Group Project Log

Note: *all information must be filled out. You must hand in the project log along with each group project deliverable for this course (e.g., milestones, proposals, reports). The percentage of work allocated to each group member must add up to 100%.*

Group Name:	INSTACOMP

Group Members:	Deep Prakash Singh, Gayathri Balasubramanian, Navjot Singh Sappal, Visakan Bapu Thurvas Jeyakumar, Sogra Bilal Menon

Deliverable:	Project Report

Group Member Name	**Work Done (%)**
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PROJECT REPORT

INSTACOMP

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ABSTRACT

E-commerce is a way to boost the existing business practices over the Internet. Online shopping portals are also a single point of shopping for various products. Hassle of selling perishable goods online persists in a business scenario. Whereas offline shopping provides better customer relationship and trust. The users do not have to compromise or risk the quality of the products they intend to buy in offline stores. [1] The main goal of INSTACOMP is to reduce these issues by giving the users all the options available in both online and offline stores. The application, in turn, lets the user choose what fits them the best.

KEYWORDS

E-commerce website, INSTACOMP, Offline stores, Online shopping, Online stores, Phalcon, PHP.

CONTENTS

1. INTRODUCTION

INSTACOMP, a Software as a Service application, aims to bridge the gap between the offline and online purchase from the retail stores and sellers, and thus enhances the user experience by leading them to compare the cost of the product, location of the store and time taken to receive the product in hand.

INSTACOMP combines the best of both worlds by providing information about multiple brands in a single point, along with it, is the additional information regarding the nearby retail store where the product is available. INSTACOMP provides an opportunity for users to look up various brands and get the directions for the nearest available branch. For retailers, INSTACOMP is a platform which equips them with an online presence equal to that of a leading shipping portal. The retailer gets the above-mentioned benefits without the trouble of having the need to maintain their own information infrastructure. In short, INSTACOMP is a regular online retail portal combined with the digital version of the shopping flyers.

Currently, e-commerce is ruled by two types of users – customers who purchase from online shopping websites such as Amazon, Best Buy, Wish, etc., and those who purchase offline directly from retail stores by physically visiting these stores. There are various advantages and disadvantages to these online and offline purchases of products. While the online purchase cost is comparatively lesser than the offline store purchases, the time taken to receive the product during the times of need is higher [1]. Also, the users sometimes must compromise on the quality and take risks by trusting the online store dealing with the retailers and consumers [1].

2. BACKGROUND

2.1 Competitive Landscape

INSTACOMP is an e-commerce which means it occupies the online retailer market space. According to a report published by Markeline, the current North American online retailer industry is expected to reach a market value of $484.7 billion by the end of 2018 [5]. The leading companies in this market space include Amazon.com, Apple, Costco wholesale corporation and Walmart [5]. INSTACOMP intends to provide each of its users the option to shop for any product from either online or offline vendors. Many of the listed competitors such as Amazon.com do provide similar services and are already quite well established. However, INSTACOMP addresses a gap in each of its competitors to secure its own competitive advantage.

Amazon is an online retailer that provides a range of products from electronics to clothing. Amazon also has a wide range of vendors and customers. Customers may buy products from amazon in order to be resale. This means that Amazon.com receives both individual and bulk orders. Amazon.com had a revenue of $135,987 million in the year 2016 for retail alone. Amazon only lists products that have been posted by third party sellers [5].

INSTACOMP intends to go one step further by offering a comparison between all online third party sellers and the local store in the proximity of the user that may not even have a website.

Apple has the second largest online retail revenue in North America. Apple only sells communication hardware and its corresponding software in the form of apps [5]. Apple is not exactly in the same competitor space as INSTACOMP and can only compete in the electronics segment. Given that the electronics market segment is the largest in the online retail market space Apple is still a strong competitor to INSACOMP. INSTACOMP still maintains its competitive advantage as an ecommerce website as it provides a variety of products.

Costco Wholesale Corporation operates on a membership base and offers products in six major categories. Costco's six categories include foods, sundries, hardlines, fresh foods and softlines [5]. INSTACOMP's you can find anything from any category INSTACOMP a major competitive advantage.

Wal-Mart Stores is yet another online and offline vendor that provides food products, as well as clothing and house, hold items [5]. INSTACOMP addresses the competition from Walmart stores by providing products from every brand while Wal-mart store is limited to Walmart products. Therefore, INSTACOMP has a significant advantage over each of its competitors.

2.2 Problem and Approach

The online shopping experience is tedious and it is because of this that users end up buying the wrong items. INSTACOMP analyzes the existing ecommerce website to understand what works versus what doesn't. The problem of an uncomfortable user experience has been solved by providing better user Interface that implements the features that work from some of the best ecommerce websites and reducing the effect of the features that don't work.

The approach taken by our team to solve this problem was parallel design. Each of the team members came up with their own design based on their favorite ecommerce websites. These designs where then evaluated and the merged to retain the best features. As a result, we achieved one ultimate design that was better than any of the initial designs. For the purpose of optimization, we decide to use our own customized responsive front end frame work. This significantly reduces the load time giving a better user experience. This design structure was developed by studying well established ecommerce websites. Each of our design decisions has been elaborated in section 3.

3. APPLICATION DETAILS

3.1 Target User Insights

INSTACOMP is the ultimate e-commerce experience. It provides users with a platform to compare the prices for items, that belong to any category, from vendors that sell both online and in stores. This approach makes INSTACOMP a one-stop solution for all your shopping needs. As a result, INSTACOMP appeals to anyone looking to save money and time. Our target users will include anyone from students to professionals and homemakers, virtually anyone with an internet connection and an appetite for a good bargain.

Most people often browse multiple online stores, for hours, to find the perfect items at the perfect price [2]. This process is time-consuming and frustrating. In addition to the items available online, there are many discounts and offers available in-store [1]. With so many options available, it is hard to keep track of all the items, their details, and their respective prices. A large number of options available makes it impossible to compare the products, causing users to purchase a product that does not quite fit their requirements or their budget. Only to find a better deal later and to regret their purchase decision. INSTACOMP brings all the shopping options available on one platform, where it is easy for users to compare all the options and hence make the right purchasing decisions. With INSTACOMP the lengthy process of searching, comparing and purchasing items has been shrunk into just a few clicks.

INSTACOMP has been designed to suit our users. The design implements new features to cover a broader range of shopping options compared to the current e-commerce websites. However, the main functionalities are based on already successful e-commerce sites, giving users a sense of familiarity. This design appeals to our users, as they have already been trained to use it, through their years of frustration over browsing multiple e-commerce sites.

3.2 User-Centered Design Approach

At INSTACOMP we believe shopping should be an enjoyable experience where users can find exactly what users are looking for without having to break the bank. Where users can search for any item and get every possible purchasing option available. The beauty of our application is that users can search for any item they can think of, which can range from an automobile to groceries to clothing. There are no restrictions, which is reflected in our design choice of having a simple search bar on the homepage. We aim to be the Google of shopping, where anything you search for is found relevant to your location.

3.2.1 Information Architecture

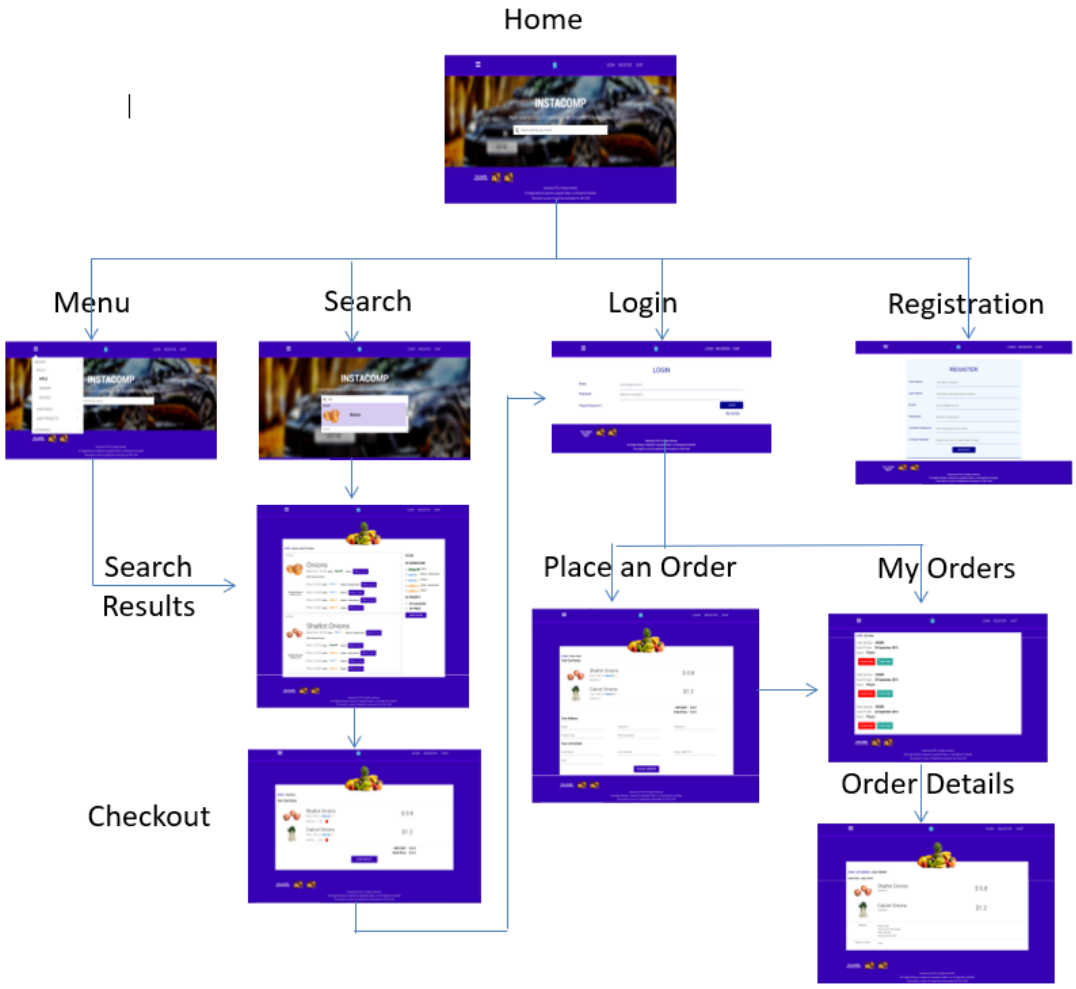

Figure 1: Site map

The user can select the product from the drop-down menu or can enter the name of the product in the search box in the "Home" page and then look for results in the "Search Results" page as shown in Figures 2 through 4. Then the user will be redirected to the "Checkout" page once the user has selected the products user intends to buy. After that, if the user is logged in then he will be redirected to "Place an Order" page where the user will enter the address and card details, to place an order. Here the user can also use previously saved address and card details if the user has placed an order before. But if the user opted to checkout as a guest user then the user will be asked to enter the new address and card details. After user will be asked if the user wanted to register an account on our website. A logged in user can also see the list of orders placed by visiting "My Orders" page and then click on particular order to see the details of that order in "Order Details" page. The user can create an account using the "Registration" page.

