

## 1. Problem

PiggyBag is a mobile app that allows users to crowd-source grocery runs with their housemates or friends with features such as collaboratively creating grocery lists, checking in at grocery stores and tracking items that are bought there, and viewing transaction histories.

## 2. Violations Found

**Note:** This entire doc makes a lot more sense if you open the Document Outline on the left!

First, the HE suggestions. While compiling, we<sup>1</sup> did everything in the [Appendix](#), and we added some headers to help us organize our thoughts. We felt like those headers might be useful to you, so we left everything in the Appendix, organized by which page of the app the suggestions are from.

[Go to Appendix](#)

Next, here are some positive things :)

### H3 User control and freedom

- A small detail but appreciated: how it's easy to delete pictures after you upload them if you change your mind or uploaded incorrectly.

### H4 Consistency and standards

- Good work designing all shopping lists to follow the familiar format of pink priority items grouped/white regular items grouped.
- Good work using a consistent interface for scanning barcodes.

### H5 Error prevention

- Excellent job with the "Leave Shopping Mode" check; people will really appreciate not losing their shopping progress

### H7 Flexibility and efficiency of use

- A small detail but appreciated: toggle for "See My Items Also" on the "GROUP SHOPPING LIST" page and "See My Items Only" on the "SHOP" page.
- Also: on "Attach Your Receipt", nice work encouraging the the "Scan" option but also allowing manual input and no charges necessary

### H8 Aesthetic and minimalist design

- I really liked your color scheme, use of grids and whitespace, and general design mood. To me it says "professional, useful, but also reassuring" which I think is a good fit for your app.
- I also really enjoy the "Your list is empty!" screen—it's very satisfying.

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<sup>1</sup> That royal we though

### 3. Summary of Violations<sup>2</sup>

Category	# Viol. (sev 0)	# Viol. (sev 1)	# Viol. (sev 2)	# Viol. (sev 3)	# Viol. (sev 4)	# Viol. (total)
H1: Visibility of Status	-	1	-	-	1	2
H2: Match Sys & World	-	3	3	2	-	8
H3: User Control	-	1	-	-	-	1
H4: Consistency	1	2	-	2	-	5
H5: Error Prevention	-	-	-	1	-	1
H6: Recognition not Recall	-	-	-	-	-	0
H7: Efficiency of Use	-	-	2	1	-	3
H8: Minimalist Design	-	2	-	-	-	2
H9: Help Users with Errors	-	-	1	-	1	2
H10: Documentation	2	1	1	-	-	4
<b>Total Violations by Severity</b>	<b>3</b>	<b>10</b>	<b>7</b>	<b>6</b>	<b>2</b>	<b>28</b>
<b>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)</b>						

### 4. Evaluation Statistics

Severity / Evaluator	Evaluator A	Evaluator B	Evaluator C	Evaluator D	Evaluator E
sev. 0	1	0	1	1	
sev. 1	1	3	4	2	
sev. 2	5	1	2	3	
sev. 3	4	2	4	4	
sev. 4	0	2	0	2	
<b>total (sev. 3 &amp; 4)</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>6</b>	
<b>total (all severity levels)</b>	<b>11</b>	<b>8</b>	<b>11</b>	<b>12</b>	

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

<sup>2</sup> [https://docs.google.com/spreadsheets/d/1-a\\_uMRYZL6Lj\\_bfR4Hhutup2ELGIbvL1NdkLO1IrTYFc](https://docs.google.com/spreadsheets/d/1-a_uMRYZL6Lj_bfR4Hhutup2ELGIbvL1NdkLO1IrTYFc)

## 5. Summary Recommendations

We really loved these things about your design :)

- "Your design is beautiful! I love the gentle gradients and warm/purple theme going on."
- "Overall, it was pretty difficult to find obvious heuristic violations in this app."
- "Wow, this was really excellent. If we're thinking about the function + form + interestingness + integrity thing we talked about in class, your app has all of them (allows for group shopping; great design tone and aesthetics; interesting thanks to color/progress graphs/psychological check-it-off desire gratification; commitment to transparency). I remember being lightly dubious about your idea in the beginning of the class (sorry) but after playing around with your prototype, I really find it actively delightful. Good work."
- "In terms of visual aesthetics, very nice! Design is seamless and smooth, and the colors are definitely used well, adding visual interest and emphasis when necessary."

