Grocery Monk Redesign Project Report

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1 Introduction

1.1 Purpose

Grocery Monk ("https://grocerymonk.com/") is an E-commerce website that lets a user order aromatic spices, herbs, grocery and various other food items that are imported from India and get them delivered at your doorstep. There are many concerns in terms of usability and user experience for this website.
The homepage of the website lacks a proper interface for ordering items and creates confusion for first-time users. For e.g. the display screen after the homepage loads is just an image of grocery. The user has no idea at this point in time regarding what action needs to be done. This relates to a direct increase in the cognitive load since a user has to put in extra efforts than required. It takes time to get the hang of the website since it lacks familiarity with other similar websites. Lack of filters makes it difficult to filter/sort particular items thereby increasing the time for ordering these items. There is no dedicated section for Help/Support to address the customer's issue. The UI across different web-pages is not consistent and hinders the overall smooth user experience.
The main purpose of this project is to optimize the website in terms of usability and user experience. The aim is to redesign the website in a way that the display screen after the homepage loads should provide a sense of direction to the user. It should display the products under proper labels and categories. The redesigned prototype also aims to reduce the time for performing a task by giving the user an option of advanced sort and filters. The redesigned prototype will also have a consistent UI that would result in an overall improved shopping experience and thus a higher satisfaction rate.
We will use the **time on task** usability metric to show that our implementation would result in an overall decrease of time for completing a given task. A **subjective satisfaction score** would be calculated using the survey provided to the users after they perform the task on our implemented prototype. A usability metric - the **level of task success** be used to calculate the efficiency of the user as they perform the tasks on a redesigned prototype in comparison to the original design.

1.2 Tasks Identified

The tasks that the participants are going to perform will be related to finding and adding specific grocery items to the shopping cart. This would involve finding items from various categories/sub-sections, then comparing these items as per the definition of the task (for e.g. cheapest items/ best quality items, etc.) and finally adding them to the shopping cart. The interface provided by the original website for carrying out the above tasks is confusing and would often lead to frustration among users and also increase in time needed in performing the task. Whereas, the redesigned prototype intends to provide a clean interface offering a better user experience. Also, the new design provides an option to filter items resulting in faster checkout. Based on the above explanation, the tasks that are identified are as follows:

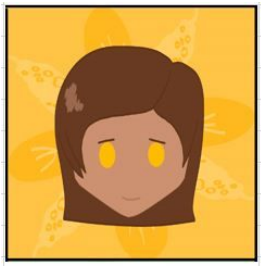
1. Find and add 6 quantities of Gopi Whole Milk Yogurt 4LB to your shopping cart
2. Find and add cheapest paneer packet (can be of any size/weight) to your shopping cart
3. Find and add cheapest 10LB basmati rice to your shopping cart
4. Find and add 20lb of highest priced wheat flour (atta) to your shopping cart

1.3 Assumptions

It is assumed that the user has a basic knowledge of using a computer. The user can perform concerned tasks on the internet without any guidance and already has an experience of ordering items through an E-commerce website.

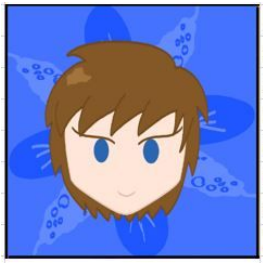
2 Analysis

2.1 Personas

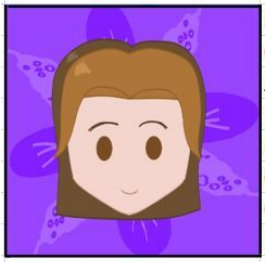


Name: Taahira the Mother of 2
Gender: Female
Age: 25
Location: Guadalupe, Arizona
Relationship Status: Married
Occupation: Unemployed
Concerns: Stocking the house for a family
Item Go-to types: snacks, cooking aids, baby food, beverages
"My husband works hard and I have two kids to feed. I gotta do what I can to support my family."

Name: Umesh the School Advisor
Gender: Male
Age: 29
Location: Guadalupe, Arizona
Relationship Status: Married
Occupation: School Advisor
Concerns: Simple to make and portable foods
Item Go-to types: Instant Foods, dry nuts, and Beverages
"Work can be such a hassle and I usually bring my own meals to work."



Name: Alex the College Student
Gender: Male
Age: 24
Location: Tempe, Arizona
Relationship Status: Non-single
Occupation: Bartender
Concerns: Cheap and Simple to make
Item Go-To types: Instant Foods, snacks, and Beverages
"I've had a lot of junkfood for college, but I've got to lay off that stuff sometimes."



Name: Brenda the Cook
Gender: Female
Age: 24
Location: Tempe, Arizona
Relationship Status: Non-single
Occupation: Restaurant Cook
Concerns: Have fun cooking Indian Food
Item Go-to types: Spices, flour, desserts, rice, dry nuts, mukhwas, etc.
"Culinary arts is my hobby. I like to try my hand on several genres and types of food."

2.2 Task Analysis Tools

We have performed Heuristic Evaluation (See Appendix 6.1) and Cognitive Walkthrough (See Appendix 6.2) for analyzing the website's usability. After the heuristic evaluation was performed, a usability score of 67 was obtained which signifies - "Users should be able to use this site or system and complete most important tasks, however, the user experience could be significantly improved" which is perfectly true in our case and is further complemented by the results from cognitive walkthrough. The redesigned prototype aims at providing better user experience by creating less confusion among the users and providing a clean and consistent interface across various webpages.

2.3 Task #1

2.3.1 Task Detail #1

Task: "Find and add 6 quantities of Gopi Whole Milk Yogurt 4LB to your shopping cart"
A participant would need to first locate the above item: "Gopi Whole Milk Yogurt 4LB" under proper category and then add 6 quantities of it to the shopping cart.

2.3.2 Task #1 Analysis

The steps (actions) that will be associated with performing the above task includes:

1. Locate the item " Gopi Whole Milk Yogurt 4LB"
2. Click on the item
3. Increase the quantity of the item as mentioned (here 6)
4. Add the item to the cart

The task mentioned above would first require the user to locate it under the proper category. For the first time users, the homepage is confusing since it doesn't display any products and is just an image of the grocery. It takes time for such users to figure out the working of the website, locate proper category and thereafter the concerned product. This will result in an increase in the cognitive load, poor user experience and less subjective satisfaction among the users.

2.3.3 Task #1 Discussion

Instead, in the redesigned prototype, a list of such common items can be showcased on the homepage itself. This not only reduces the associated extraneous cognitive load for first-time users but also leads to a decrease in time for performing the task and provides enhanced user experience at the same time.

2.4 Task #2

2.4.1 Task Detail #2

Task: "Find and add cheapest paneer packet (can be of any brand/size/weight) to your shopping cart"
A participant would need to just find the cheapest paneer packet in this task. Although the task seems easy, the participant would need to do an exhaustive search under the Perishable-> dairy products category which shows all the dairy products available without providing any filter and sort options.

2.4.2 Task #2 Analysis

The steps (actions) that will be associated with performing the above task includes:

1. Locate the subsection (dairy products) under category (Perishable)
2. Search for only paneer items
3. Find the cheapest paneer item
4. Add the item to the cart

The above task requires extra effort from the user to first locate the item under the proper category. This is because no visual aid is provided for the category section along with the text. Also, the number of categories is huge and the user would need to skim down each and every category to find the relevant option.

2.4.3 Task #2 Discussion

The redesigned prototype visually aids the text under the category section by providing a descriptive image of each of the categories. Also, a sort and filter option are provided to search for a particular product. This results in users being able to locate the appropriate category in less time and also reduces the chances of errors.

2.5 Task #3

2.5.1 Task Detail #3

Task: "Find and add cheapest 10LB basmati rice to your shopping cart"

A participant would need to first locate the above item: "basmati rice" under proper category. The original interface for the user, once he performs the above task, displays a wide array of all rice options with varying sizes (10LB/20LB). The user would need to do an extensive comparison between all available options to find the cheapest product corresponding to the rice type (here-basmati) and its size (here-10LB).

2.5.2 Task #3 Analysis

The steps (actions) that will be associated with performing the above task includes:

1. Locate the item "10 LB basmati rice" under proper category and subsection
2. Search and compare the options to find the cheapest option available as per the conditions mentioned in the task.
3. Add the item to the cart

It's impractical to perform an exhaustive search on such products for finding the cheapest option available for a certain rice type. The original website overwhelms the user with unnecessary options and doesn't even provide a filter. Thus, the task is tedious in nature on the original website and lacks familiarity in design with other similar websites where filter options are provided.

2.5.3 Task #3 Discussion

The redesigned prototype implements a filter and a sort option which makes the job of the user easier to find a product of his wish. This also helps in reducing time to complete the tedious task and substantially reduces the unnecessary load on the user. Therefore, even though the user is presented with a large number of choices, the filter, and sort options are an easy and faster way out for the user to search a particular type of product.