Home Page: The user will be able to search for a product on the “Home” page as shown in Figure 2.

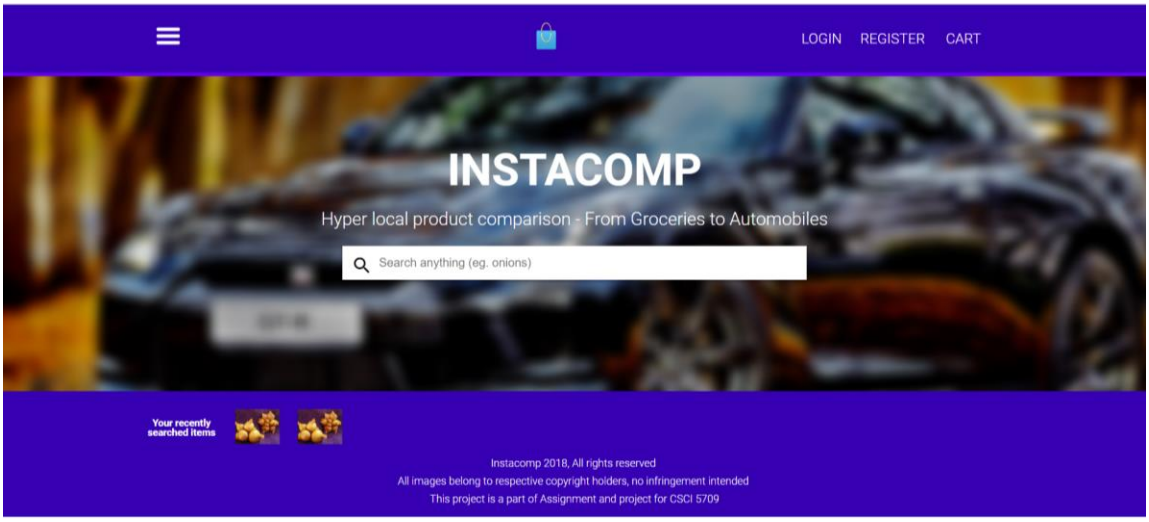

Figure 2: Home Page

Home Page: In the Home page, the user can also see the menu list so that the user can select the product user wants to buy through a list of sub categories as shown in Figure 3.

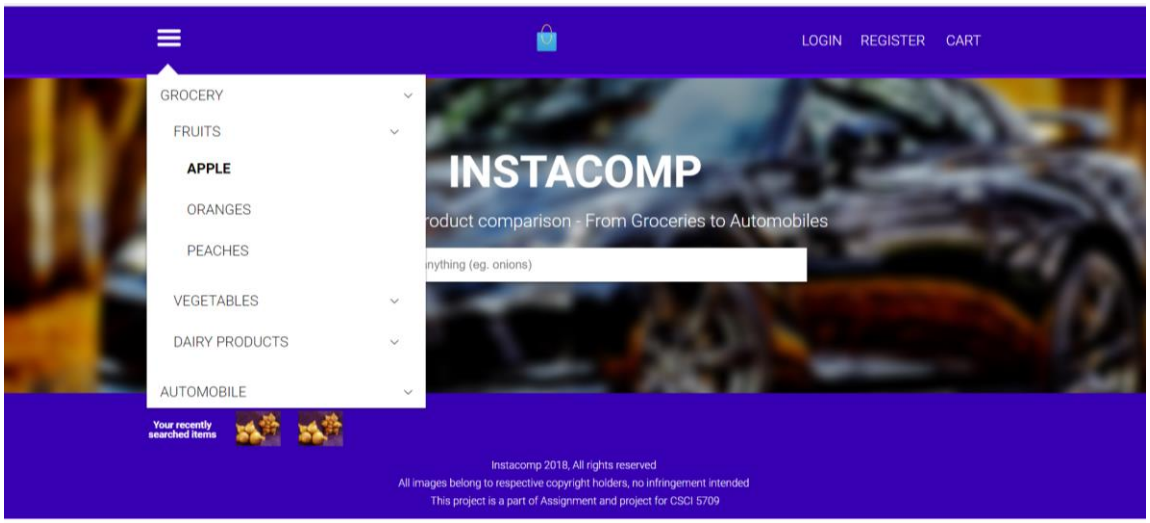

Figure 3: Menu in Home Page

Home Page: When the user starts typing the name of the product in the search box, autosuggestion provides convenience to the user in selecting the product as shown in Figure 4.

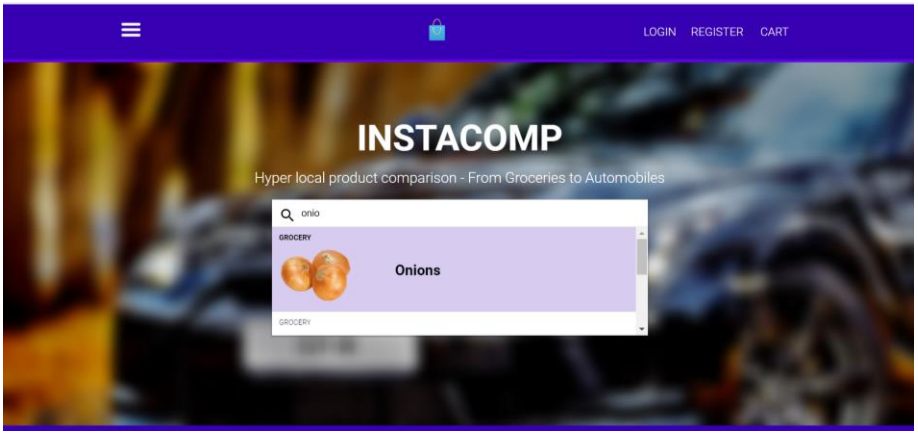

Figure 4: Search in Home Page

Search Results Page: Here the user will be shown the best prices of the product in different superstores. Filters on Superstore, Price, and Location will be provided so that user can shortlist product based upon specific superstore or within a price range or in a particular location. The user can also see the distance of the superstore offering the best price for the product. And finally, the user will be able to add the product to the cart, see Figure 5.

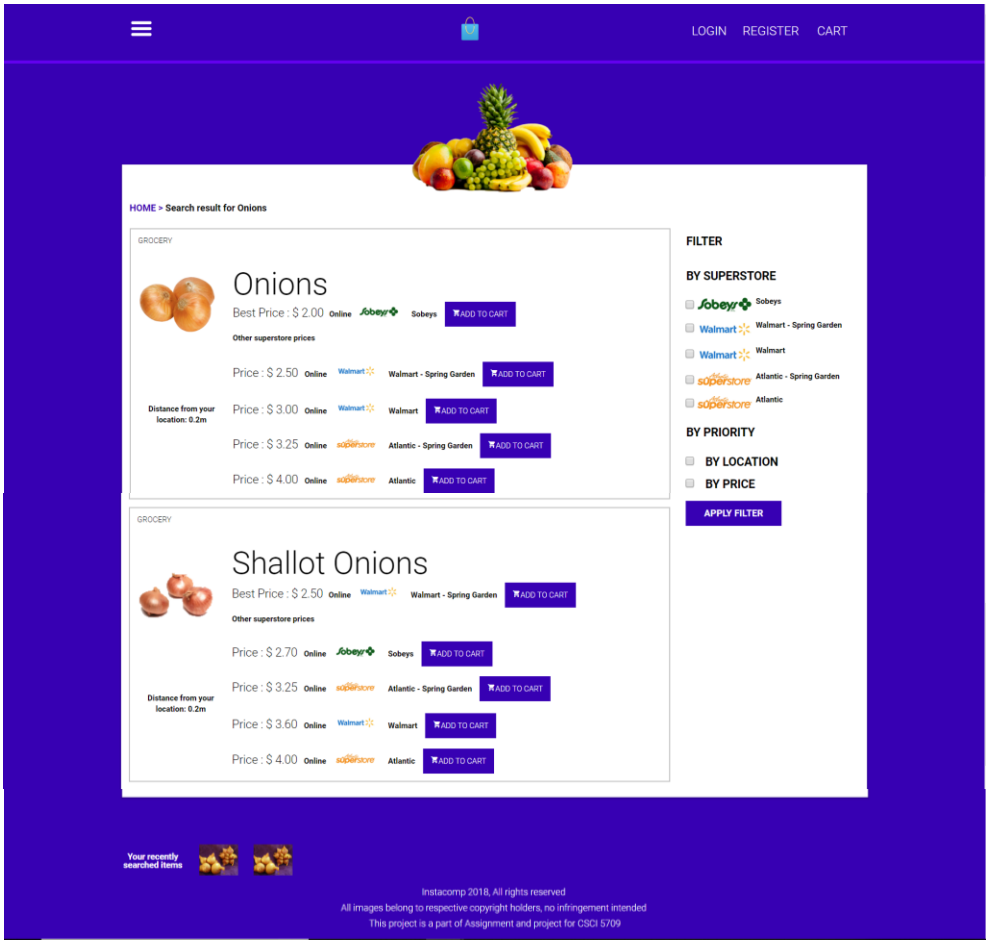

Figure 5: Search Results Page

Checkout Page: Based upon the number of products user has added to the cart, the user can not only change the quantities of the product but also will be able to delete the product user no longer wants to buy. The user will also be shown the total price of the products, see Figure 6.

