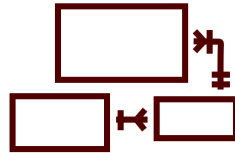# User Study Report

Team 10 CPEN

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Executive Summary

Our assigned project is the web-based point of sale system for *REV's American Grill*. The document is drafted as a meta synthesis of reports from user studies. Users with matching characteristics to our selected personas are given tasks to perform on our website. Observations from the user studies are recorded and analyses are made based on the observations and a structured interview. A selection of design moves are synthesized from the analyses.

Document overview:

- **Personas:** We detailed the descriptions of our 3 design personas and their needs in the application. Along with the 3 personas, we also detailed accessibility personas that may have special needs in a website.
- **User Study Participants:** We selected a cohort of 7 participants to perform user studies on. For each of our participants, they are matched with a persona and given tasks to complete in accordance to their persona.
- **Findings:** The discoverability of pages and features on our web application was not as high as we anticipated. Users from across the personas had issues navigating to their desired destinations. Important accessibility features were also missing from our current MVP.
- **Proposed Design Moves:** 8 design moves are proposed by the team members in response to the analyses of the findings. We aim to improve the product by increasing the quantity and quality of signifiers in the web application so users can find features and pages with ease. We also must ensure that users with accessibility difficulties have their needs met.

In summary, a select group of participants are chosen to use the web application. The results from these studies reveal gaps in the ease of use in our application, especially in terms of navigation. We aim to cover these shortcomings using information gained from these studies.

Personas

All three of our personas (cashier, manager, and customer) will be tested with this user study. We assume that the manager persona has knowledge in what Rev's grill is and knowledge on how to run a restaurant. The manager persona needs to be able to add and remove menu items, add or remove different employees, as well as change their status from cashier to manager or vice versa, view common trends of sales data, and add or edit ingredient stock. We assume the cashier has basic knowledge on how to operate a point of sale system and the names, appearances, and ingredients of Rev's menu items. The cashier needs to be able to quickly place orders given in a restaurant setting. We assume the customer has enough technological experience to operate a website, and has basic knowledge on how to order stuff through a web application. The customer needs to be able to locate menu items of their choosing with ease and no hassle, as well as understand what they are ordering.

Our three different accessibility personas from our proposal include Maria, who will need to be accommodated by allowing for language translation as well as easy to read instructions, Steven, who needs to be able to use the system while being Deaf, and Trevor, who needs easy to read text and images in order to navigate the interface.

All personas were assumed to have some sort of accessibility needs, cashiers and managers were not assumed to have less accessibility needs. In this specific User Study, due to limitations in implementation and having access to different accessibility needs, Maria won't be tested due to the lack of a language feature, and Trevor won't be tested due to the images not being fully implemented. Testing for Steven isn't necessary because there are no sounds that play on the website. In addition, a variety of our personas were tested with different accessibility needs, such as vegetarian, with a colorblind filter, on a phone, and not technically inclined (which Maria is as well). These personas with different accessibility needs are just normal people with various needs that need to be met.

User Study Participants

Participant Name (May be Changed for Privacy)	Persona and Accessibility Needs	Responsible Team Member
Alex	Manager	Wu
Steve	Customer	Wu
Arjun	Customer, Vegetarian	Alexander

Zach	Cashier, Colorblind filter	Jonathan
Eric	Manager	Zane
Sam	Cashier,	Sean
Tulsi	Customer, Mobile User, not technically inclined	Utsawb

User Study Findings

There were several issues of user's finding some navigation unavailable or missing such as not being able to log out, edit the price of a new item... As well there were some technical issues where if a page was reloaded the saved selections would be cleared. There was some confusion as to what the participants were looking at on some of the manager screen pages such as the edit ingredients portion. There were a couple options missing such as searching for vegetarian options. As well as a few complaints about there not being a total of the items in the cart as well as the items not stacking together so multiple of the same item could overflow the cart. Since the customer and cart system were developed before the sprint started, we are under a bit of tech debt trying to fix stuff that was made early on and stuck to.