2.6 Task #4

2.6.1 Task Detail #4

Task: "Find and add 20lb of highest priced wheat flour (atta) to your shopping cart"

The above task also requires the participant to compare the options available and choose the relevant one as per the definition of the task.

2.6.2 Task #4 Analysis

The steps (actions) that will be associated with performing the above task includes:

1. Locate the item “wheat flour (atta)” under proper category and subsection
2. Search and compare the options to find the costliest option available as per the conditions mentioned in the task.
3. Add the item to the cart

2.6.3 Task #4 Discussion

The redesigned prototype intends to make the user experience better by providing options of sorting and filtering. This way the user feels a sense of control while working with the website with a direct increase in user’s rating for subjective satisfaction.

3 Prototype and Design

3.1 Overview of Prototype and Design Features

The original website lacks general functionality that most e-commerce websites provide, like filter options and sorting options with respect to price, brand etc. The prototype modifies the homepage to make it more useful to users that are coming for the first time and also adds various tools to ease the process of finding the correct product. The prototype adds more products in the homepage and improves the overall user interface of the original website to make it more consistent and accessible.

3.2 Task #1

3.2.1 Task #1 Design

Whenever a new user visits the original website, there are high chances of the user getting confused. This is because the homepage of the original website gives no sense of direction to the user and is just an image of grocery with no details on the working/functionality of the website. Also the website doesn’t accommodate the design decisions for experienced users. The redesigned website provides similar functionalities on its homepage like other most common e-commerce websites and reduces the overall time to perform frequent tasks.

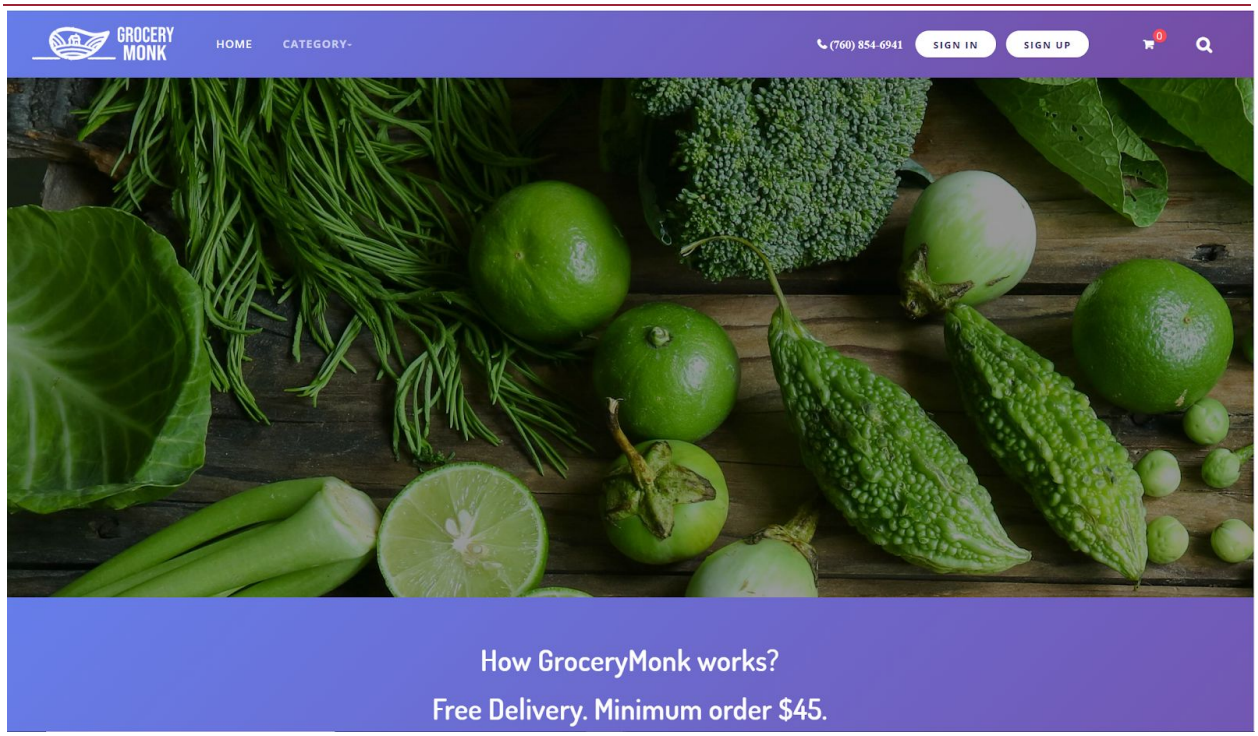
3.2.2 Task #1 Design Justifications

Task 1 is designed so that the homepage provides a direction to the new user and also supports shortcuts for experienced users. It is also designed to make the original website more consistent, user-friendly and highly improve the overall user interface of the homepage.

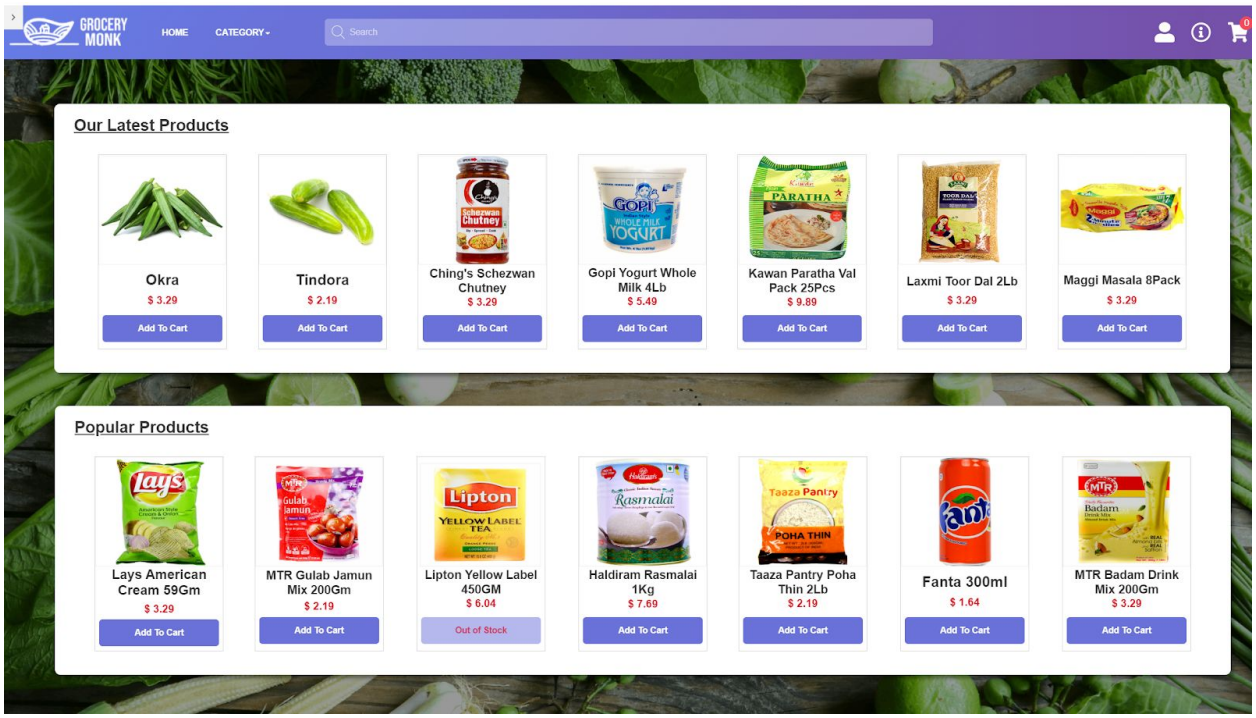
3.2.3 Task #1 Prototype

The original website lacks interactive homepage and would highly influence the new users to move to other similar e-commerce websites. Taking this into account, few products are placed on the homepage and are even categorised as “latest” and “Popular” products. New users can easily grasp the working of the website from its homepage and the experienced users can checkout few products even faster.

The original website has the following design:



The design is revamped to take into account few design decisions as mentioned in section 3.2.2. The design is as follows:



3.2.4 Task #1 Prototype Rational

The new design reduces the time to perform a task for experienced users. Also the design of the homepage matches with most other e-commerce websites. Therefore, new users don't have an overload of trying to figure out the workings of the website.

3.3 Task #2

3.3.1 Task #2 Design

The task asks the user to find the cheapest variation of a particular product and add it to the cart. There are many ways to accomplish the task but the usual way will be to go to the correct category and then add filters as necessary. The original websites do not provide filters for price. The categories menu also contains only text. The redesign adds photos in the categories menu to make it easier for users to locate the correct category.