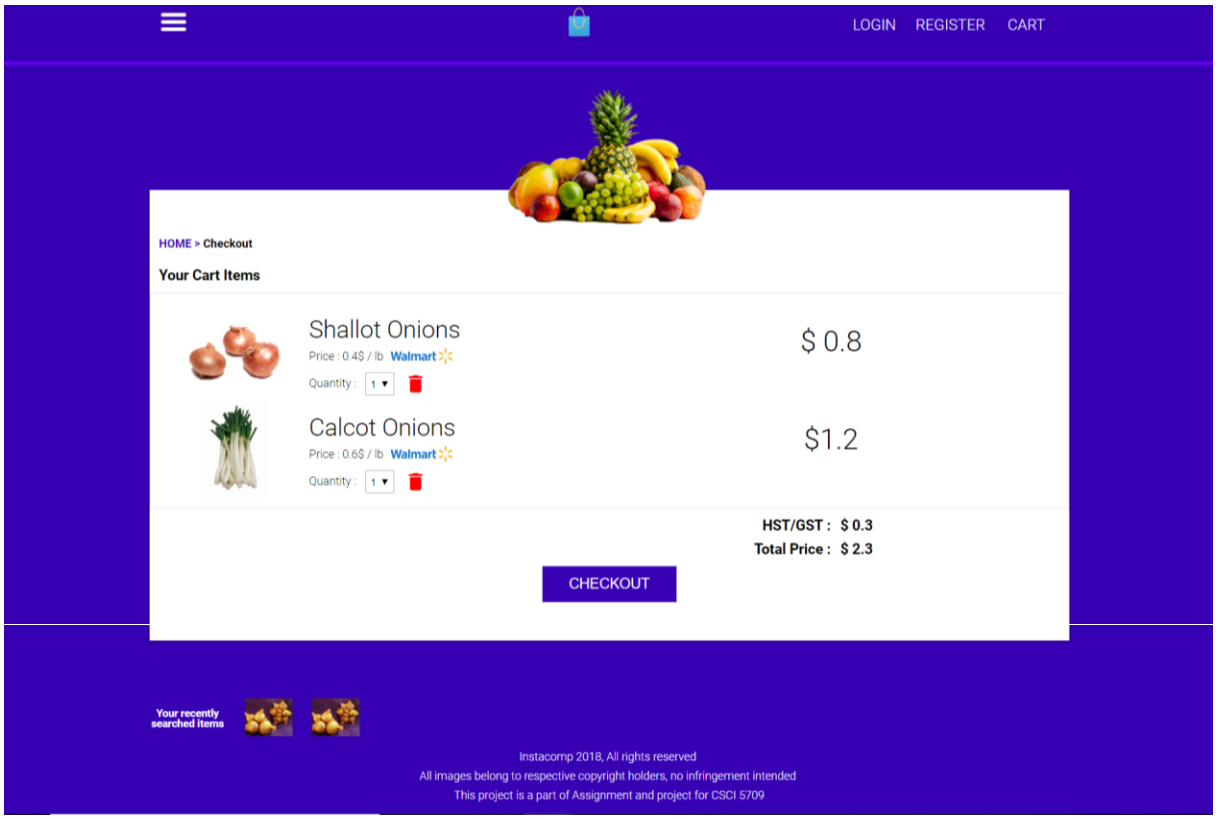

Figure 6: Checkout Page

Place an order page: Here user can choose either to fill in the new address and card details or to use the previously saved address and card details while placing an order, see Figure 7. If the user is logged in then the user can either enter the new address and card details, to place an order or the user can use previously saved address and card details if the user had placed an order before. But if the user opted to checkout as a guest user then the user will be asked to enter the new address and card details. After that user will be asked if the user wants to register an account on our website.

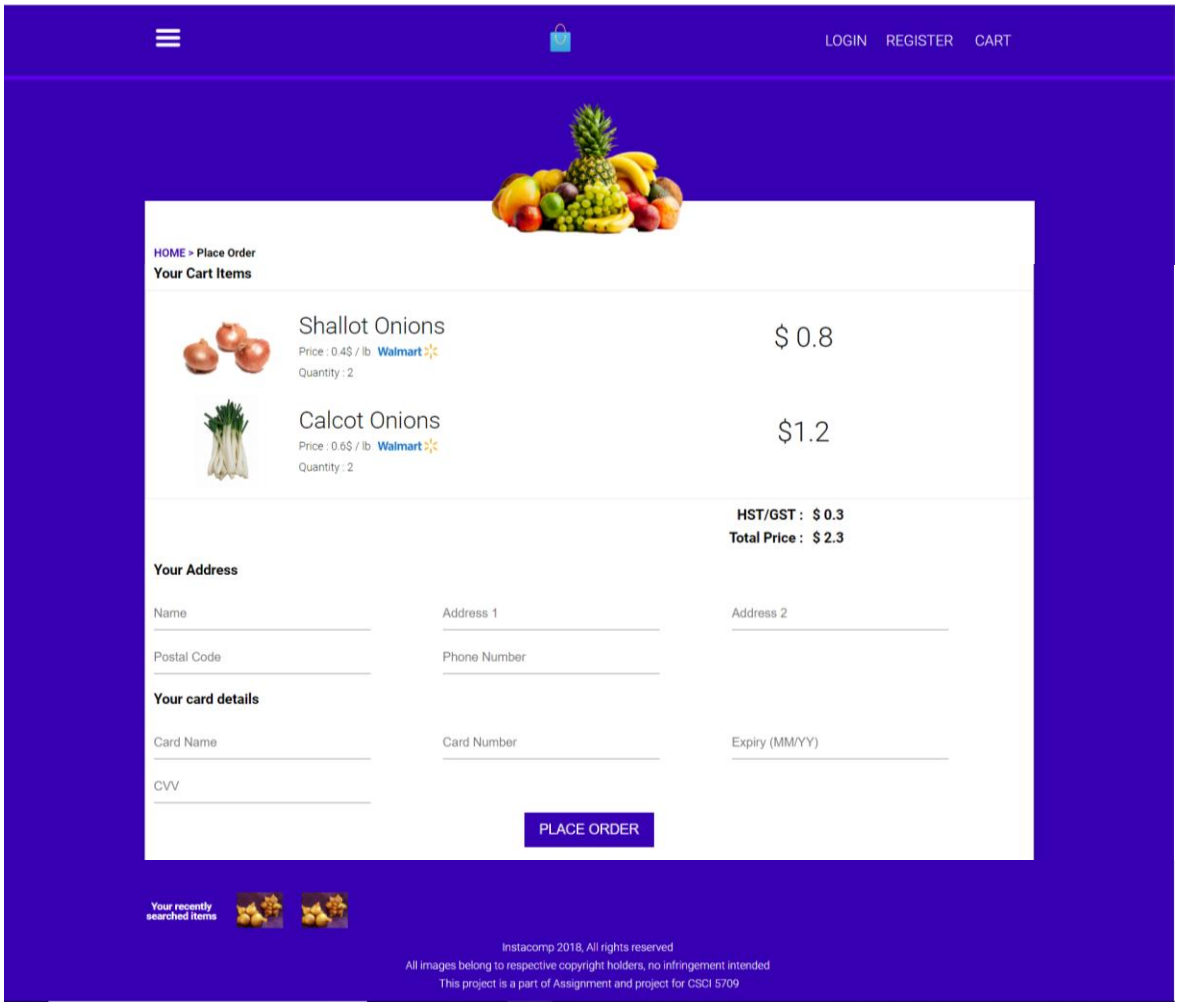

Figure 7: Place an Order Page

My orders page: Here user can see a list of all the orders user had placed along with their status updates. The user can also cancel the order, provided the order has not been shipped yet, see Figure 8. The user will also be able to track the order using Track Order option.

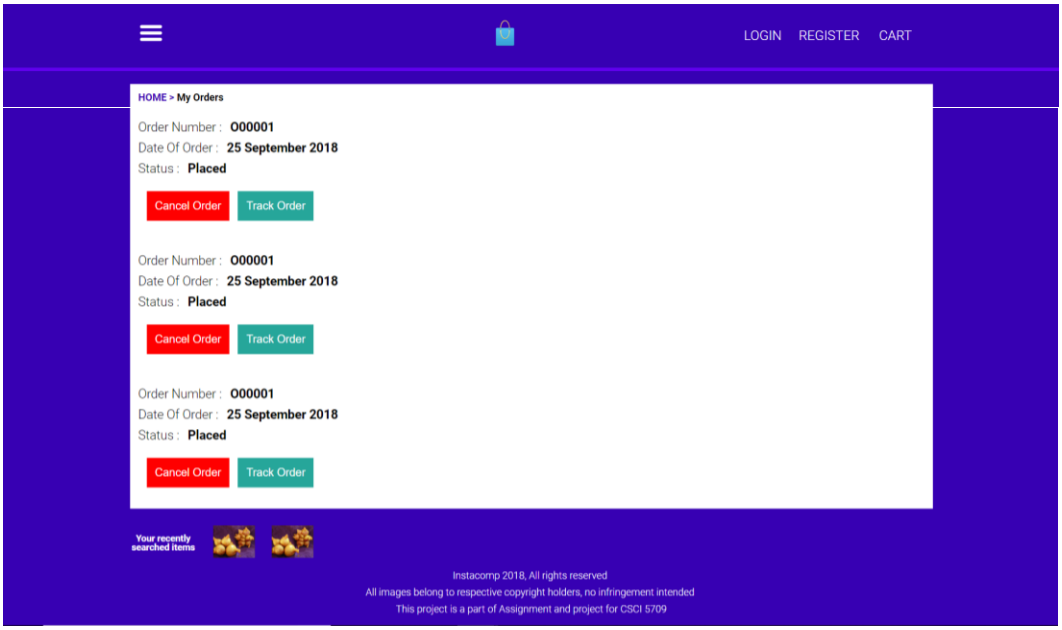

Figure 8: My Orders

Order details page: User will be able to see the details of the order (such as products user purchased, address used and mode of payment used while placing that order) that the user has selected, see Figure 9.