Proposed Design Moves

High-level Design Move	Detailed Description	Justification
Deselect individual items in the cart	In the cart pop up, there should be a small "X" button to remove an item from the current cart.	The user isn't currently able to deselect individual items if they changed their mind or accidentally added an item. It was frustrating to clear the whole cart when only 1 item needed to be removed.
Change location of cart	The cart should have a more pronounced location, where it is easily visible.	The trend for a lot of shopping websites is to have some type of call to action on the cart when an item is added, something like a hovering cart button, and an animation. The user had trouble finding the cart button based on their prior intuition
More signifiers in the	Some options and input fields in	The user had trouble navigating the

manager screen.	the manager screen should have more signifiers. The user should know how to go into one of the manager options and not be met with a blank screen. The ingredients editor should label itself as such.	page and editing the menu because the design of the page is opaque and unclear.
Add an option to toggle a vegetarian only screen.	Add some clearly obvious setting that simply removes all non vegetarian items from the menu. This only needs to be on the customer side, since cashiers, even if vegetarian, will still have to place orders for non vegetarian people.	Vegetarians make up a decent portion of A&M's population and having a button that would allow them to filter to just their needs would greatly improve their viewing experience.
Make the Rev's Grill title more prominent.	Make the Rev's Grill title stand out more by making the font larger and maybe having it in a maroon background box with yellow lettering as the original is.	It doesn't stand out as it is currently and would make the home page more visually appealing.
Add a visible cart total on the cashier page.	On the cashier's page, the right side of it is empty. I intend to make the page have a visible cart total that shows the number of items along with the price.	Customers may wonder what their current total is or the cashier may want to check the current total items. Having a cart feature on the side with important information can help speed up the order process.
Change the structure of the cart.	The cart should have a ScrollArea element for listing the items. Items should not have multiple listings if ordered multiple times per cart. There should be a way to remove a single item from the cart without clearing it.	On the customer/cashier page the cart comes from below and will overflow off of the page if the cart is too full. Removing items is all or nothing and should not be.
Make buttons slightly bigger	Increase the size of all smaller buttons. The buttons inside the cart can be ruin the order by mistake.	When testing on a tablet/touch screen, many buttons are hard to click. E.g., the "x" on dialog boxes and the "clear cart" and "checkout" buttons are too close and can be mistakenly pressed.

Appendix 1: User Study Observations and Interview Notes

Participant Name	Observations	Observation Notes
Alex	The participant looked around the main page looking for a way to log out.	It wasn't very clear that the log out button is inside the settings page. It would have made more sense for it to be displayed on the top navigation bar.
Alex	The participant opened the manager page and was confused on how to proceed.	The page opened up to a blank screen with options on the left. It wasn't obvious to the user that they must select one of the options. They would have preferred a bigger signal for selecting options.
Alex	The participant noticed that when reloading the manager page, it doesn't keep the current option selected.	The participant would have preferred it to stay just for convenience.
Alex	The participant tried to add a new item to the menu. They were confused about what the category meant in the editor.	Since they haven't used the software before, they didn't really know the categories by heart nor did they know there were categories.
Alex	The participant was confused about what exactly they were looking at when staring at the edit ingredients portion of the edit menu page.	The page only displayed a list of ingredients with no signifiers that the list is a list of ingredients.
Steve	The participant accidentally added more french fries than needed into the cart and tried to deselect one but couldn't.	There weren't any options to deselect an individual menu item in the cart page. The only option was to clear the whole cart. This was frustrating to the participant.
Steve	The participant looked at the top left of the main page and was befuddled why it said 68 F.	They weren't expecting the corner to display the current temperature. The lack of degree symbol also didn't help with signifying that the number represented temperature.
Steve	The participant selected "Burgers"	The participant didn't know that they

	as a category and wanted to see the whole menu again. However they had trouble finding a way to do it.	could click on the option again to deselect it. Although after being informed it's a way, they agreed that it makes sense. However additional signifiers would have helped with discoverability.
Steve	The participant attempted to check out by clicking the cart button on the top. They were bewildered by the cart popping up from the bottom. They also made fun of how long the buttons are.	They didn't like this design decision. There was too much white space between the name and the price because of how long the pop up is.
Arjun	The participant was able to navigate the pages easily, and could easily find what they wanted to order.	Everything was well laid out allowing for easy access. The participant never struggled to find a specific thing that they were looking for.
Arjun	The participant was vegetarian and attempted to sort by vegetarian but no such option was available.	Being a vegetarian, even though Rev's is mostly a burger joint, he was bogged down by a bunch of items that he couldn't order.
Arjun	The participant enjoyed the ability to switch the website into dark mode.	The participant was very pleased with the ability to toggle dark mode, as they much preferred it to the default light mode of the website.
Arjun	The participant found signing into accounts to be easy.	The participant was pleasantly surprised at how quickly he could sign into the website using google authentication.
Eric	He couldn't add a "Vegan Shake" to the menu.	He couldn't add a "Vegan Shake" to the menu since this feature hasn't been implemented again.
Eric	He wasn't able to set a price on a new item.	This feature was missing from the item editing menu and should be added.
Eric	Found it difficult to login to the manager screen.	This may have been somewhat difficult for the interviewee as they don't usually use Google OAUTH.