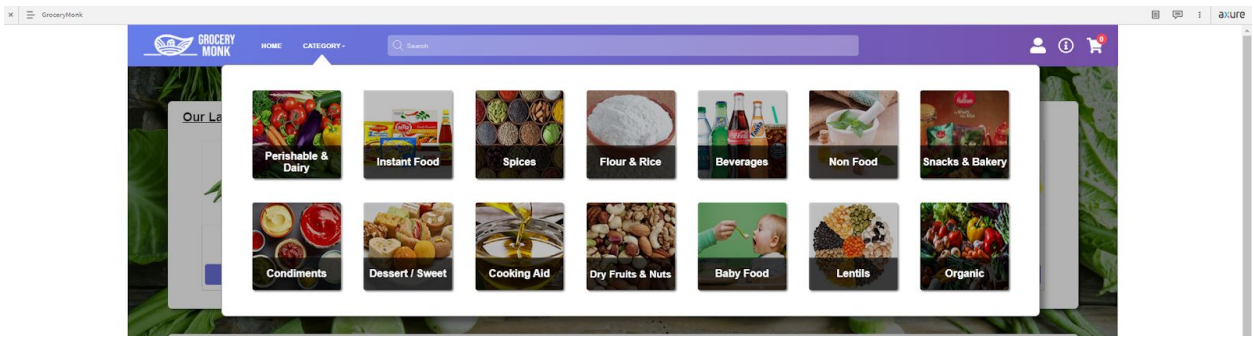
3.3.2 Task #2 Design Justifications

In the original website, the categories menu is too verbose and contains a lot of text which makes it difficult for the user to easily differentiate between categories. User has to read the categories sequentially until he/she gets the correct one. The redesigned website provides visual aid by showcasing photos for each category.

3.3.3 Task #2 Prototype

The category section of the original website is shown below:

The redesigned website provides an easy to distinguish category section by providing associated images for each category. The prototype design for the same is shown below:



3.3.4 Task #2 Prototype Rational

The main reason to change the category menu is to make it easy to recognize and distinguish among the categories. Users can relate more to the categories when they look at the images than to read the names, effectively reducing the overall time to complete the task.

3.4 Task #3

3.4.1 Task #3 Design

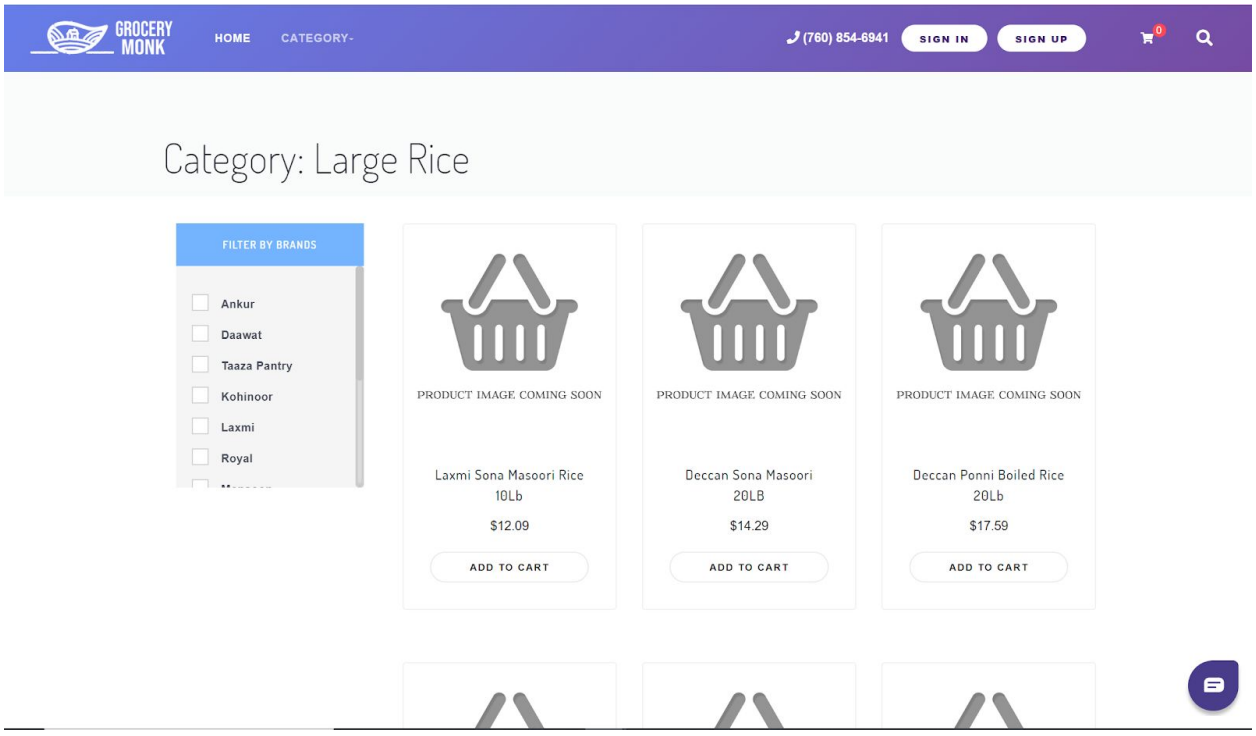
The task was designed taking into consideration the overwhelming options that were presented to the users in the original website. The exhaustive search that the users need to perform in the original website for finding a particular product is tedious and results in an increase in cognitive load of the users. Providing a variety of filter and sort options other than just a filter option for brands is what is emphasized in the redesigned prototype.

3.4.2 Task #3 Design Justifications

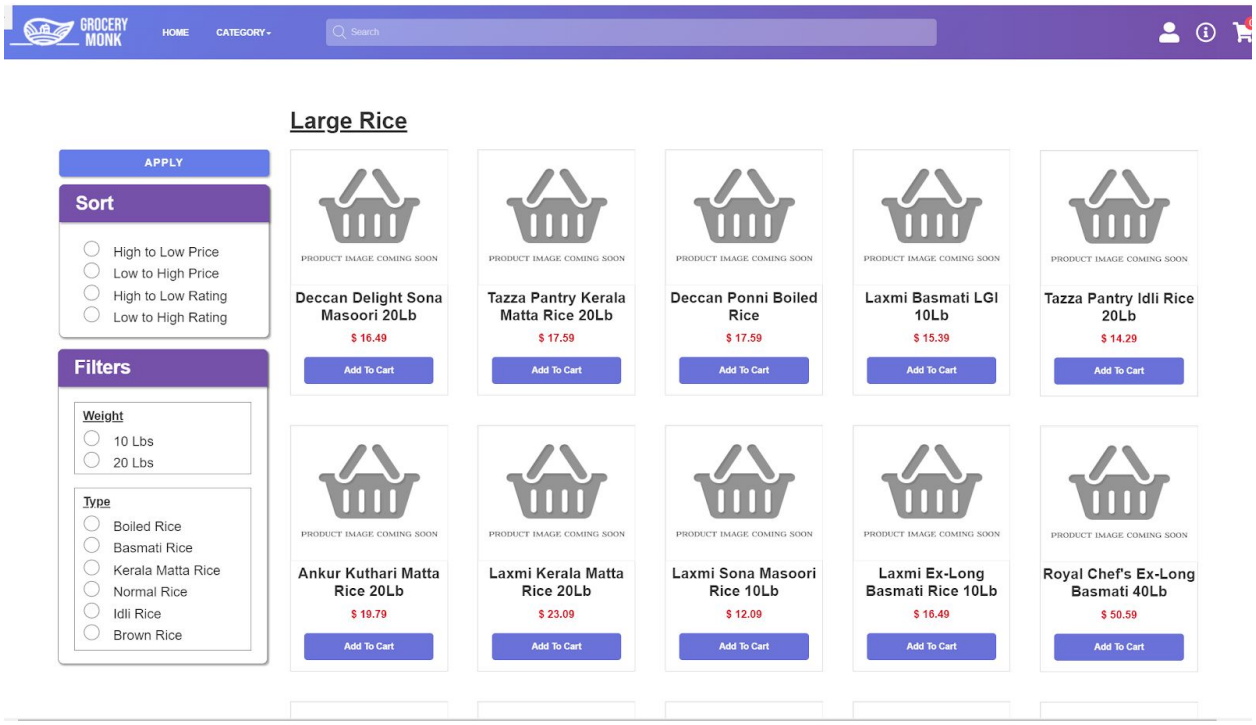
The redesigned website aims to help users in their search process by providing filter and sort functionalities. This results in an overall decrease in the time to perform a task, easy checkout and better subjective satisfaction among users.