Here are some summary-like things we said:

- I feel like there's a lot of text throughout the app, which makes me slightly unengaged; also, the process for adding an item requires a lot of specific info so I might just rather text my friend to buy "that cheese i like" instead of asking her to buy "Cheddar Cheese Slices from Kirkland, 1 pack" through the app. But the prototype looks really nice and I think, despite my critique, that it's one of the better made ones compared to the other "Uber for shopping" apps out right now.
- Most of the things I mentioned feel like small fixes. The one thing I would maybe rethink from first principles is your "Clock" icon page, which I called the "Payment Updates" page (that's what I interpreted it as). So: What is the purpose of it (show payment logistics; display a history to be proud of; appeal to people's desires to get "Hearts")? How do you best communicate that purpose? If it's currently serving a dual purpose, would it be helpful to the user to choose one to focus on or separate them out into different pages?
- Many of the issues I encountered had to deal with proper indication/ordering of status/priority and conflicts between what I expected and what actually happened. Otherwise, I felt that the workflows of all three tasks were for the most part fairly intuitive and well-designed.

### **Severity Ratings**

0 - don't agree that this is a usability problem

1 - cosmetic problem

2 - minor usability problem

3 - major usability problem; important to fix

4 - usability catastrophe; imperative to fix

## ***Heuristics***

### **H1: Visibility of System Status**

- Keep users informed about what is going on

### **H2: Match Between System & Real World**

- Speak the users' language
- Follow real world conventions

### **H3: User Control & Freedom**

- "Exits" for mistaken choices, undo, redo
- Don't force down fixed paths

### **H4: Consistency & Standards**

### **H5: Error Prevention**

### **H6: Recognition Rather Than Recall**

- Make objects, actions, options, & directions visible or easily retrievable

### **H7: Flexibility & Efficiency of Use**

- Accelerators for experts (e.g., gestures, kb shortcuts)
- Allow users to tailor frequent actions (e.g., macros)

### **H8: Aesthetic & Minimalist Design**

- No irrelevant information in dialogues

### **H9: Help Users Recognize, Diagnose, & Recover from Errors**

- Error messages in plain language
- Precisely indicate the problem
- Constructively suggest a solution

### **H10: Help & Documentation**

- Easy to search
- Focused on the user's task
- List concrete steps to carry out
- Not too large

# Appendix

## Lists of items

### (3) "my shopping list" vs "group shopping list"

#### 1. H4 Consistency and standards / Severity 3 / Found by: A, C, D

In the "List" tab, transitioning from "Group Shopping List" to "My Shopping List" is confusing as the current implementation requires the user to click on "Group Shopping List" to return to "My Shopping List." I imagine in the actual app this would be supported by a swiping action, but even so, the absence of "My Shopping List" while on the "Group Shopping List" screen (versus having "Group Shopping List" faded out to the side as in the "My Shopping List" screen) makes it difficult to figure out how to return to "My Shopping List."

**Possible fix:** When on "Group Shopping List," right justify and include "My Shopping List" faded to the left.

### (2) how to edit item notes?

#### 2. H2 Match between system and the real world / Severity 2 / Found by: A, D

When viewing the details of items in "My Shopping List," the user is prompted to edit the note by clicking on "Note." Since the label "Note" does not look like a button or a link, I didn't know to click on it to edit.

**Possible fix:** Edit notes from the "Manage" button.

**Possible fix:** Have pencil icon, traditional symbol for editing, somewhere on the view (top right?)

### (2) item note visibility

#### 3. H2 Match system/real world / Severity 2 / Found by: C

(Credit goes to Cynthia who mentioned this in last week's studio.) On the "SHOP" page, I might not think to open up the items to check the notes. However, my friend who listed the item likely added the note because it was really important to them that I get it right. This could lead to a mismatch between system use vs. real world intent.