Eric	Did not like that all the images were a "heart-shaped multi-colored veggie pizzas".	These images are temporary place holders and will be replaced
Zach	He tested on a touch screen, and noticed how small the buttons were for certain things.	Making buttons bigger will not only make it easier for all users, but also include those with lower vision and fine motor skills.
Zach	If adding too many items to the cart, the box would overflow off of the screen without a scroll bar. Also consolidating multiple of the same item would decrease clutter.	This could easily be fixed with a ScrollArea for all the menu items listed in the cart.
Zach	He complained about adding multiple of an item. Claimed that there should be a box for specifying how many of a item should be added.	Adding a box to increase the amount of an item added would be a major convenience for all users, staff and customers alike.
Zach	Only complaint for colorblindness was about the "checkout" and "clear cart" buttons were not distinct enough and could easily be confusing/mistaken.	Using red and green buttons together makes it difficult for people with red-green color blindness. Making buttons more distinct by changing the form of neighboring buttons can help all people with distinction.
Zach	Removing a singular item is not possible, either checkout or clear everything entirely.	Adding a simple button per item to remove it should be very easy
Sam	Had an easy time getting to the cashier page but was confused about how to get back to the original manager screen.	The user had a hard time going to the necessary pages. The nav bar was not intuitive enough.
Sam	Wanted to select multiple items at a time to add to cart but was unable to.	The user thought that the fastest way to add multiple items to a cart would be to have a multiple-add feature. This could be faster as having to select huge amounts of orders would be time-consuming.
Sam	Stated that the current total feature	When asked about a feature that

	on the side of the page would be helpful and that a little bit of color would also make it more visually pleasing.	would have the current cart total, the user stated that having that addition would be helpful. In addition, the user believed that having more color on the cashier page would be beneficial for the user.
Tulsi	The user had an easy time figuring out how to add items to the cart, however they mentioned the lack of meaningful images and modifications.	It took them a while to decide what to "get" when inquired they said it was due to the lack of images.
Tulsi	The user took noticeably longer to get to the cart drawer.	When inquired they stated that the location of the items in the cart button was not where they expected it. Usually apps have it towards the bottom, or some type of hovering button.
Tulsi	Complained about the checkout drawer.	They had a hard time reading the spread out text.

Interview questions to ask the users:
1. Do all buttons/navigation options come naturally, or are there ways guiding could be improved?
2. Do you feel the menu items were laid out intuitively?
3. Do you think that the website was visually pleasing?
4. The text was easy to read?
5. What would be something that you would change?

User for Interview	Analysis of Answers to Questions
Alex	1. They were fine for the most part. Returning to the home page [Customer Menu] was not very intuitive. Finding the login and logout was not apparent at all. There wasn't enough discoverability on the manager page. 2. There were no issues. They liked the category options. 3. Visually it was mediocre. It didn't look bad but it also didn't look like efforts were put into the aesthetic. The dark mode

	was very appropriate. 4. Had no issue reading the texts except for the order cart. The text there should be bigger including the buttons. 5. The worst offender is the order checkout. It should absolutely not be layout at the bottom but on the side.
Steve	1. Navigation was fine besides going from category to the main menu. 2. It was very intuitive. 3. It looked ok. 4. Checkout was a nightmare. 5. Items must be able to be removed individually. The weather display should be blue. Deselecting a category on the main menu should be more intuitive.
Zach	1. Settings makes sense for when you want to change for accessibility, dark mode, etc. But when logging in, it should be more obvious to the user that needs to sign in. 2. Fine enough. Felt like a typical menu. 3. Looks clean. 4. Depended on zoom, buttons clipping text, dialog box was a stationary size and would not scale 5. Make the smaller buttons bigger for touch screens, including "x" in dialog boxes.
Arjun	1. Page navigation was easy and intuitive to use, and did not struggle to find anything. 2. Menu items were sorted into categories that made sense. 3. The website could use some more color, kinda looks like a grayscale template right now. 4. The text was very easy to read 5. Add an option to toggle a vegetarian only mode.
Eric	1. Other than not understanding how to sign in as a manager, yes. 2. Yes. 3. The pix were all heart-shaped multicolored veggie pizzas & some descriptions w (e.g. Revs Grilled Chicken Sandwich) bled outside the box. 4. Yes. 5. Title "Rev's Grill" should stand out, maybe the logo & certainly not a smaller font than the rest on the page.
Tulsi	1. Change the location of the cart button, make it have a call to action.

	2. Yes 3. Yes 4. Some of the text should be better formatted to make it easier to read. 5. Make the navbar actual buttons, the hover effect is the only thing that gave a hint that those were buttons.
Sam	1. Felt as though the nav bar exiting the cashier page could be improved. 2. Yes 3. No, the user felt as though the cashier page was bland and could be improved with more color. 4. Yes 5. Adding a select multiple items feature would enhance the cashier page.