3.4.3 Task #3 Prototype

The options provided for the concerned task in the original website is as follows:



The prototype design aims on helping users to distinguish between a variety of products and easily pick up an option that suits his/her needs. The redesign is as follows:



3.4.4 Task #3 Prototype Rational

The original website overwhelms the users with unnecessary options as per the task of the user. Moreover, a user can get easily frustrated with this and leave the website. In order to ease the process for the user and give the user a feel that the website is under his control, filter and sort functionalities are implemented in the redesigned website.

3.5 Task #4

3.5.1 Task #4 Design

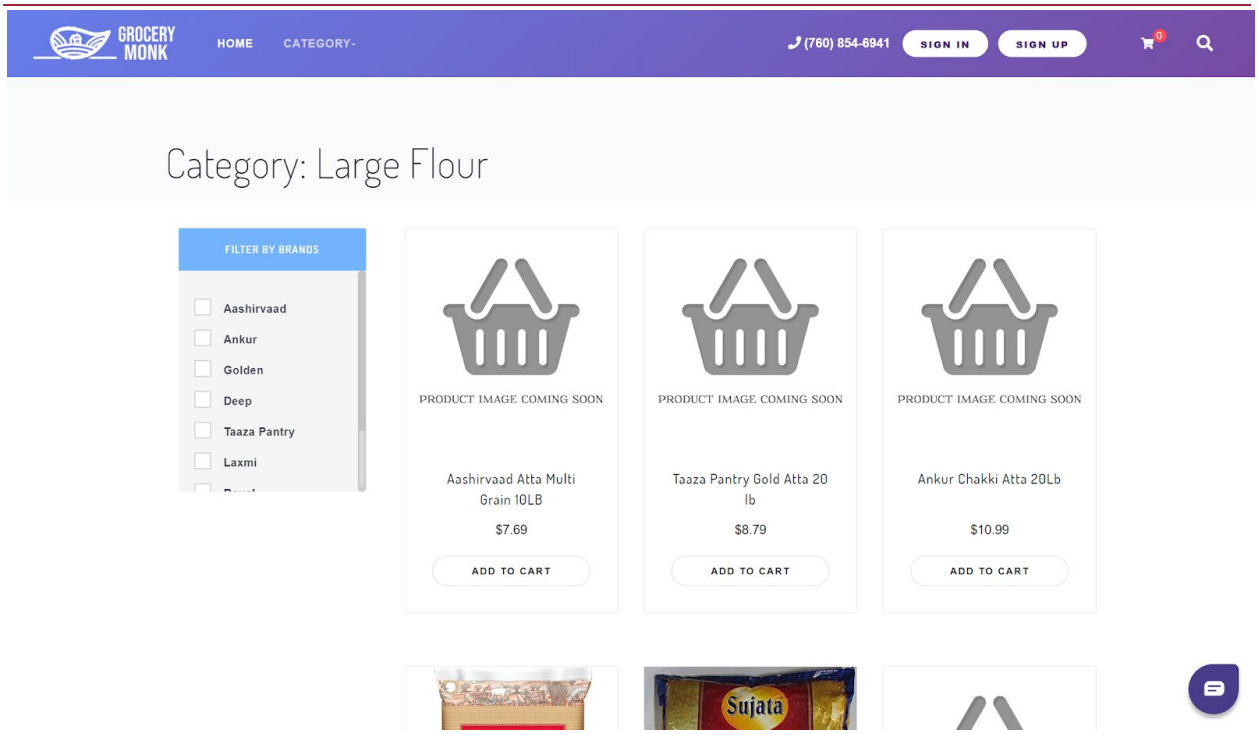
The task asks the user to find and add 20lb of highest priced wheat flour to the shopping cart. Users can go through the scategory menu but the real challenge is to find 20lb weight and the highest price variation of the wheat flour. Original website does not provide a filter for weight as well as a sort functionality for price. The prototype adds filters as well as sort functionality.

3.5.2 Task #4 Design Justifications

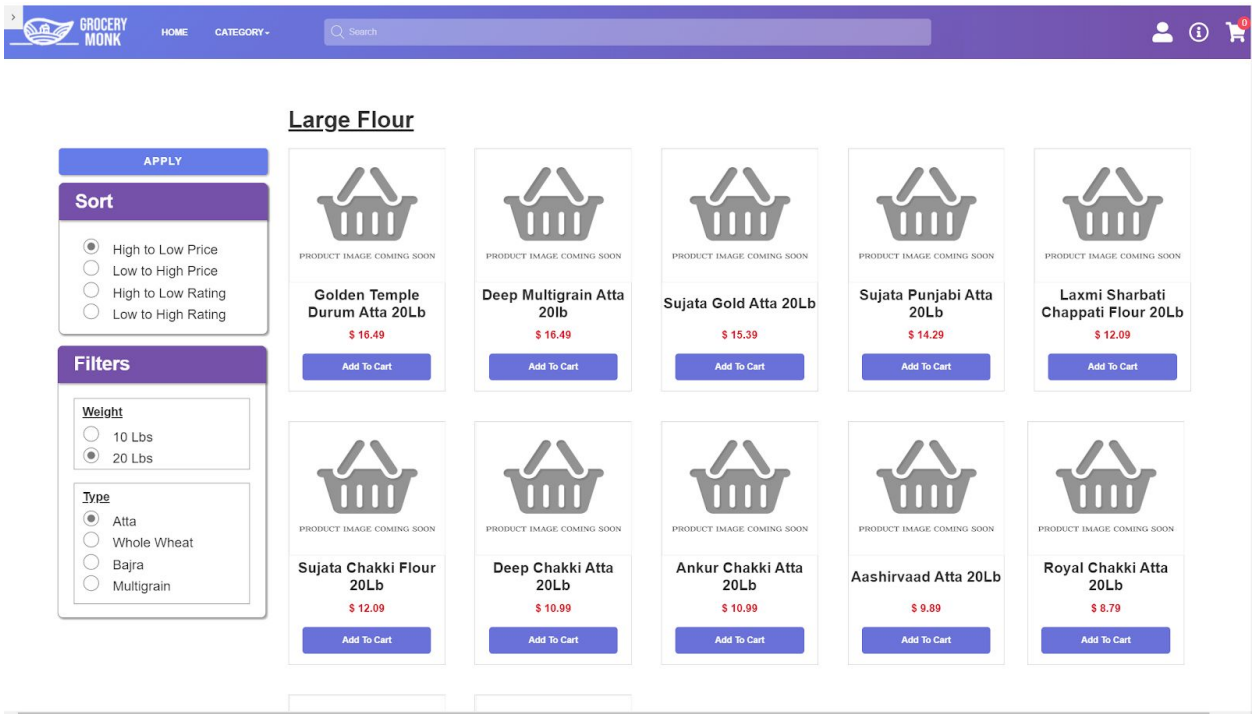
The redesign adds functionality which reduces the workload cognition. Users would not be able to look for the highest priced 20lb flour without any filter and sorting functionality. The new design filter outs the flour products that are not 20lb and sort functionality gives the user first result of the most expensive flour.

3.5.3 Task #4 Prototype

The design of the above functionality in the original website is as follows:



In the prototype user selects the weight as 20lb in the filter and then select the sort functionality price-highest to lowest.



3.5.4 Task #4 Prototype Rational

Filter and Sort functionalities play an important role in e-commerce websites. They heavily reduce the extraneous load on users for finding a particular product and also effectively reduces the overall time for the process of checkout.

4 A/B Testing

4.1 Participants

The participants for the experiment are college students that are between the age of 18-24. These participants in this experiment are our friends. None of the participants were compensated for their time.

4.2 Scenarios

We have a single scenario for all the tasks that the user needs to perform. The scenario is as follows:

"Suppose that you wanted to make some Indian food for the night and decided to make Hyderabadi biryani, Paneer Fry, Roti, and Raita. You checked the recipe on the internet and found that you are short of a few ingredients to prepare the meal, which are Yogurt, Basmati Rice, Paneer, and Flour. Now to order these ingredients, you go online and get them delivered to your house.
Your shopping list has these items with comments
'6 boxes of Whole Milk Yogurt',
'1 packet Paneer (cheapest)',
'10Lb bag of Basmati Rice (cheapest)', and
'20Lb bag of Wheat Flour(Atta) (highest priced)'. "

4.3 Equipment

The participants will perform the experiment for both the original website and the prototype on a personal laptop of the researcher. The laptop will be running Microsoft Windows 10 operating system and Google Chrome or Edge as the web browser which the users will use to complete the tasks on the website. The screen size is 15.6" and the screen resolution is 1920x1080. There will also be a screen capturing software called "Loom" to record the actions of the user.

4.4 Subjective Metrics

The participants will be given a background questionnaire to analyze the participant's knowledge on buying groceries from online stores and also a post-session questionnaire or a subject usability scale questionnaire. The background questionnaire will provide insight into the level of knowledge of the user and also give insight into the specific type of user but not of all types of users or the whole population. The post-session questionnaire will provide information about the type of experience of the user and also their thoughts about the original and prototype website.