**Possible fix:** Show a preview of item notes in the item listing, similar to how email apps do it

**Possible fix:** Default to having the item list tabs open

### (2) what store is an item from?

#### 4. H7 Flexibility and Efficiency of Use / Severity 2 / Found by: A

In Shopping List, user isn't provided information on where those items are available for purchase, so when shopping, user might be delayed because they're going from store to store looking for a certain product.

**Possible fix:** Provide information on where the items are available for purchase in shopping list screen (maybe in the dropdown?)

(1) red makes priority items look like errors

**5. H2 Match system/real world / Severity 1 / Found by: B**

Usually the color red is used for errors or warnings, but in this app it is used to highlight either "new" or "high priority" items.

**Possible fix:** Change the light-red color used for new/high-priority items to something else (like Piggybag purple or blue)

## Adding an item

(3) priority items shouldn't be default

**6. H5 Error prevention / Severity 3 / Found by: A, D**

When scanning an item, "This is a Priority Item" is selected by default. What does priority mean—Do they need to pay more for it to be a priority item? My understanding that priority items should be a special case, and having it selected by default could create priority requests that shouldn't be.

**Possible fix:** Set "This is a Priority Item" to default to unselected.

**Possible fix:** Make clearer the difference between priority and non-priority items and increase general understanding of the advantages and disadvantages of marking an item as priority.

(1) item added successfully

**7. H1 Visibility of system status / Severity 1 / Found by: C**

After adding an item to "MY SHOPPING LIST", I'm not sure if it worked or not. (Likely a limit of the prototype rather than the app.)

**Possible fix:** Highlight the item in the main list of items

**Possible fix:** Have a small bar appear at the top saying "You added [item]."

(0) phrasing: "Add new item"

**8. H4 Consistency and standards / Severity 0 / Found by: D**

When adding an item, I was confused when clicking on "Add new item," as I didn't know whether to expect the item I was creating to be added or a new popup prompting to add another item.

**Possible fix:** Change text to "Add this item" or "Add item" or just "Add."

## SHOP flow: scanning

### (3) how to check items off?

#### **9. H7 Flexibility and efficiency of use / Severity 3 / Found by: B, C**

On the "SHOP" page, the instructions say to "Scan Barcode to Check Items," but I'm not sure where to go to scan the items.

Thought process: I'm expecting some sort of "Place the barcode in the red rectangle above" widget, similar to what showed up when I was adding an item. I know clicking "DONE" is not the right solution... maybe the "Scan Barcode to Check Items" is a link? Update: Okay this was a little strange but after I click "DONE", if then I click Back, then I get a "Place the barcode in the red rectangle above" widget.

**Possible fix:** Show the "Place the barcode in the red rectangle above" widget at the top of the shopping screen

### (4) which items are checked off?

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

On the "Shop" tab, the checks on the left of items hint at the status of the item, but since these indicators are always in the shape of a check and the difference between highlighted and unhighlighted is so subtle, my first impression was that everything was already picked up and checked off. It's difficult to check status at a glance and I am inclined to ignore whatever signals these checks indicate.

**Possible fix:** In the shopping trip workflow, have a sectioned-off part for completed items.

**Possible fix:** Change to checkboxes to clearly indicate the status of items.

### (3) navigating back/forward from the scanning page

#### **11. H2 Match between system and the real world / Severity 3 / Found by: A, C, D**

On the barcode scan to check from the "Shop" tab, clicking "DONE" takes the user to the "attach your receipt" screen. The user may not have been done shopping, but only done with scanning items. At the same time, there's no back button on that page. User might feel annoyed, especially if they hadn't fully digested the previous screen yet.

**Possible fix:** Navigate user back to shopping list from "DONE" but save scanned items

**Possible fix:** Include back button.

### (1) phrasing: "Are you at somewhere else?"

#### **12. H4 Consistency and standards / Severity [X] / Found by: D**

On the "Shop" tab, the text "Are you at somewhere else?" sounds awkward. Since this is posed as a question, it could also possibly be unclear that it is a call to action.