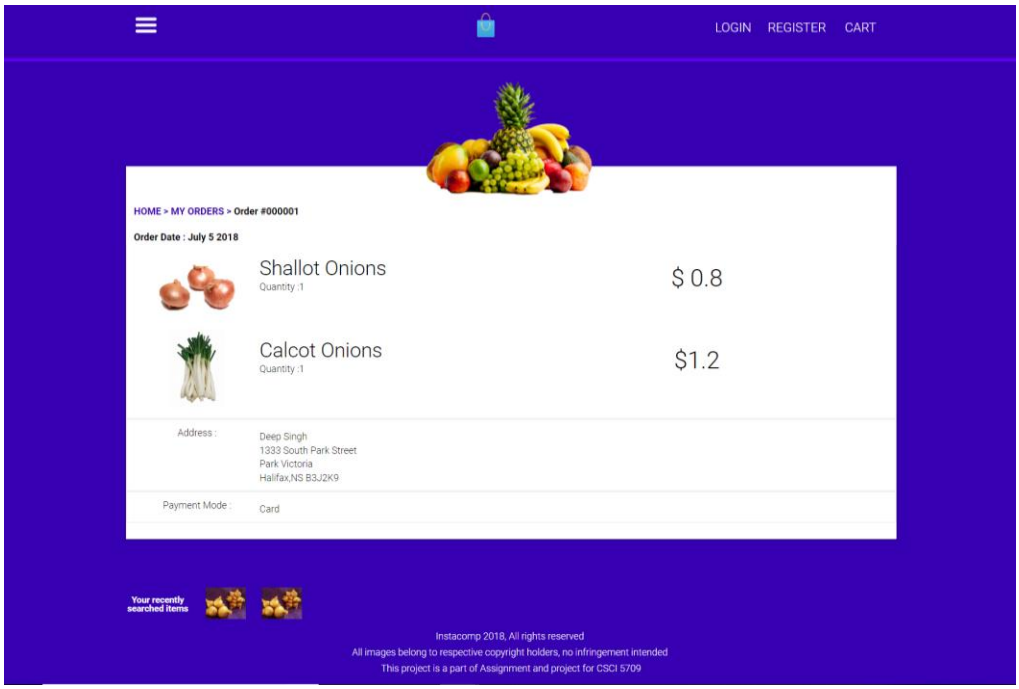

Figure 9: Order Details Page

Login Page: User can enter login credentials, see Figure 10.

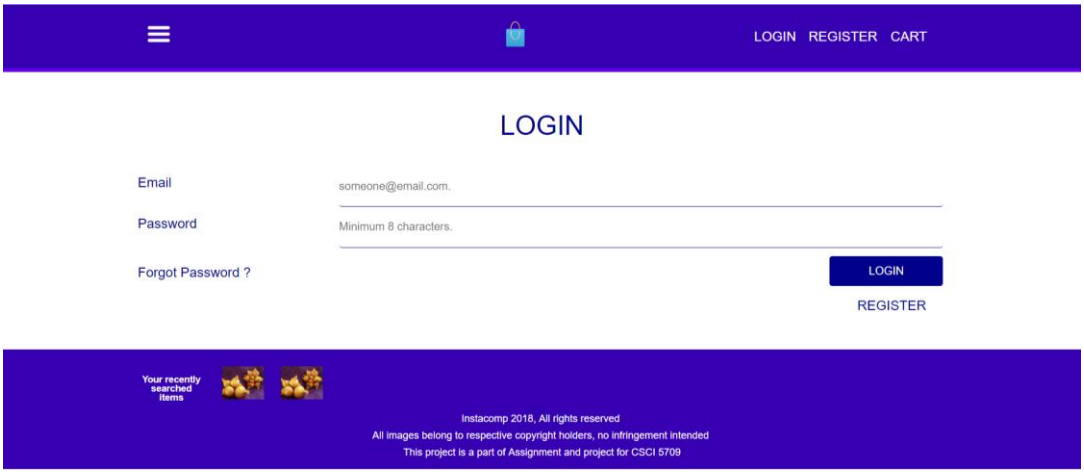

Figure 10: Login Page

Registration page: User can create an account by filling the registration form, see Figure 11.

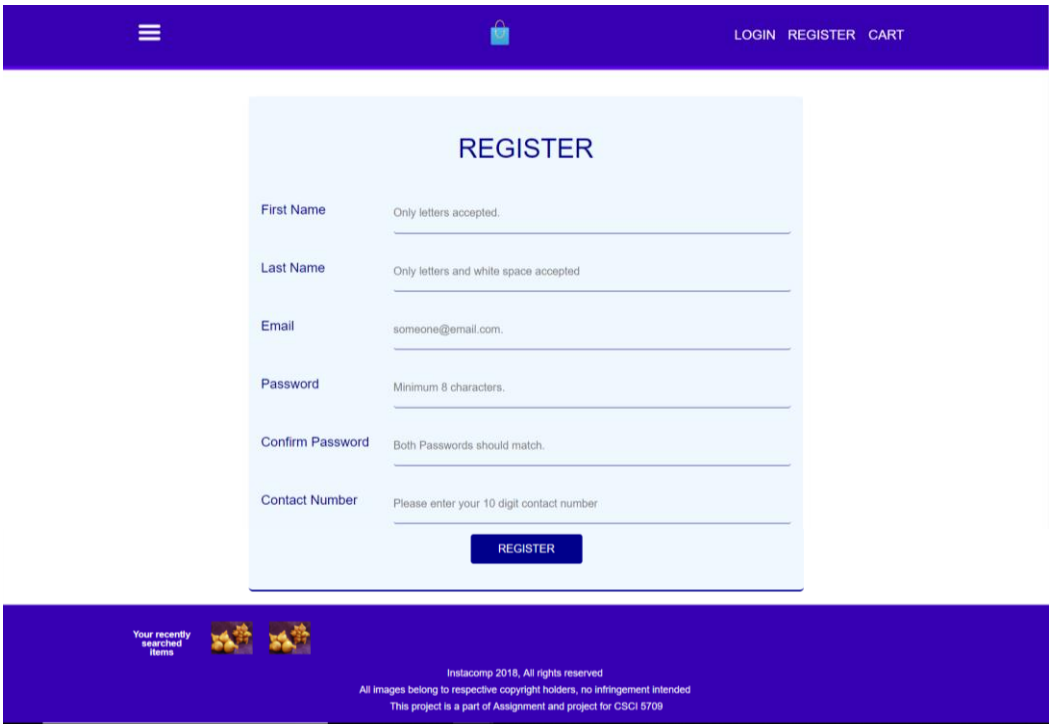

Figure 11: Registration Page

3.2.2 Design and Layout

Wireframes have been discussed in detail in the section "Information Architecture" as shown in Figures 2 through 11. Following design choices have been used in our project:

Usage of hamburger menu on the header: Hamburger menu is one of the ways of handling the menu navigation, see Figures 2 through 11.

Displaying product list on the home page: For better user experience we are showing the results on the homepage list population although the user can also directly click on the auto search options after the user starts typing the product name, see Figure 3.

Responsiveness: According to stats counter global statistics as shown in Figure 12, the majority of screen resolution screen is 1366 by 768 px, so the designers are forced to design the lowest common denominator. 968px is used because it's divisible by 1 to 16 giving a huge variety of different column widths and possible layouts for responsive design.

Breakpoints used in the project are 0-767px, 768-959px and for screen sizes 960px and above. The primary reason for using three breakpoints is to make sure that the application can be viewed in different devices like smartphones, tablets, desktops, and laptops, thus satisfying the expectations of a different group of users. Moreover, responsiveness will help in creating the rich user experience.

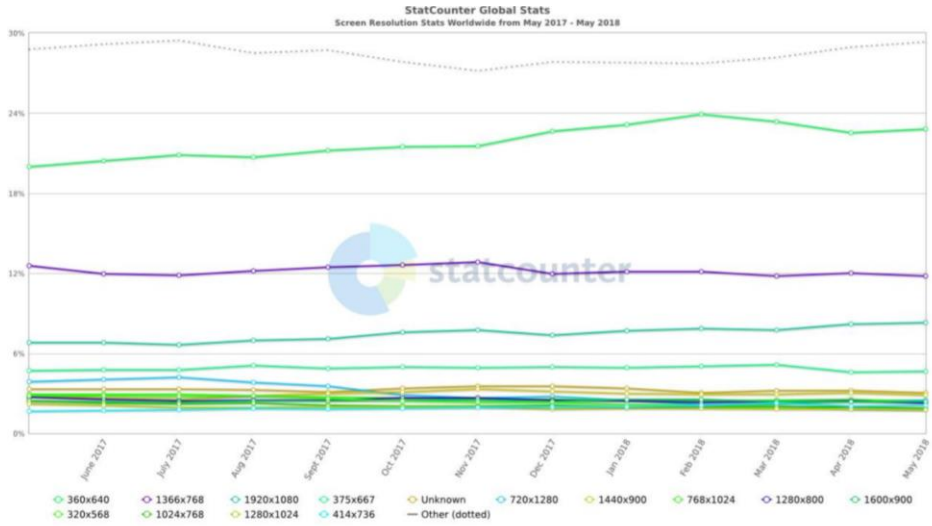

Figure 12: Global screen resolution stats (Source: http://gs.statcounter.com/screen-resolution-stats)

Typographic Elements: We have consistently used Google's Roboto font in our project, see Figures 2 through 11. According to the recent font analysis (https://fonts.google.com/analytics), Google's Roboto font has been viewed 5T+ times across the web which is safe to say that most of the Google products and most of the popular site use Roboto font. So in order to maintain the consistency amongst various site transitions, Roboto font was chosen.