4.4.1 SUS score

The following is a table that shows the score of the SUS document the participants were asked to complete after using the original website and prototype.

Original website												
Subject	A	B	C	D	E	F	G	H	I	J	Sum	SUS Score
Mayur Khandave	2	1	1	2	1	3	0	0	1	0	11	27.5
Prasad Bhagwat	0	0	0	0	0	0	0	0	0	0	0	0
Christopher A.	1	1	2	2	1	2	3	1	2	2	17	42.5
Daniel Shaw	1	2	2	2	3	3	3	2	3	1	22	55
Mukul Dang	0	3	1	0	0	0	1	4	0	0	9	22.5
Aniket Dhole	1	2	1	1	0	1	0	1	0	1	8	20
Trish Persson	0	2	0	0	1	2	1	4	0	0	10	25
Jeffrey Persson	0	2	1	1	1	2	1	0	1	1	10	25
											Average Sus Score	27.1875

We can see that the Average SUS Score is higher for the prototype website with a score of 83.43 as compared to the original website score of 27.18. It's worthy to note that the original website frustrated all the participants to work around the tasks. This means that the website has to be improved.

Prototype Website												
Subjects	A	B	C	D	E	F	G	H	I	J	Sum	SUS score
Shubham Gharat	3	3	4	3	3	4	3	3	3	3	32	80
Aditya P Chavan	4	4	4	4	4	4	4	4	4	4	40	100
Omkar Kulkarni	4	0	4	4	4	4	4	4	4	4	36	90
Kshitij Kashettiwar	4	4	3	4	4	4	3	3	4	4	37	92.5
Sanika Shah	4	4	3	3	4	3	3	3	3	3	33	82.5
Yashgiri Goswami	2	2	2	1	3	4	2	3	2	1	22	55
Sushmita	3	4	4	4	4	4	4	2	4	4	37	92.5
Yash Shah	3	3	3	4	2	3	3	2	3	4	30	75
											Average SUS Score	83.4375

4.5 Quantitative Metrics

4.5.1 Time on task

The following is a table that shows the time taken to complete all the tasks while using the original website and prototype. The time is measured in seconds.

Original Website		Prototype Website	
Subject	**Total Time (X1)**	**Subject**	**Total Time (X2)**
participant a1	376	participant 1SG	184
participant a2	149	participant 2AC	214
participant a3	848	participant 3OK	193
participant a4	498	participant 4Sm	166
Anket Dhole	309	kshitij	133
Mayur	307	Sanika	96
mukul	93	yash	108
prasad	204	yashgiri	94
M1	348	**M2**	148.5

As it can be clearly seen that the average time spent on the original website is 348 which is comparatively higher than average time spent on the prototype website.

4.5.2 Level of success

The following table shows the level of success of each participant. For each correct item out of the 4 items added to the cart in each task, the candidate gets a 1 point level of success is measured as a ratio of the correct and total item.

Task Success - Original Website						
	task 1	task 2	task 3	task 4	Success Level	
participant a1	Correct	Incorrect	Incorrect	Incorrect	1/4	0.25
participant a2	Correct	Incorrect	Incorrect	incorrect	1/4	0.25
participant a3	Correct	Correct	Correct	incorrect	3/4	0.75
participant a4	Correct	Correct	Incorrect	Correct	3/4	0.75
Anket Dhole	Correct	Incorrect	Incorrect	incorrect	1/4	0.25
Mayur	Correct	Incorrect	Incorrect	incorrect	1/4	0.25
Mukul	Correct	Incorrect	Incorrect	incorrect	1/4	0.25
prasad	Correct	Correct	Incorrect	incorrect	2/4	0.5
					Average Success Level	0.40625

Task Success - Redesign						
	task 1	task 2	task 3	task 4	Success Level	
participant 1SG	Correct	Correct	Correct	Correct	4/4	1
participant 2AC	Correct	Correct	Correct	Correct	4/4	1
participant 3OK	Correct	Correct	correct	Correct	4/4	1
participant 4Sm	Correct	Correct	correct	Correct	4/4	1
kshitij	Correct	Correct	correct	Correct	4/4	1
Sanika	Correct	Correct	correct	Correct	4/4	1
yash	Correct	Correct	correct	Correct	4/4	1
yashgiri	Correct	Correct	correct	Correct	4/4	1
					Average Success Level	1

Evident from these two tables, no user was able to get 100% level success in the experiment while on the other hand, all users got a 100% level of success.

4.6 Test results

4.6.1 T-test

Using the data from time on task metric we performed a T-test. Here t_{CV} is the critical time value and t_{OBS} is the observed time value. We have performed the test with a tolerance level of 0.05.

The main Hypothesis is (H0): $t_{CV} = t_{OBS}$

Alternate Hypothesis is (H1): $t_{CV} \neq t_{OBS}$

We have,

$$M_1 = 348 \;\&\; M_2 = 148.5$$

$$\sum X_1 = 2784 \;\&\; \sum X_2 = 1188$$

$$\sum X_1^2 = 191862 \;\&\; \sum X_2^2 = 1370680$$

We know that

$$SS = \sum X_y^2 - \left(\frac{1}{n_y}\right) \times \left(\sum X_y\right)^2$$

Using this we get,

$$SS_1 = 401848 \;\&\; SS_2 = 15444$$

We know,

$$S_p^2 = \frac{SS_1 + SS_2}{df_1 + df_2} \quad where\ df_1 = (n_1 - 1)\ \ and\ df_2 = (n_2 - 1)$$

Using this with $n_1 = 8$ & $n_2 = 8$ we get,

$$S_p^2 = 29806.57$$

$$S_{[M_1 - M_2]} = \sqrt{\frac{S_p^2}{df_1} + \frac{S_p^2}{df_2}} = 86.322$$

$$t_{OBS} = \frac{M_1 - M_2}{S_{[M_1 - M_2]}} = 2.311 \qquad \text{(a)}$$

$$t_{CV}\ (df = 14\ ,\ \alpha = 0.05)\ =\ 1.176 \qquad \text{(b)}$$

From (a) & (b) we get that $t_{CV} \neq t_{OBS}$, therefore we can accept H1 and reject H0.
This result of the T-test [$t_{CV} < t_{OBS}$] shows that the prototype performs way better than the original website.
This is also supported by the results we get from a high level of success and a high SUS score.

5 Conclusions

5.1 Discussion of Results

It can be observed from the SUS score that people were more satisfied using the prototype than the original website. This could have resulted from improved interface and adding better functionalities to ease down the process of finding a particular product. The subjective satisfaction obtained for each user is high but the same can be firmly established after carrying out the experiments over a larger number of participants.
The level of success provided a measure on how the prototype fared against the original website in completing a set of particular tasks. It can be inferred that few tasks on the original website are exhaustive in nature and can easily lead to incompletion or failure. However, the same set of tasks were easily and accurately performed on the redesigned prototype.
The time on task metric gives an idea of overall efficiency of the prototype over the original website. It can easily be observed that the time required to perform a set of tasks on the prototype is half to what is required on the original website. This can be attributed to adding visual aid for faster search of the product and also introducing filter and sort functionalities.

5.2 Lessons Learned

This project helped us to become better researchers to bring their own tools for participants to use while testing. We gained experience on how to investigate if a tool or software is working efficiently and providing all the user needs by performing Heuristic evaluation and cognitive walkthrough. We learnt how to develop a prototype using Axure software. After developing the prototype, we conducted our research on various candidates, here we acquired knowledge of how to deal with people during research studies. For example, one of the participants did not want to participate in the test if his details we will be recorded during the research. We of course did not force him to share any of his real personal information, but this experience shows why it is important to make the testing feel less obliging. We also gained knowledge on how to process data after the experiments and build different metrics for evaluation.

5.3 Conclusion

After conducting the experiments on both the original website and the redesigned prototype, we can conclude that the redesign improves the overall interface and functionality of the original website. The redesigned prototype is more consistent and user-friendly than the original website. Also the redesign is familiar to design of other similar e-commerce websites which not only helped reduce the cognitive load for the users but also drastically lowered the time taken to perform a task. The same is corroborated by the results of the experiments. There are few areas on improvement in terms of interface shown for product lists that can be made more interactive and less ambiguous. We have managed to get sufficient metrics for testing, but one thing that we could have also measured was the number of clicks each participant had when doing the tests. Also, the majority of us were separated when testing the

participants, meaning some instructions and improvised questions might be inconsistent. Other than that, getting the recordings of the participants performing the tasks of the website went quite smoothly. In overall, the prototype serves as a very good model in terms of redesign of the original website.