**Possible fix:** Change to "Are you somewhere else?" or "I'm not at XXX." or "I'm somewhere else."

## SHOP flow: receipt

### (4) modify charge amount after scanning receipt

#### **13. H9 Help users recognize, diagnose, recover from errors / Severity 4 / Found by: B, D**

When a user scans a receipt after their shopping trip, the app gives them the choice to charge each of the group members - with prices set for each group member. However, there is no option to change the amount to charge each user (from the initial suggested amount). What if the app gets the amount to charge each person wrong? (maybe something goes wrong with the scanning or the user just wants to adjust the charges).

**Possible fix:** Give the user the option to actually change how much each user can be charged in the "scan receipt" finishing flow.

### (2) streamline charge button?

#### **14. H7 Flexibility and efficiency of use / Severity 2 / Found by: A, D**

In "We've got your receipt!" screen, user is confused whether charging others for buying their items is optional since "Charge" is a button, indicating charging is under user control.

Additionally, the necessity of individually confirming "Charge" on each person could become repetitive with many people.

**Possible fix:** Instead of defaulting to confirmation of each person's charge, default to modifying each person's charge if necessary. Change big "DONE" button to "CHARGE." This allows for the more frequent action to be done more quickly.

**Possible fix:** Make clear whether or not you have to charge.

### (1) phrasing: "Once you're done, touch the Done button"

#### **15. H8 Aesthetic and minimalist design / Severity 1 / Found by: D**

On the "We got your receipt!" screen, the "Once you're done, touch the Done button below" text is redundant.

**Possible fix:** Remove.

## Bell (notifications?) tab

### (3) bell tab is unclear

#### **16. H4 Consistency and standards / Severity 3 / Found by: B, D**

The use of the "bell" tab is a bit unclear, since all of the information shown in that tab can either be seen in the list tab or the history tab. Thus, it can get in the way of the user reaching their goals because a user will likely click the bell tab when what they really want is located in one of the other tabs. Also, some of the info in this tab does not seem very helpful (i.e. is not needed in the app, or at least not needed in a "notifications" tab).

**Possible fix:** Condense what's in the "bell" tab to just be actual notifications

**Possible fix:** Get rid of it altogether and distribute what's in it to the other tabs.

**Possible fix:** Move red/high priority alerts to top of list.

(1ish, 3ish)<sup>3</sup> change icon: bell

**17. H2 Match system/real world / Severity [X] / Found by: B**

Usually a "bell" icon signifies notifications, but it appears that the bell tab in this app leads to some kind of overview/dashboard for the user, not just notifications.

**Possible fix:** Make the bell tab have just notifications

**Possible fix:** Change the icon to a dashboard-like icon

(2) confirming after we've paid our friend?

**18. H2 Match between system and the real world / Severity 1 / Found by: D**

After paying somebody back and reaching the success screen ("You've successfully paid \$XX.XX to XXX...") the user is then prompted to confirm. Payment confirmation generally happens before payment, but the screen indicates that the payment has already gone through, so it's confusing as to what the user is confirming.

**Possible fix:** If you want to add an extra layer of confirmation, add a new screen between the screen with payment method and item details and the success screen and include the "Confirm" button there.

**Possible fix:** Otherwise, change the "Confirm" button on the success screen with "Okay," or some similar acknowledgement.

## Clock (payment updates?) tab

(3) payments tab is unclear

**19. H2 Match system and real world / Severity 3 / Found by: A, C**

The "Payment Updates" page seems to display the past payments from all friends to all other friends. When I think about payments, I want to see two main things: (1) I need to pay/have paid someone, and (2) Someone needs to pay/has paid me.

**Partial fix:** Show only payments that the current user is a part of, and color the payments slightly differently (ie. slightly darker) depending on whether it's (1) or (2)

**Partial fix:** Change some of the wording to say "You shopped for \_\_\_" instead of "Fabian shopped for \_\_\_"

(2) "payment pending" is an error?

**20. H9 Error recovery / Severity 2 / Found by: A, C**

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<sup>3</sup> Severity is 1-ish because it comes down to an easy cosmetic fix, but 3-ish because it's important for user understanding. In the Evaluation Statistics we calculated this as a 1.

On the "Payment Updates" page, there is a red "Alert" icon next to "Payment Pending". Does this mean that (1) this person has made no attempt to pay you, (2) they tried to pay you but there was an issue, hence the alert, (3) the person has paid you and the bank is just transferring it over, no need to be worried, or (4) something else?