Color Pallets: The theme of our application uses Blue and White colors, see Figures 2 through 11. Since blue and white colors represent trustworthiness and calmness, they are

used to convey the message in a simple manner without distracting and overwhelming the users [3,4]. Also, the blue color is versatile and is used by websites like 'Facebook.com' for brand recognition [3,4]. Through these colors, we seek to give the user the message that they can trust our user-friendly website to be secure and reliable for online shopping.

Graphics Used: Since our theme is ecommerce, so a shopping bag was chosen in order to reflect our values, see Figure 2. The user is familiar with the icons we have used as they have already seen them in other ecommerce websites, see figures 2 through 11. Since our focus is almost on all the sectors, any random image from groceries to automobiles sectors can be used on our home page.

Front End APIs: We have used Geolocation and Web Storage APIs in our project. Geolocation API provides a distance of the store offering the best price of the product, see Figure 5. Local Storage API stores the user data locally so that data can be retrieved as and when required.

Front End Frameworks: We have not used any front-end frameworks in our project as we believe that these frameworks will increase the execution overhead and page response times. We have done styling through native CSS. HTML5 has been used to structure our web pages. Javascript is used to handle client-side scripting.

4. APPLICATION WORKFLOW

4.1 Interaction Design

INSTACOMP can be used in any situation where a product needs to be purchased. Let us take grocery shopping as an example. Students, professionals and homemakers alike, rely on their years of shopping experience to save while shopping for groceries. They schedule their lives around grocery shopping going to Sobeys on a Tuesday to leverage that student discount and to Walmart on the weekend because some products are cheaper at Walmart compared to others. In addition, to all these considerations for pricing and the product availability, there is also the limitation of time. In these difficult situations, users can turn to INSTACOMP to make all the best purchasing decisions without breaking a sweat.

There are two ways a user can find the required product: through the dropdown list or the search bar. Figure 13 illustrates both the use cases.

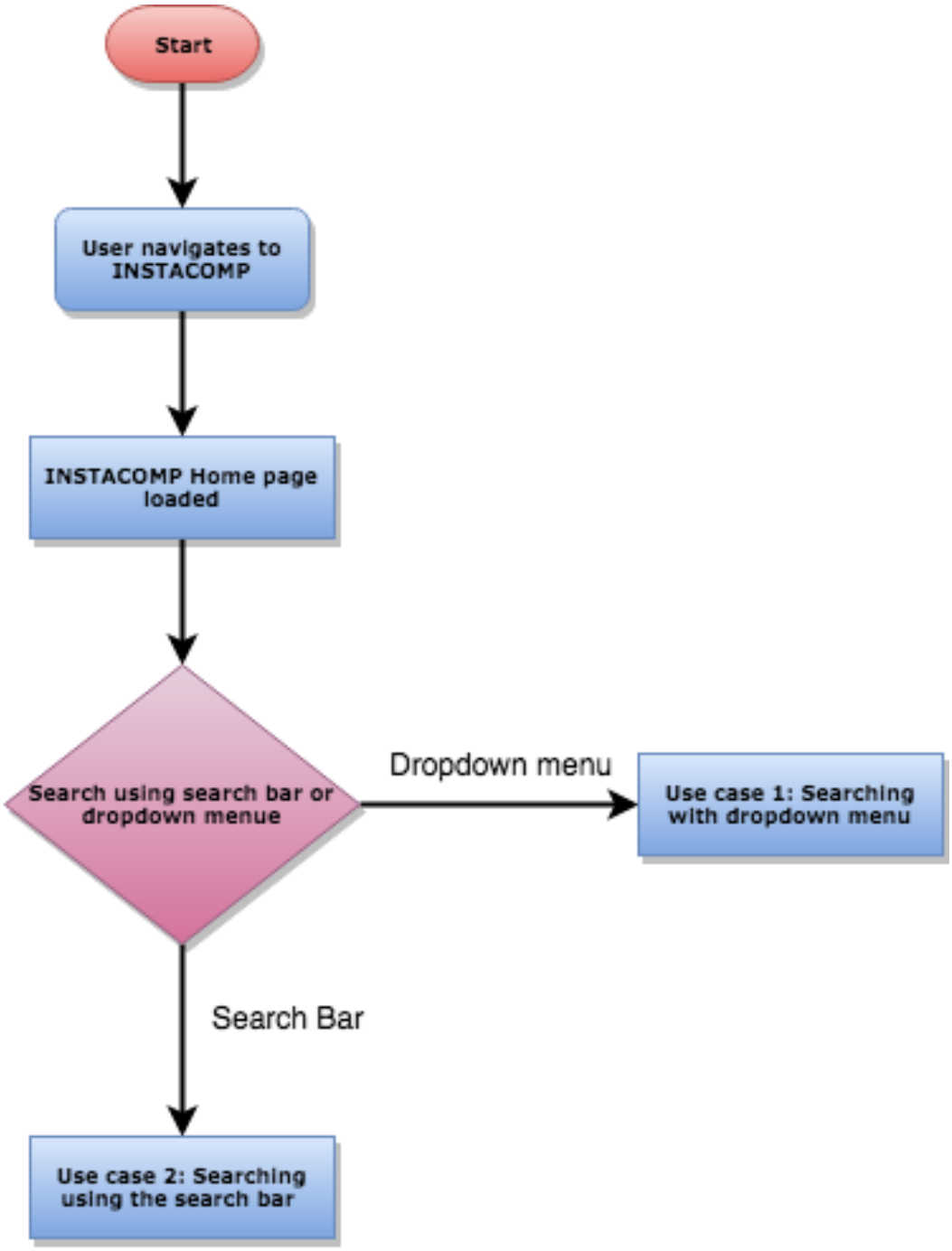

Figure 13. Search options

4.1.1 Searching using the Dropdown List

On navigating to the INSTACOMP web app users will see a home page. The user can then select the drop-down menu. A list of available shopping categories is displayed from which the user can select one. In this example the user selects groceries. The user is then given a list of sub-categories from which the user can select one sub-category. The user then selects vegetables which opens another list of available vegetable which includes an option of onions which is the product the user was looking for. So, the user selects this product to view all the purchasing options available.

The user can then use the filter on the side of the results page to eliminate options that are irrelevant to the user. The user can filter products by prioritizing low prices and nearby store locations as well as selecting specific stores. As a result, the most relevant options are displayed. The user can then select the product he/she would like to add to the cart.

After adding products to the cart, the users can choose the quantity they would like to purchase for each of the product. Users can also remove products from the cart as well as add more product before placing their order.

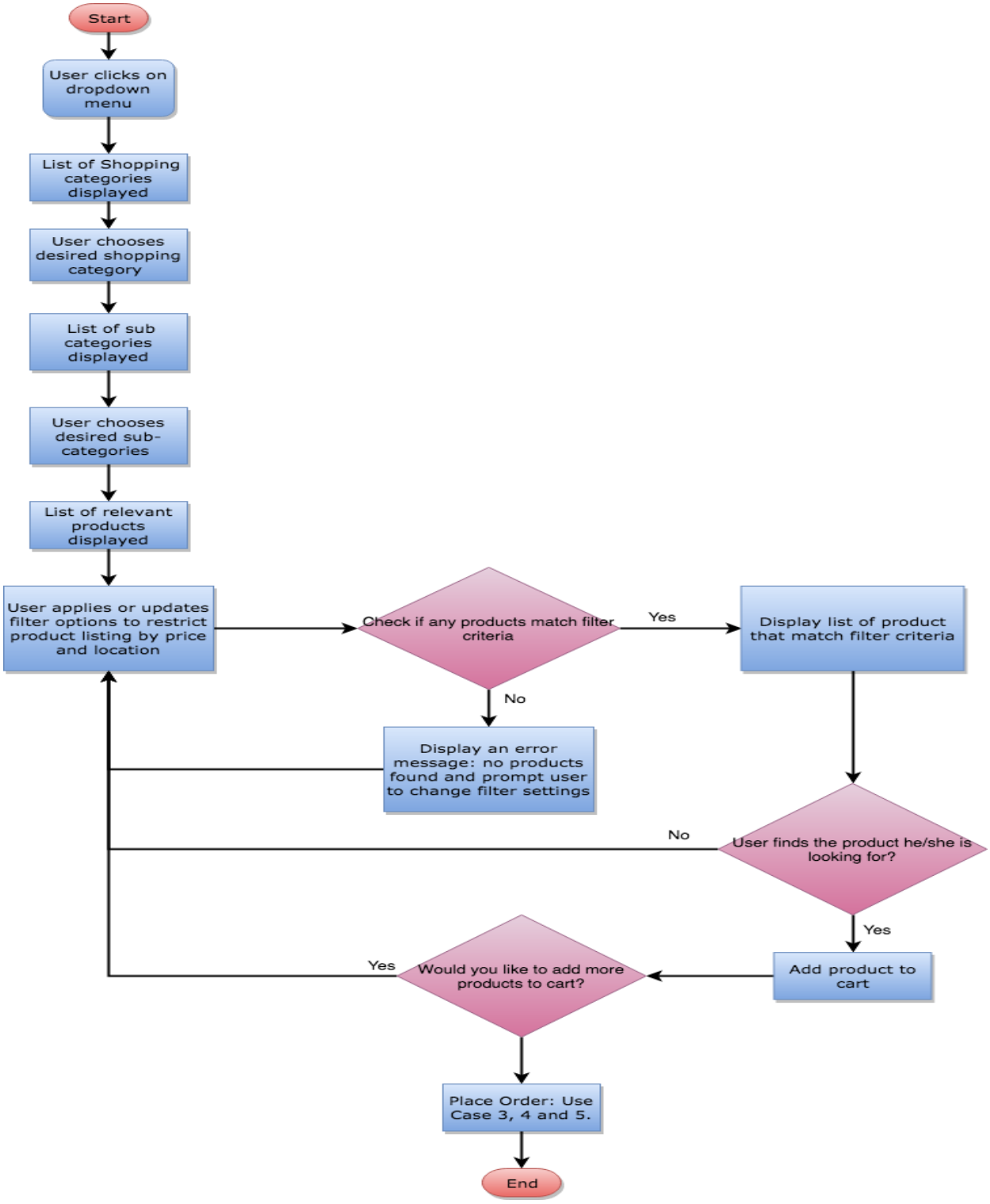

Figure 14. Search with a dropdown menu

4.1.2 Searching using the Search bar

The user is not restricted in any way while using the search bar. The user can search for a store and receive all the products available in that store. Similarly, the user can search for a shopping category and get a list of products available in that category. The user can also search for a product and obtain a list of products relevant to the search query. The user can then filter the results and select and place an order for the product they want to purchase. See Figure 15 which shows a task flow diagram for this use case.