6 Appendixes

6.1 Heuristic Evaluation

Please refer to the heuristic evaluation of the original website on the following link:
https://drive.google.com/file/d/1VKPauCrH86vdsMg9IP590porfEpjtz99/view?usp=sharing

6.2 Cognitive Walk-through

The cognitive walkthrough performed on the original site gave the following results:
Task 1: "Find and add 6 quantities of Gopi Whole Milk Yogurt 4LB to your shopping cart"
The steps (actions) that will be associated with performing the above task includes:

1. Locate the item " Gopi Whole Milk Yogurt 4LB"
2. Click on the item
3. Increase the quantity of the item as mentioned (here 6)
4. Add the item to the cart

Cognitive Walkthrough:

	1	2	3	4
Know the action	Yes	Yes	Yes	Yes
See the control	No	Yes	No	Yes
Understand the control	Yes	Yes	Yes	Yes
See the feedback	Yes	Yes	Yes	Yes

Problems/ Improvements areas:

1. At step 1, The homepage of the website needs to be revamped to show product lists and provide a sense of direction to the user.
2. At step 3, modifying the quantities of the product should be fairly easy and resemble familiarity with designs of other similar websites

Task 2: "Find and add cheapest paneer packet (can be of any brand/size/weight) to your shopping cart"
The steps (actions) that will be associated with performing the above task includes:

1. Locate the subsection (dairy products) under category (Perishable)
2. Search for only paneer items
3. Find the cheapest paneer item
4. Add the item to the cart

Cognitive Walkthrough:

	1	2	3	4
Know the action	Yes	Yes	Yes	Yes
See the control	Yes	No	No	Yes
Understand the control	Yes	Yes	Yes	Yes
See the feedback	Yes	Yes	Yes	Yes

Problems/ Improvements areas:

1. At step 2, it is very difficult to spot just the paneer items because the original website provides all the dairy products without any filter option
2. At step 3, no sorting option is provided to the user in the original website. It is practically impossible to compare each and every product that confirms certain conditions as per the task and then find the cheapest of them.

Task 3: "Find and add cheapest 10LB basmati rice to your shopping cart"

The steps (actions) that will be associated with performing the above task includes:

1. Locate the item "10 LB basmati rice" under proper category and subsection
2. Search and compare the options to find the cheapest option available as per the conditions mentioned in the task.
3. Add the item to the cart

Cognitive Walkthrough:

	1	2	3
Know the action	Yes	Yes	Yes
See the control	No	No	Yes
Understand the control	Yes	Yes	Yes
See the feedback	Yes	Yes	Yes

Problems/ Improvements areas:

1. At step 1, it is difficult for the user to just find the rice items of size 10 lb. Also no filter option is provided and the user has to go through the complete list of rice items in order to find the basmati rice of 10 lb.
2. At step 2, no comparison tool (sorting- lowest to highest) is provided.

Task 4: "Find and add 20lb of highest priced wheat flour (atta) to your shopping cart"

The steps (actions) that will be associated with performing the above task includes:

1. Locate the item "wheat flour (atta)" under proper category and subsection
2. Search and compare the options to find the costliest option available as per the conditions mentioned in the task.
3. Add the item to the cart

Cognitive Walkthrough:

	1	2	3
Know the action	Yes	Yes	Yes
See the control	Yes	No	Yes
Understand the control	Yes	Yes	Yes
See the feedback	Yes	Yes	Yes

Problems/ Improvements areas:

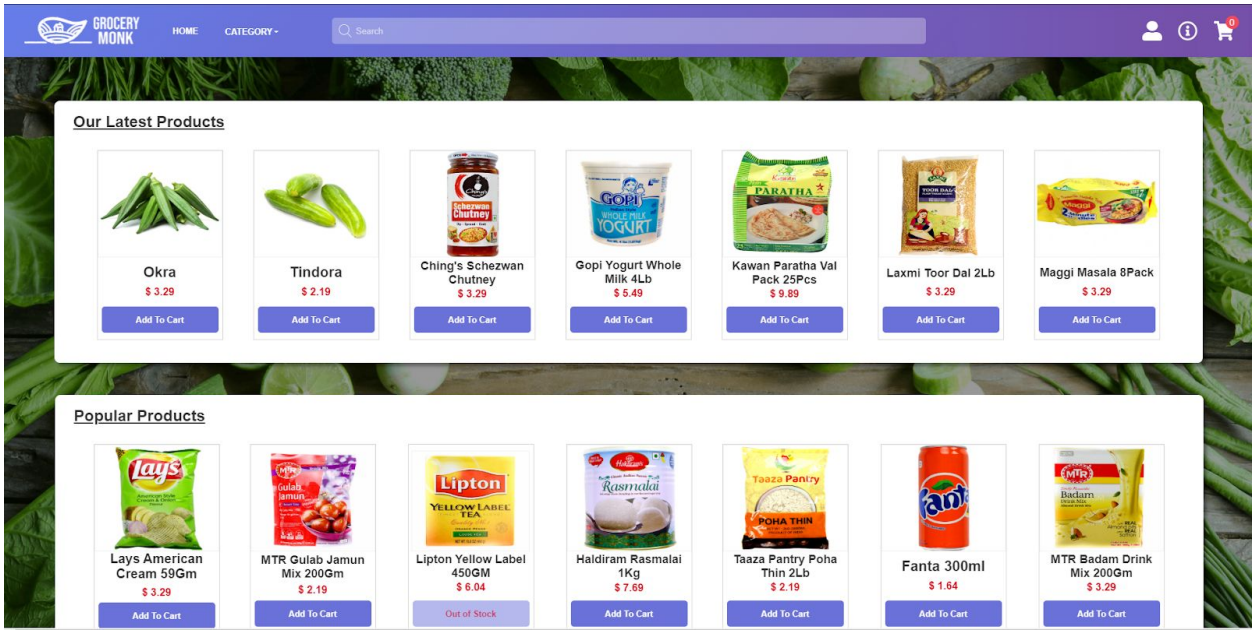
1. At step 2, the sorting and filtering option is not provided which results in frustration among users. Also, it is not possible manually to search all the options to find the product as per the needs mentioned in the above task.