**Possible fix:** In case (1), change the wording to "Payment Missing" or "Not Paid" or something similar

**Possible fix:** In case (2), change the wording to "Payment Error" or something similar

**Possible fix:** In case (3), remove the "Alert" icon and change the item to be maybe a darker gray instead of pink.

(1ish, 3ish)<sup>4</sup> change icon: payments

### 21. H2 Match system/real world / Severity 1 / Found by: C

I was confused by the "Clock" icon on the bottom bar, and forgot multiple times what it referred to ("Payment Updates") and had to click on it to check.

**Possible fix:** Use an icon that more represents "Payment Updates", such as a money symbol.

**Possible fix:** If the idea of the "Clock" icon is to show "History", separate out "Payment Updates" to be a separate tab, so that users can handle urgent things (my friend hasn't paid me! >:( ) separately from more fun things (wow, look how much we have helped each other!)

(0) what if users never pay?

### 22. H10 Help and Documentation / Severity 0 / Found by: A

User sees that they must pay another user for their services and is confused when they have to pay that user by.

**Possible fix:** Make clear when you have to pay that user and what the penalties are if you never pay, or make so that you pay the user automatically upon item purchase (like a subscription service).

(1) hearts are unnecessary

### 23. H8 Aesthetic and minimalist design / Severity 1 / Found by: C

On the "Payment Updates" page, there are options to "Heart" or "Share" each payment. I'm not sure what the purpose of this is, since all I want to do on that screen is to make sure I've paid for and been paid for all my groceries.

**Possible fix:** Remove the "Heart" or "Share" options

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<sup>4</sup> Again: Severity is 1-ish because it comes down to an easy cosmetic fix, but 3-ish because it's important for user understanding. In the Evaluation Statistics we calculated this as a 1.

## Profile tab

### (2) community score is unnecessary

#### **24. H10 Help and Documentation / Severity 2 / Found by: A, B**

User goes into profile screen and might wonder what "Community Score" means. They might ignore it completely or get frustrated if theirs is low and they don't know how to raise it. Who is the group competing against and why would they care if their community score is high?

**Possible fix:** Get rid of the community score display

**Possible fix:** Make clear what community score is, what separates it from shopping runs and items delivered, and what factors into it.

### (1) level needs to be explained

#### **25. H10 violation Help and Documentation / Severity 1 / Found by: B**

There are no details/documentation on how each user "level" is reached, and there is no explanation of what a "community score" is and what factors into that.

**Possible fix:** Provide a small tooltip or page with a description of the different users levels and how to achieve them, as well as a small tooltip or page explaining the community score

### (1) level font color is pink, implies link

#### **26. H4 Consistency and standards / Severity 1 / Found by: C**

On the user's profile page, "My Record" and "My Group 'Four Little Pigs'" text elements are pink. After using this app for a while, I've started to associate the pink color with links, so it feels strange to use it for headings

**Possible fix:** Change the "My Record" and "My Group 'Four Little Pigs'" text elements to a different color, like purple or gray

**Possible fix:** Maybe they are pink because they actually are links, and clicking on them brings up a tooltip (re: H10 Help and Documentation)

### (0) settings/preferences placement

#### **27. H10 Help and documentation / Severity 0 / Found by: C**

On the user's profile page, I was looking for a Settings button. "Preferences/Settings" is listed at the bottom of the profile, which feels unintuitive to me. Generally I associate Settings with the top right corner or bottom right corner, and only at the bottom of a list if that list is in a side menu.

**Possible fix:** Move "Preferences/Settings" to a corner, either of the entire screen, of the profile section, or of the gray section.

## Login page

(1) sign up button is small

**28. H3 User Control & Freedom / Severity 1 / Found by: A**

The sign in screen has many small buttons that can be hard to press such as "Sign Up".

**Possible fix:** Do what most companies like tumblr, twitter, tinder, etc do: Have only 2 buttons, "Sign Up" and "Login", which bring you to screens for onboarding or for login with account credentials or google or facebook, etc.