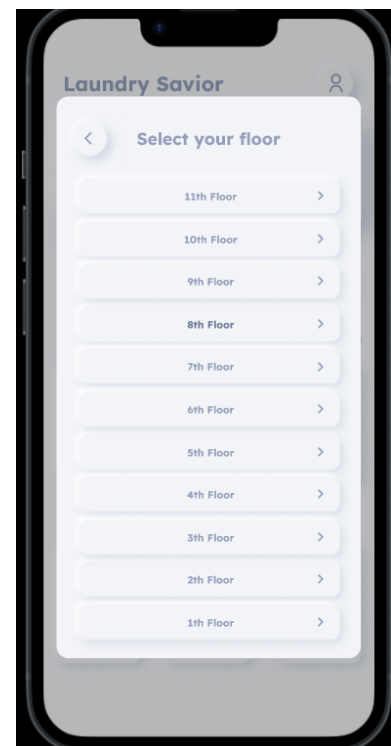
    Description:
    The numbering of floors are packed in a small popup and have problems similar to problem 1, where users have to look through the whole section to find his/her floor.

    Screenshots:
    The users living on the 1st floor have to read through the whole screen from the top in order to find floor 1.

    Fix:
    Combining this section with the dormitory selection section and letting the users type their floor number would be a faster way. Numbering correction: 1st, 2nd, 3rd. not 1th, 2th, 3th.

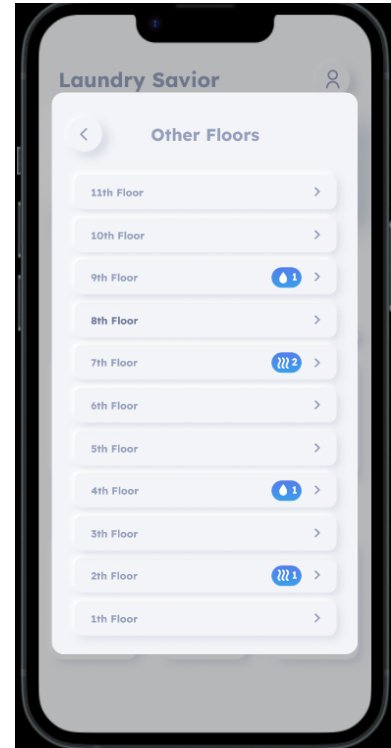**17. H2 Match between system and the real world [Severity 1] / Found by A**
Description:
The dryer icon is a bit confusing because I would think it would be cold wind like the icon on the aircon remote.
Screenshots:
Fix:
Using warm colors like red or orange would clarify the meaning of the icon as it uses hot wind to dry up your clothes or change the icon into something like this.
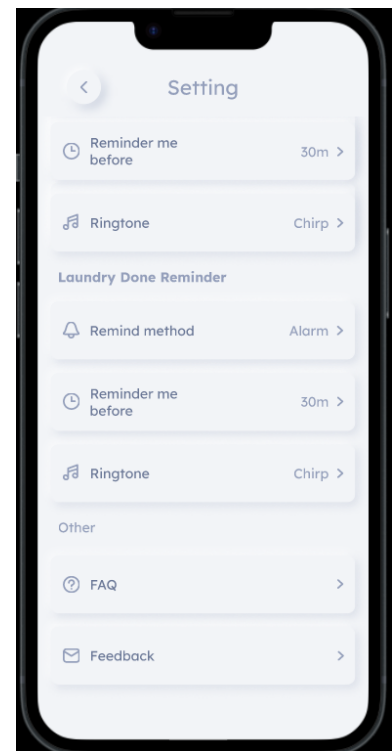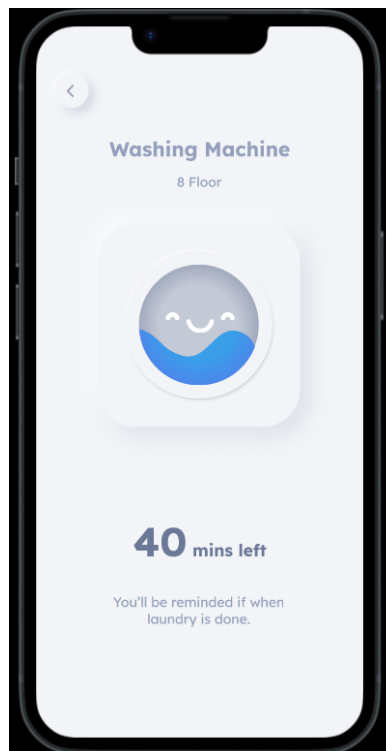

18. H7 Flexibility and efficiency of use [Severity 2] / Found by A
Description:
At the washing machine interface, it shows that the users will be reminded if the laundry is done, but at the setting interface, the users can choose to remind them 30 mins before(laundry not done yet). It is a bit contradictory to the laundry done reminder.
Screenshots:
Fix:

Make the time reminder duration shorter, at most 10 min

19. H2 Match between system and the real world [Severity 3] / Found by A B C D during discussion
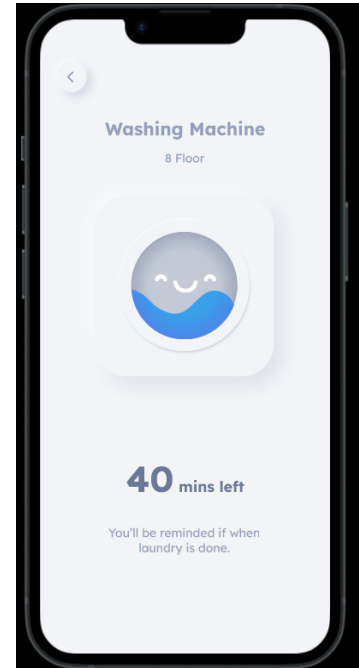
Description:

At the washing machine interface, it doesn't have the option for users to change the time of wash. Some of them might pay more in order to have a longer washing time. E-payment can automatically calculate the time for the washing with how much the users pay but users who pay with coins cannot change the washing time.

Screenshots:

Fix:

They didn't match the usage scenario in the dormitory because the washing machine in the dormitory decides on the washing time through the amount paid.
Have to add the feature of letting the users change their washing time just in case some users pay more to have a longer washing time.

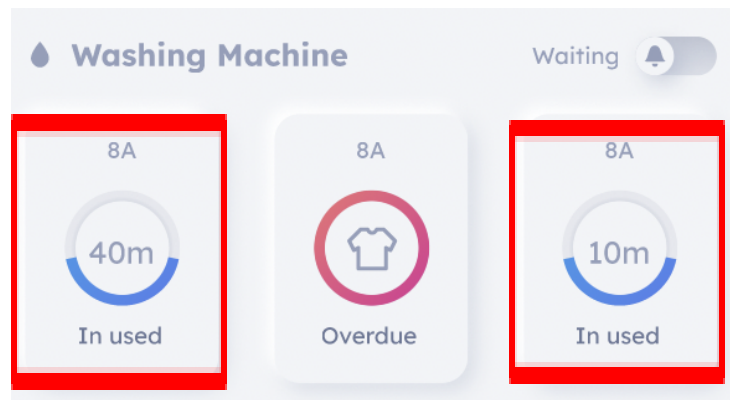## 20. H1 Visibility of system status [Severity 1] / Found by B

Description:

Not sure whether the water level of the washing machine displayed in the app will drop or rise while the washing machine progresses, since it's on the same level in this prototype.
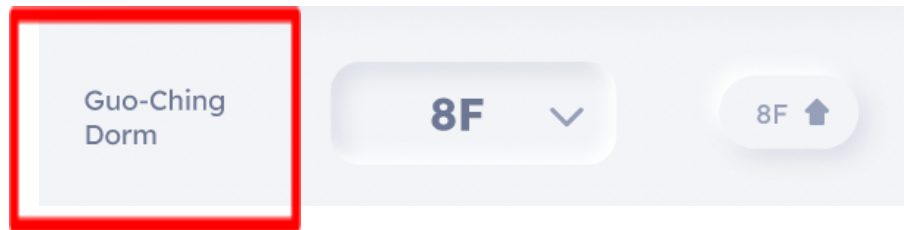
Screenshots:

Fix: Display different water levels if the remaining time is different.

21. H5 Error prevention [Severity 1] / Found by B

Description: Not sure if it is possible to switch to another dormitory after the first-time setup, since there isn't a drop down menu for dormitories.

Screenshots:

Fix: Add a drop down menu for dormitory selection, too.

22. H2 Match between system and the real world [Severity 3] / Found by B

Description: Since there might be more than 3 washing/dryer machines on each floor, it's unclear how 4+ washing/dryer machines will be displayed on the app.
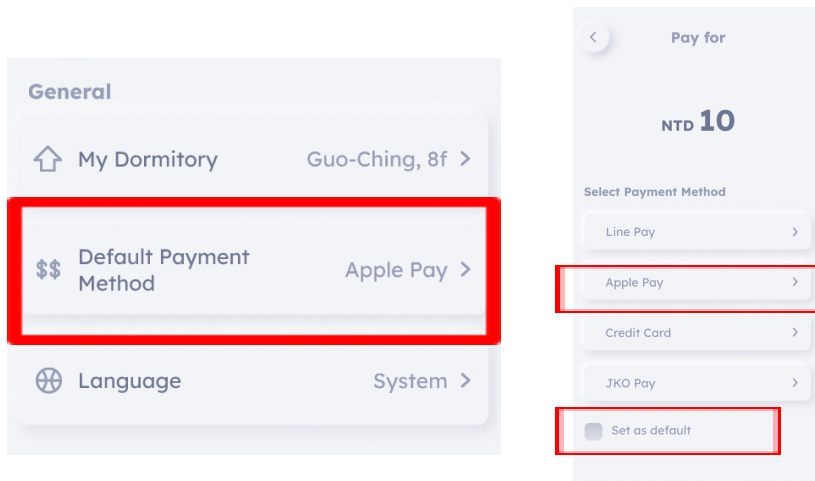**Screenshots:**