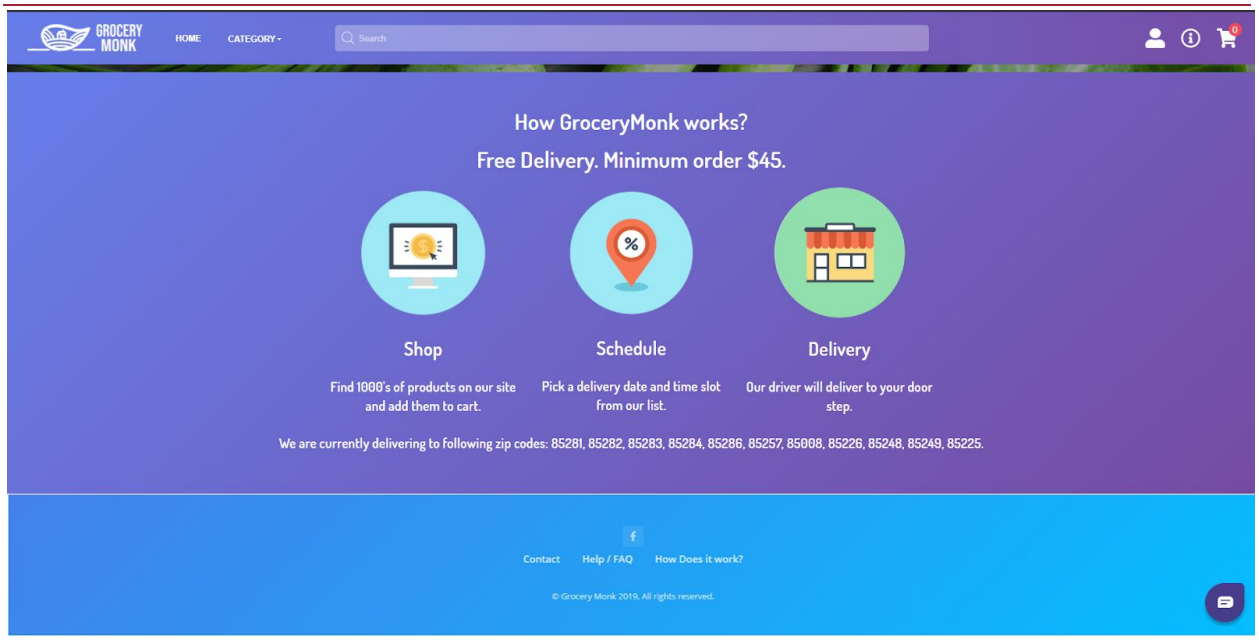
6.3 New GUI snapshots

Axure Prototype Link

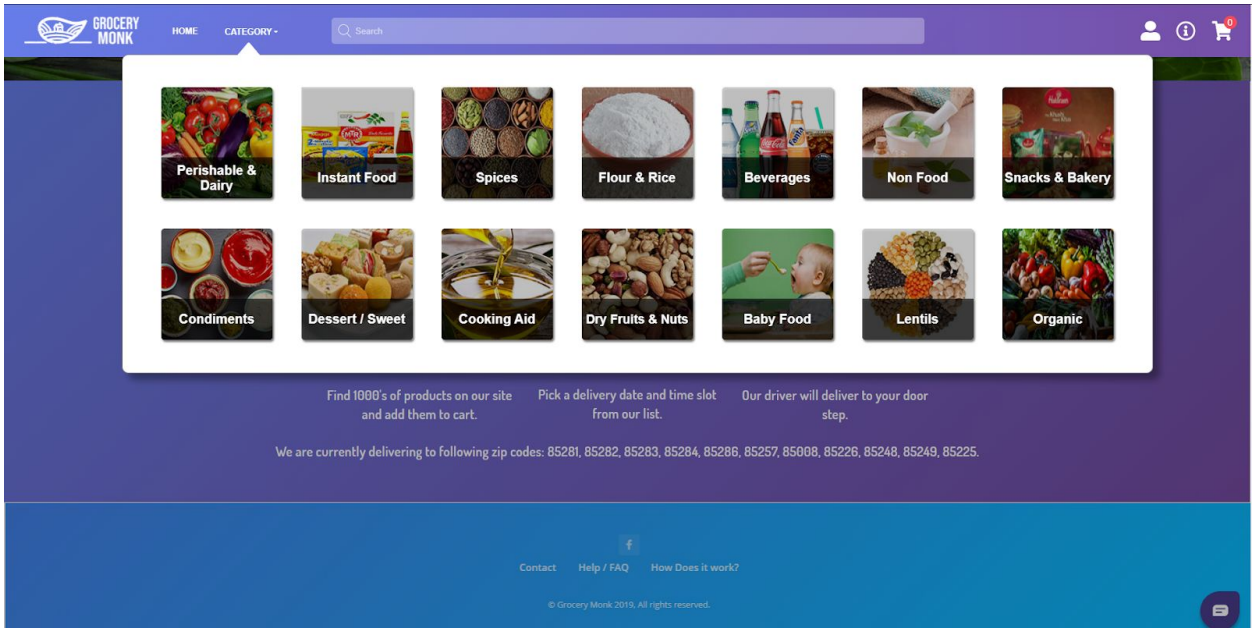
Link : https://2elbly.axshare.com/

6.3.1 Home Page

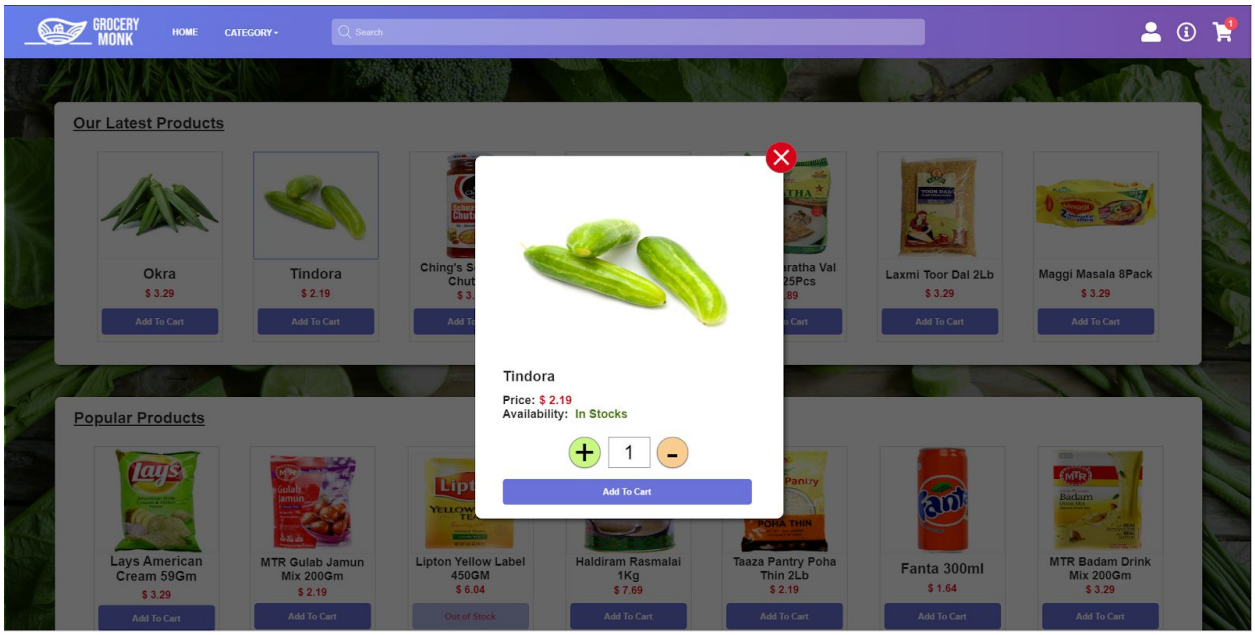




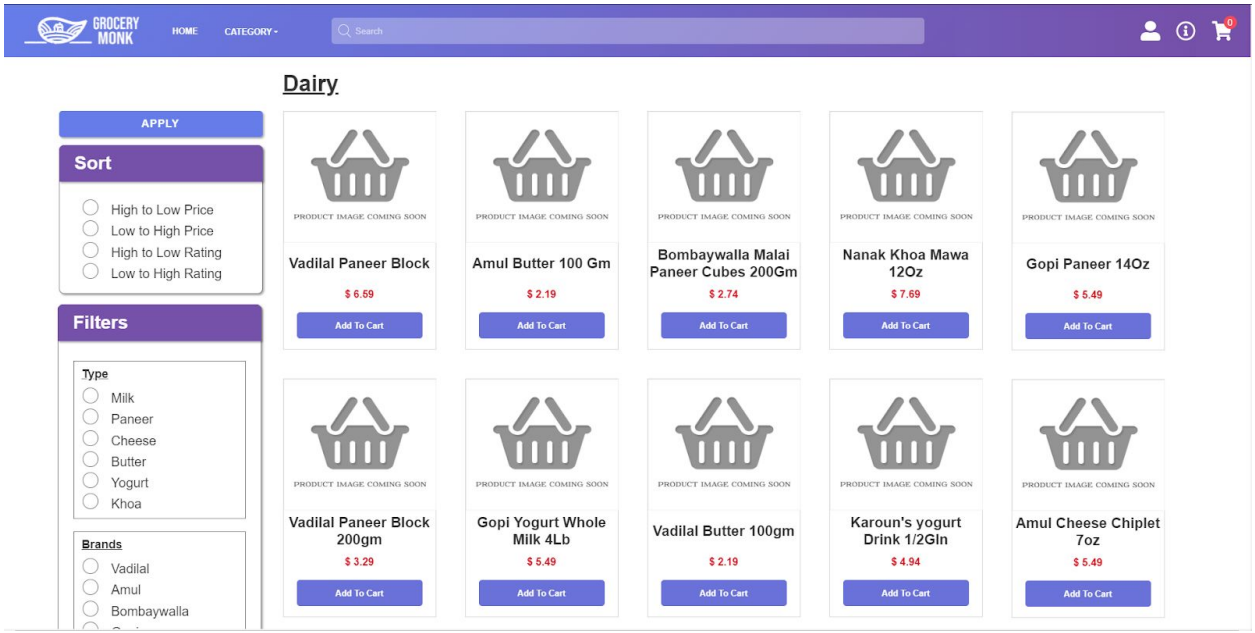
6.3.2 Categories Menu



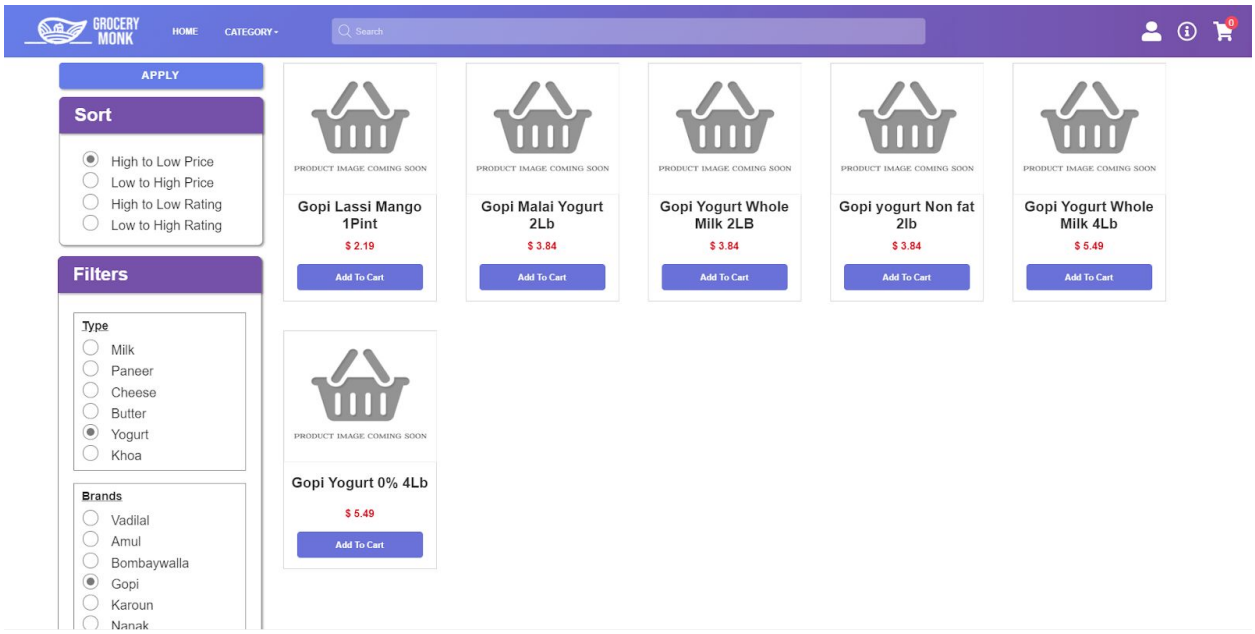
6.3.3 Product Popup



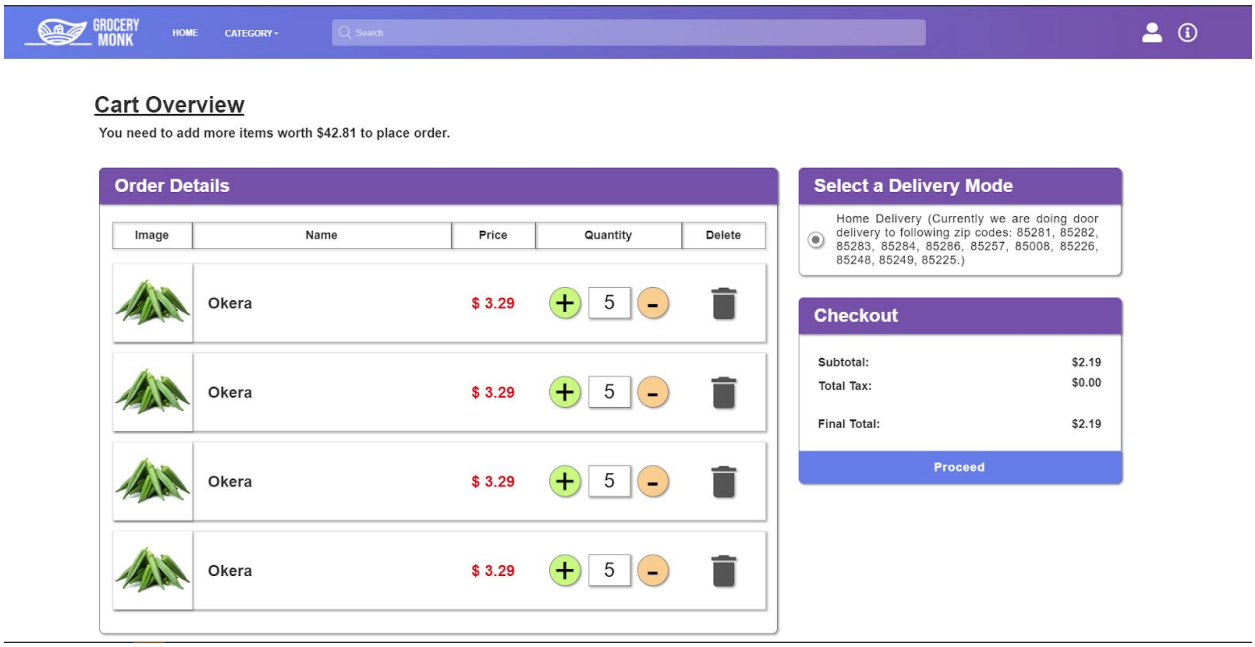
6.3.4 Products Listings



6.3.5 Product Listings after filters is applied



6.3.6 Cart Page



6.4 Instructions for participants

"You want to make an Indian dish. Here is a list of items you want to buy from the website.
-6 boxes of Whole Milk Yogurt
-1 Packet Paneer (cheapest)
-10 lbs bag of Basmati Rice (cheapest)
- 20 lbs bag of Wheat Flour (Atta) (most expensive)

Do your best to use the website to order these items here on this website. Take as much time as you want.

Stop when you are either about to order the food. You may also stop if the website asks for personal information for something like building an account."

6.5 Researcher guidelines

6.5.1 Before Experiment

Thank you for participating in this experiment. We have created a new design for the given website, and we would like you to test it out. The website is a platform to order grocery and food items and get it delivered at your doorstep. The primary goal of this experiment is to deduce if the new design is more efficient and easier to use than the old design. This experiment is divided into 3 sections. First, you will be provided with a background survey to complete. The response to the questions in the survey will give us a brief idea about your experience with online shopping. Next, you'll perform some tasks provided by us on the website as well as on the new design of the website. We'll record the screen in both cases. Finally, you'll be provided with a survey to fill out. It'll be used to measure your experience with the new design as well as the old one. All the responses to the survey and the video recordings will be confidential. Please feel free to ask any questions.

6.5.2 Background survey

The background survey will give us insight on how you perceive online shopping in general. Results from this survey will be useful to figure out the general trend towards online grocery shopping and your familiarity in using the grocery monk website. Fill it out here - https://forms.gle/9VkBfDERu85FZJ37A.

6.5.3 Experiment

You'll be provided with the tasks and the instructions to complete them. If you have any doubts you can ask us. After finishing the task please notify us. If you are not able to finish the task, please inform us.

6.5.4 Post-experiment