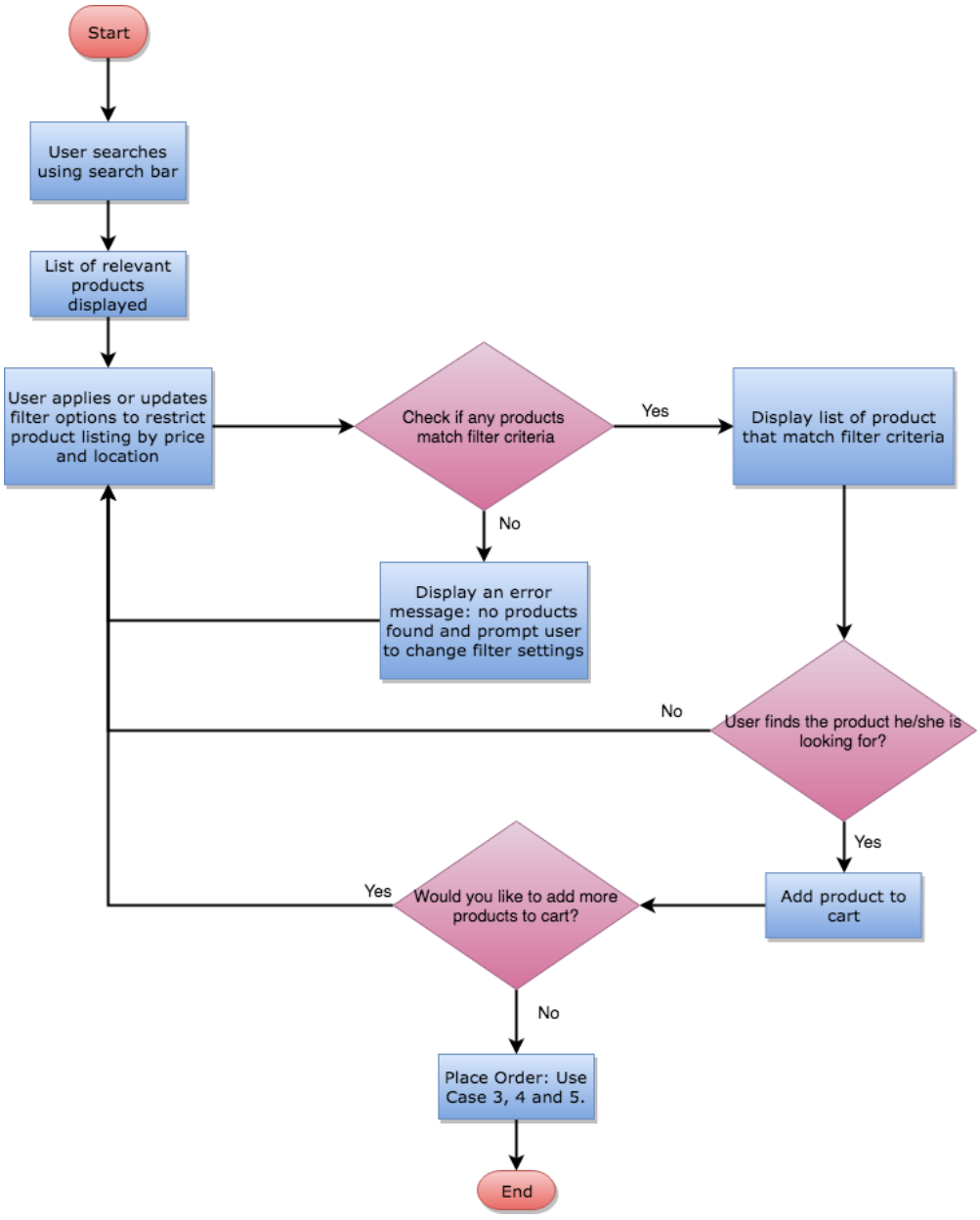

Figure 15. Search with the Search bar

4.1.3 Placing an Order

When a user places an order from his/her account, for the first time, the system requests the users to fill out the delivery address and the card details. The user is then given an option to save these details for future use. When the use orders for the second time, the user can either use the previously saved address and card details or he can add a new address/card detail. Figure 16 illustrates who the checkout happens.