As the figure shows, it only displayed 3 washing machines' status.
Fix: Add a bar or some dots beneath the status of washing machines to suggest that users can scroll left/right to see other washing machines' status.

23. H1 Visibility of system status [Severity 2] / Found by B

Description: The setting page shows that users can set their default payment method, after doing so, would the E-payment page show some difference for the default payment (in the screenshots below, will Apple Pay be different from other payments?). And what will happen when the "set as default" box is checked is unclear.
Screenshots:

Fix: Default payment method may be placed on the first choice or be shown differently from other options. Also, demo the status when the "set as default" box is checked.

24. H1 Visibility of system status [Severity 1] / Found by B

Description: The notification that shows "No available machines on your floor" seems a bit too normal for users to be aware of it right away.
Screenshots:
Fix: Use an alerting color (e.g. red) for users to know that there's no available washing machines right away.

25. H6 Recognition rather than recall [Severity 3] / Found by B

Description: When the "washing machine available" notification pops out, can we know which specific washing machine is available?
Screenshots:

Fix: Specify the washing machine that is available(maybe an id for every washing machine is needed).

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	2	3	0	0	5
H2: Match Sys & World	0	4	0	2	0	6
H3: User Control	0	0	0	0	0	0
H4: Consistency	0	1	1	0	0	2
H5: Error Prevention	0	1	0	0	1	2
H6: Recognition not Recall	0	0	0	1	0	1
H7: Efficiency of Use	0	3	1	1	0	5
H8: Minimalist Design	0	1	1	0	0	2
H9: Help Users with Errors	0	0	0	0	1	1
H10: Documentation	0	0	1	0	0	1
Total Violations by Severity	**0**	**12**	**7**	**4**	**2**	**25**

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	Evaluator E
Severity 0	0	0	0	0	
Severity 1	4	6	1	5	
Severity 2	2	4	1	3	
Severity 3	1	3	2	1	
Severity 4	1	2	1	2	
% identified (Severity 3 & 4)	2/6 = 33%	5/6 = 83%	3/6 = 50%	3/6 = 50%	
% identified (All severity levels)	8/25 = 32%	15/25 = 60%	5/25 = 20%	11/25 = 44%	

***Note:** that the bottom 2 rows are not calculated by adding the numbers above it. They are calculated by the [# of such violations identified by each evaluator] divided by the [total # of violations in the corresponding severity levels].

5. Summary Recommendations
[merge the general recommendations you made here]

The overall prototype is nicely designed to finish the task and fulfill its purpose of helping the students who live in dorms to do their laundry. However, there are some minor usability problems such as indications of washing machine, dorms and floors selection flow and confusing icons.

[H2 Match between System and World：# 5, 10, 17, 19, 22]

[H1 Sufficient Status Visibility：# 1, 7, 20, 23, 24]

[H7 Users Control efficiently：# 2, 8, 15, 16, 18]

The most crucial problem to solve is that the users who pay with cash or coins don't have the option to set their own timer, always starting with 40 min in this prototype and I think that might cause some confusion to the users.Besides that, errors are most likely to happen while paying, and finding the physical one corresponds to the virtual one in the app (maybe finding them is not a big problem for experienced users though.

I would recommend that the team think about adding a feature that let users to adjust their own timer because some users that have a lot of clothes will take longer time for the laundry to be done, and this is the same for the drying machine too (or else the clothes would smell if its half dry and still humid). Some changes made to the icon (the dryer icon) would be nice and let the users quickly select their dorm and floors with a filter feature would ease up the setup progress.

Since the washing machines in the dormitories are limited, the availability of washing machines are more likely to be scarce. I recommend the team to develop a reservation function, so that users can not only check the availability beforehand, but also be guaranteed that the machines will still be available when they reach the laundry place.A clear virtual-to-physical map/identification system would be very helpful. For the convenience and custom services, maintaining a favorite-floor list will definitely be helpful, the information can be provided and displayed catering to users.

The status of the floor (quantities of washing machines and dryers seems to be enough for now) should be provided whenever users are selecting, either for setting or for checking, so they can switch between the floors accordingly.