After finishing the experiment, please fill out the survey - https://forms.gle/eZz4vXFaezcEF2acA. Your input is important to us. Thank you for participating in the experiment.

6.6 Background questionnaire

1. Do you order food and daily needs online or from brick and mortar stores?
   a. Online b. Brick and mortar store

2. Have you ordered anything from www.grocerymonk.com website?
   a. Yes b. No

3. Select all that you can purchase from grocerymonk.
   a. Instant food
   b. Beverages

c. Vegetables and fruits
d. Ayurvedic medications
e. Dairy products

4. Select all the factors that you consider while choosing a product.
   a. Price
   b. Brand
   c. Availability

5. Will you purchase an online product if its image is not given?
   a. Yes, I'll purchase it.
   b. No, I need a photo. Otherwise I choose another product with photos..
   c. Only if I know what the product is.

6. I prefer using _____ to look for a product on a website.
   a. Search functionality
   b. Category menu provided by the website

6.7 Post-session questionnaire

1. I will use this website more frequently to order groceries.
   a. Strongly disagree
   b. Disagree
   c. Neutral
   d. Agree
   e. Strongly agree

2. The website looks cluttered and complex.
   a. Strongly disagree
   b. Disagree
   c. Neutral
   d. Agree
   e. Strongly agree

3. I think the website was easy to use.
   a. Strongly disagree
   b. Disagree
   c. Neutral
   d. Agree
   e. Strongly agree

4. I think the website has some issues that get in the way while using it.
   a. Strongly disagree
   b. Disagree
   c. Neutral

d. Agree
e. Strongly agree

5. I think the website has all the functions and features which are present in similar types of websites.
   a. Strongly disagree
   b. Disagree
   c. Neutral
   d. Agree
   e. Strongly agree

6. I feel the website is inconsistent.
   a. Strongly disagree
   b. Disagree
   c. Neutral
   d. Agree
   e. Strongly agree

7. It was easy to find the product that I wanted.
   a. Strongly disagree
   b. Disagree
   c. Neutral
   d. Agree
   e. Strongly agree

8. I feel I need more time to understand the website.
   a. Strongly disagree
   b. Disagree
   c. Neutral
   d. Agree
   e. Strongly agree

9. I can say most of the users will find using the website easily.
   a. Strongly disagree
   b. Disagree
   c. Neutral
   d. Agree
   e. Strongly agree

10. I feel it took so much time for me to get to the product I want.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly agree

Scoring

Odd questions:

a. 1
b. 2
c. 3
d. 4
e. 5

Even Questions:

a. 5
b. 4
c. 3
d. 2
e. 1

6.8 Link to experiment recording and surveys

This drive contains all the videos and surveys for both original and prototype :
https://drive.google.com/drive/folders/1suIvCaPc16RqFSDtWCFzrJJ76Ad0vBEo?usp=sharing