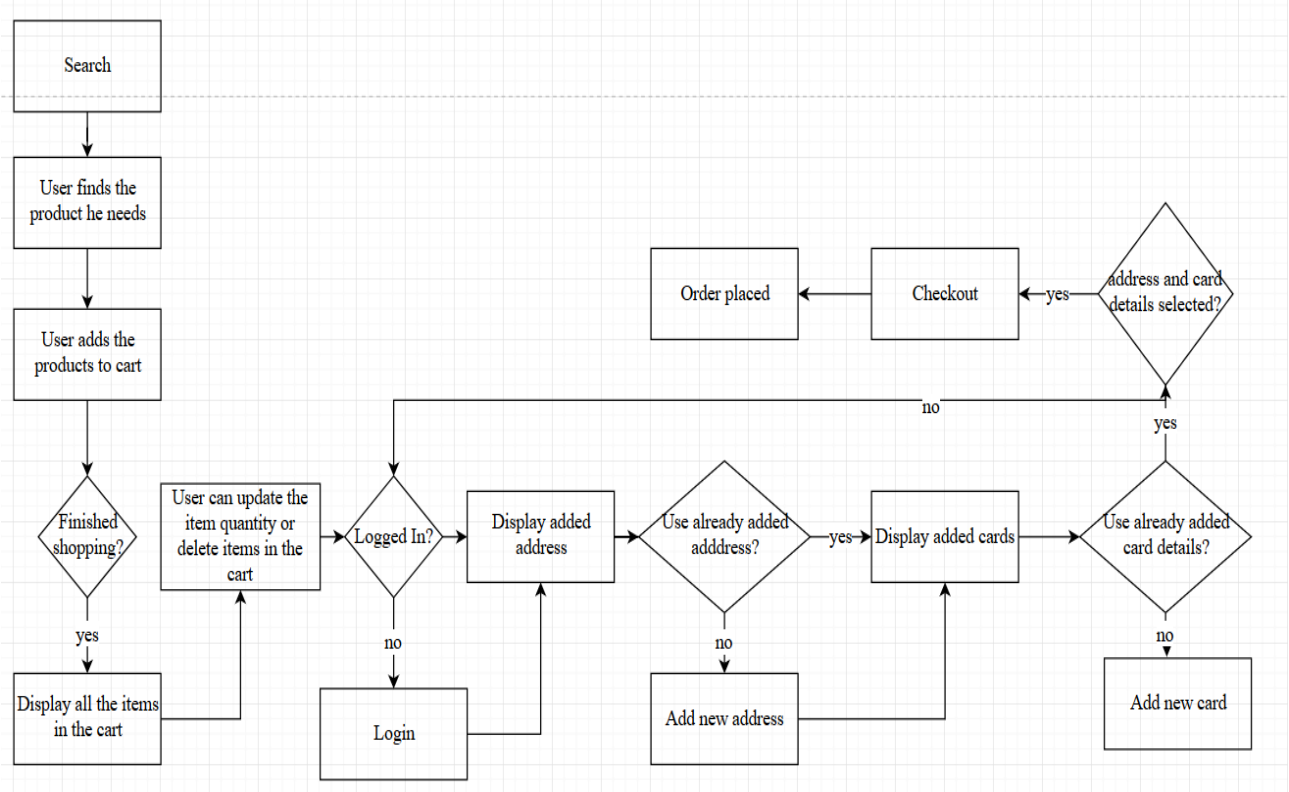

Figure 16. Checkout flow

4.2 Process and Service Workflow

4.2.1 Registration Page

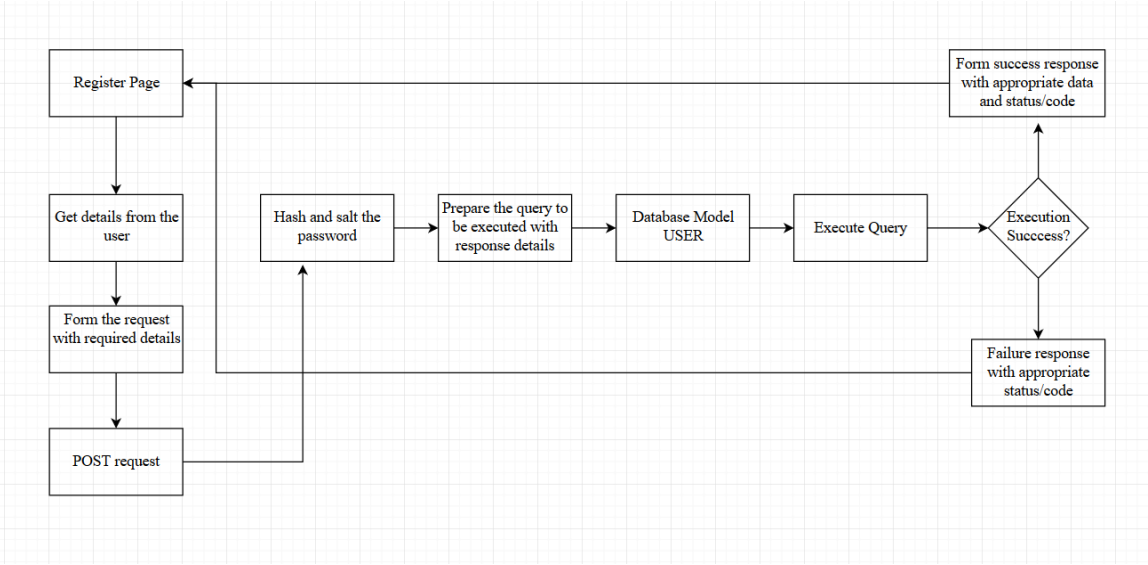

Figure 17. Register Page

4.2.2 Login Page

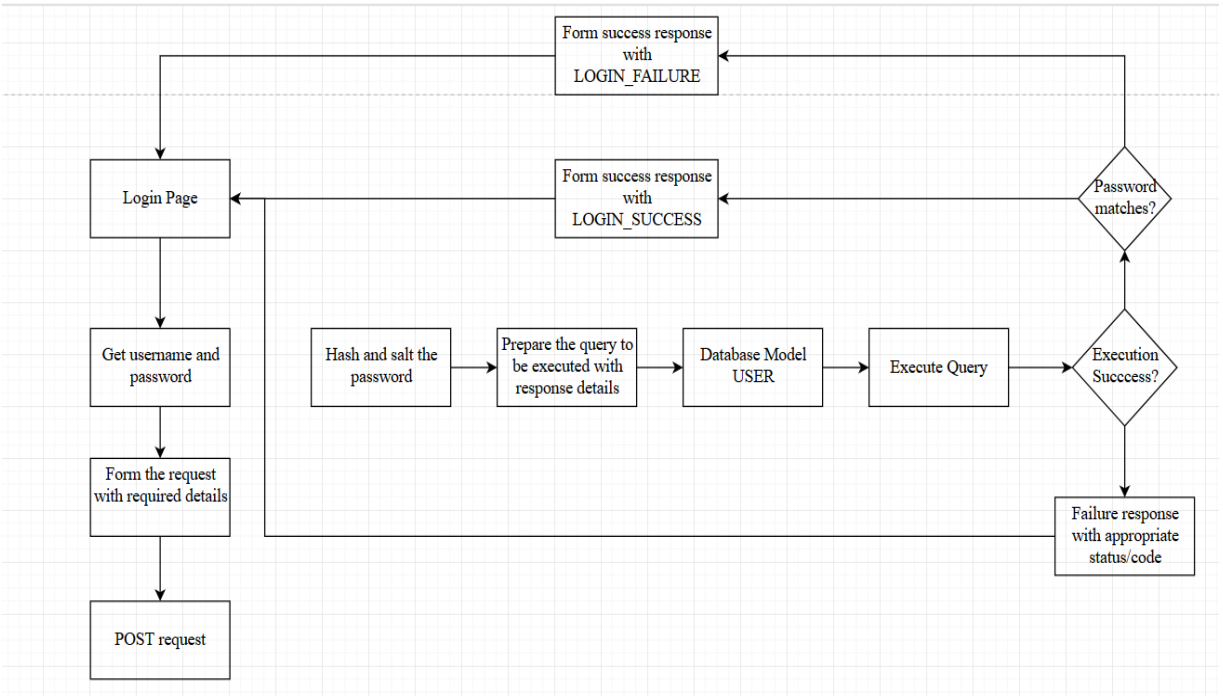

Figure 18. Login Page

4.2.3 Cart Page

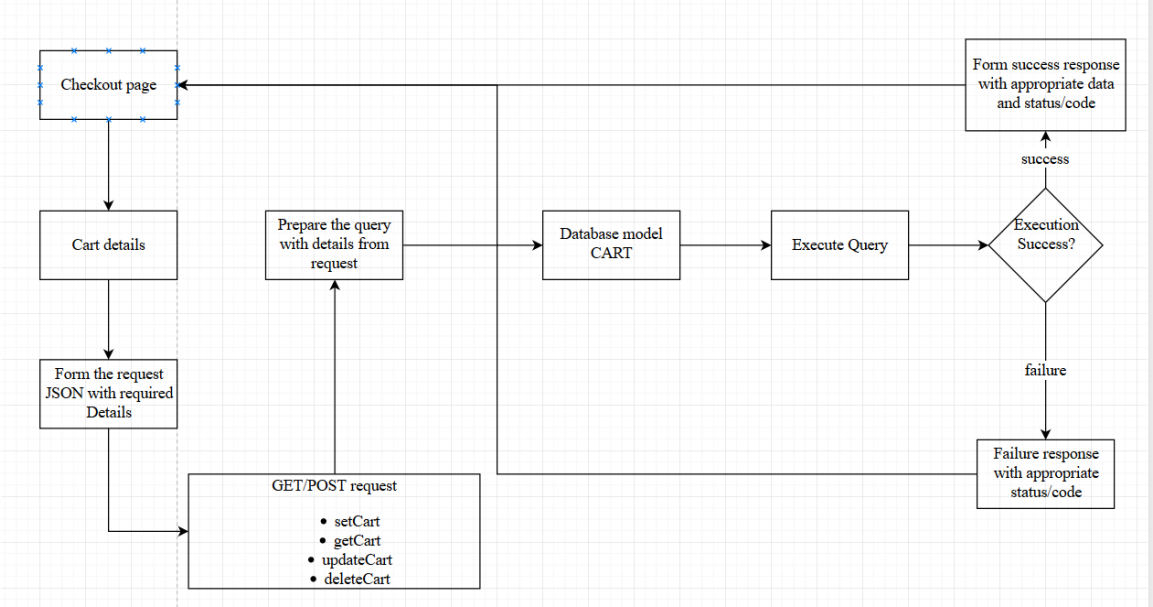

Figure 19. Checkout Page

4.2.4 Order Details Page

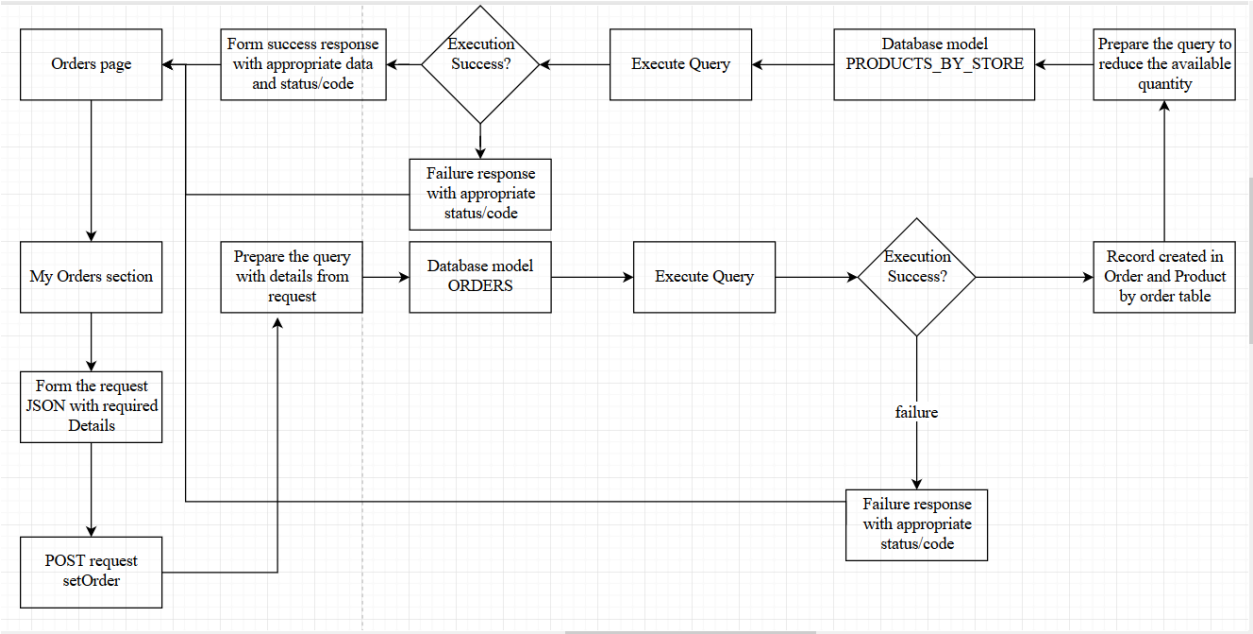

Figure 20. Order Page

4.2.5 My Orders Page

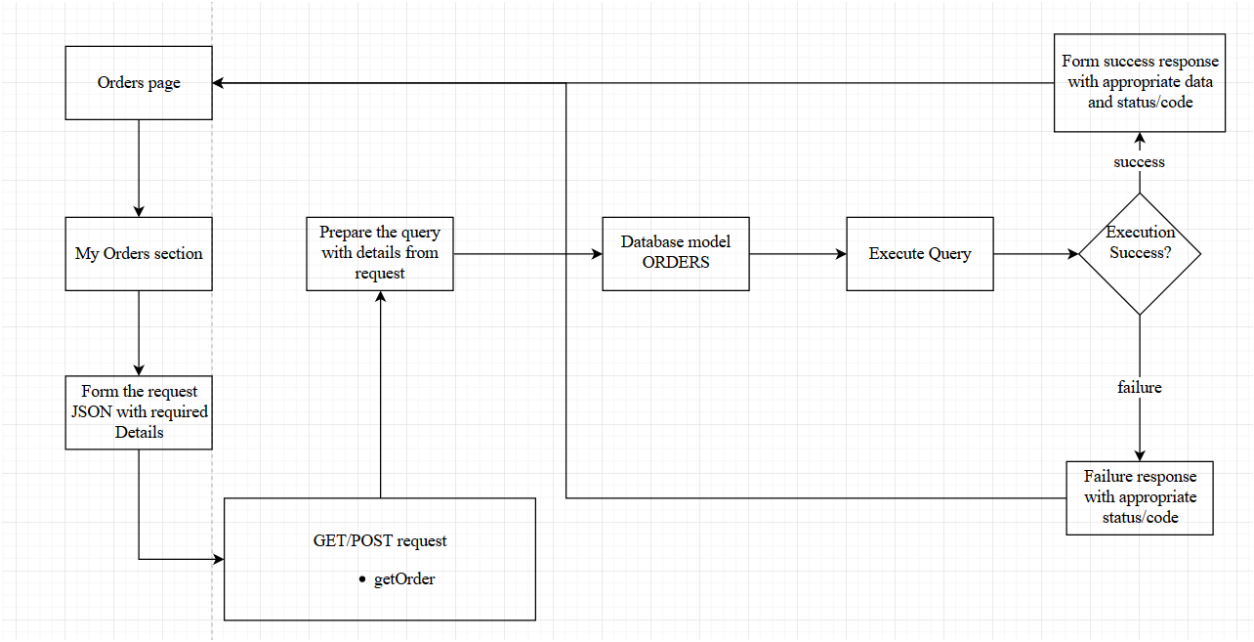

Figure 21. getOrders Page

4.2.6 My Address Page

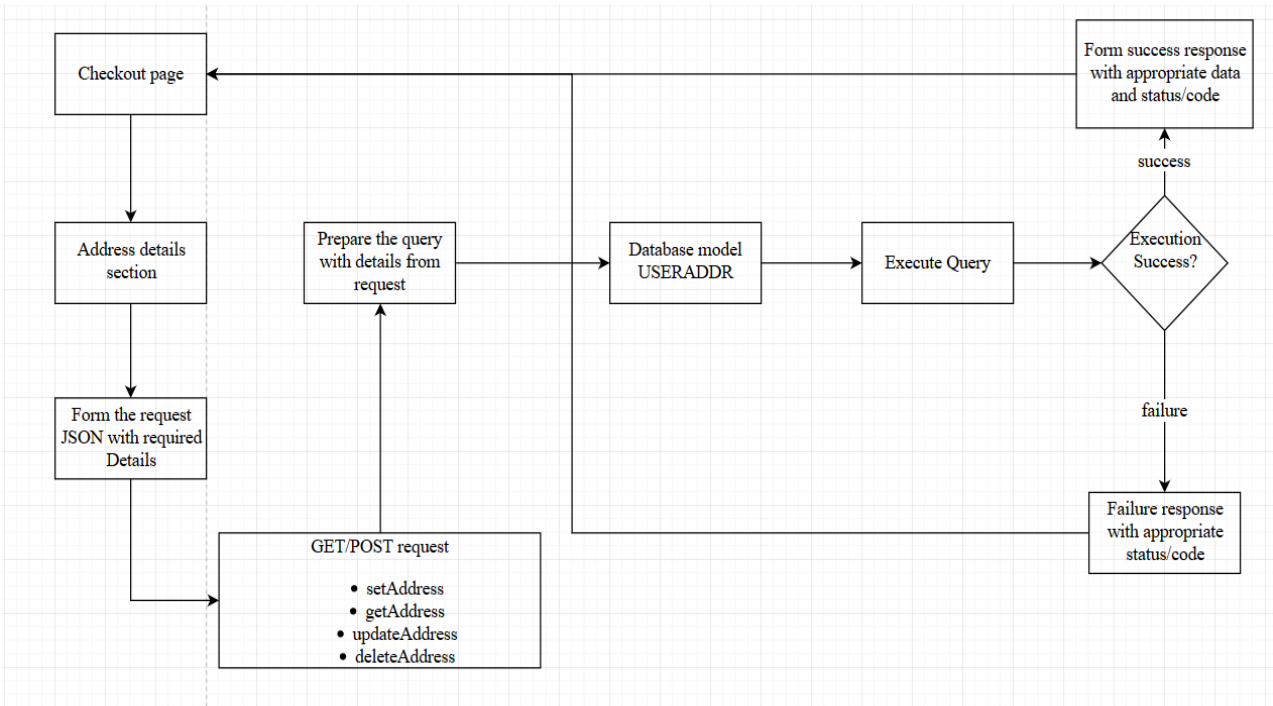

Figure 22. Checkout Page

4.2.7 My Card Page

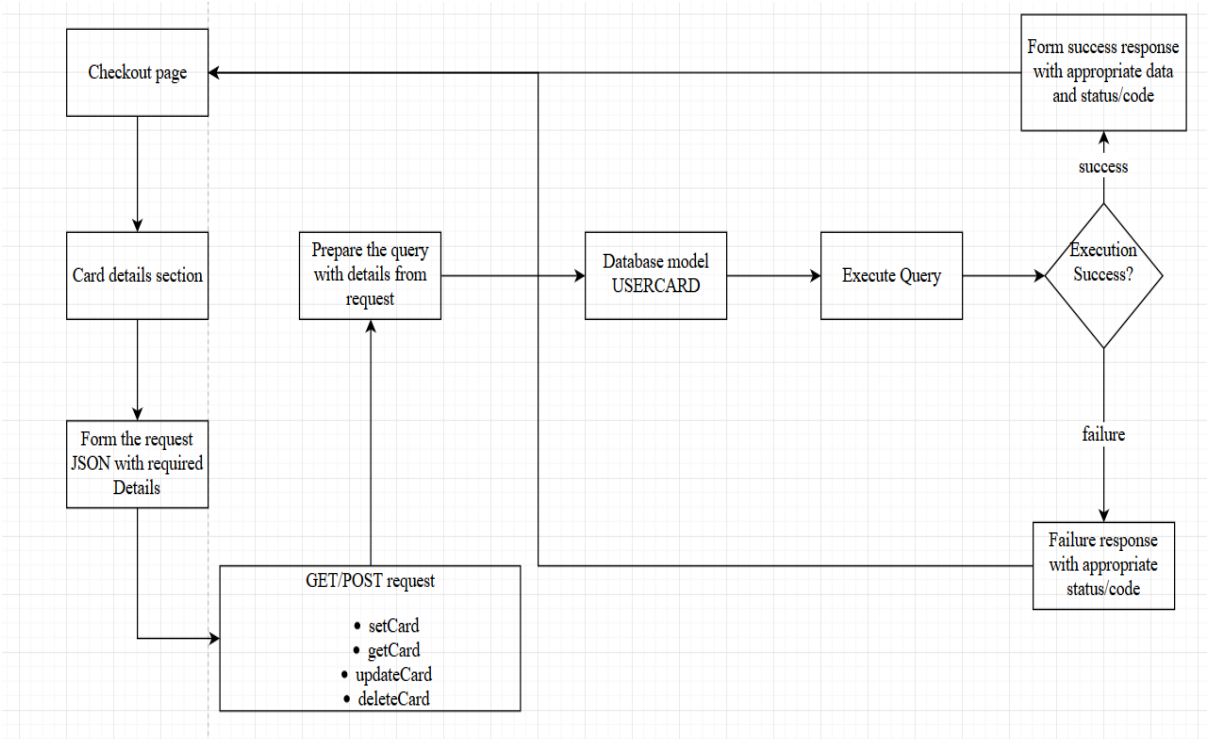

Figure 23. Card Details Page

4.2.8 ER Diagram

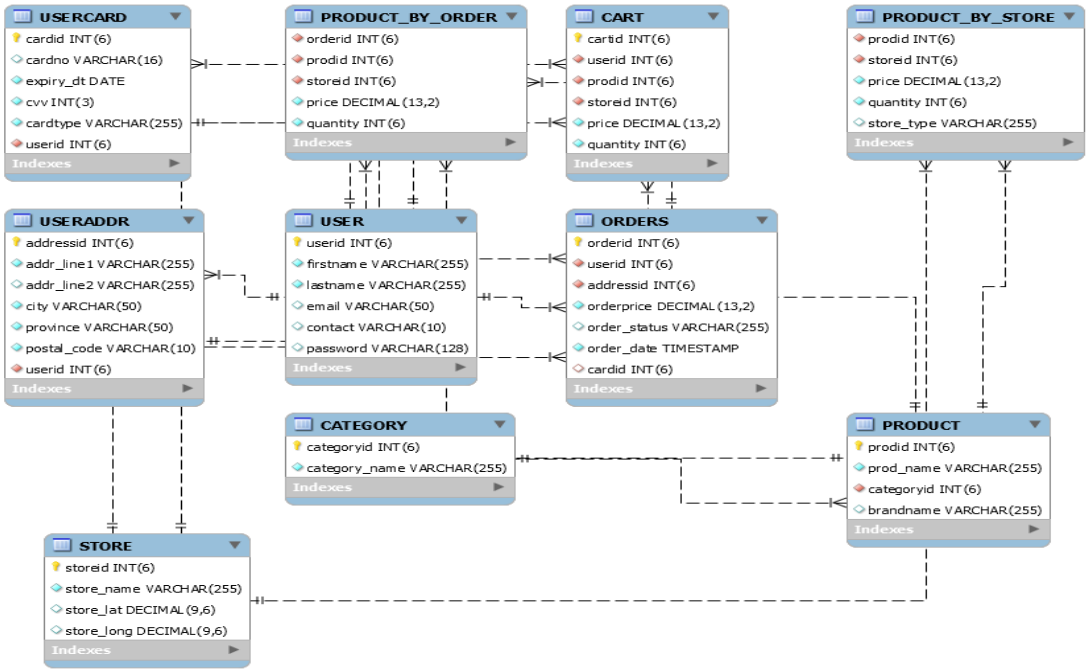

Figure 24. ER Diagram

5. CONCLUSION

INSTACOMP is an online marketplace which helps the user to compare the prices of the products in both offline and online stores. The Application provides a user-friendly interface for the user to browse through the items. INSTACOMP also allows the user to select products from multiple stores. Search results are displayed in an order in such a way that the store with the least prices comes first. A user can also make use of the filter functionality to filter the search results based on the stores. During the checkout, the user can make use of the already saved address/card details or he can add new address/card details. The user can also view the details of the orders in MyOrders page.

In the future, admin features would also be added so that the superstore owners would be able to add new products with ease. Plans are also placed add features such as filter based on location to enhance the user experience while searching the products. INSTACOMP has been built in such a way that the scalability would be much easier to perform. Adding new features would be cost-effective and will be added in quick time.

6. REFERENCES

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