

SmartShopper

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What is SmartShopper?

- The idea that motivated us to develop this mobile application is that, how as students we always try to be frugal with our expenses.
- Also, the same is true for many people regardless of their age group or professions.
- However, because of a busy schedule it is hard for many people to keep track of the best prices around the city.
- That is why we decided to develop an application that can make it possible while not worrying about wasting any time.

Why is SmartShopper needed?

- SmartShopper provides the information about the cheapest groceries and other household products by comparing the prices from various stores.
- Application Benefits:
 - Provides an economical shopping experience.
 - Provides a feature to scan the barcode of a product to lookup.
 - Shows the location of the store that is selling the desired product for the best price.
 - Uses Google map in order to help the user find their way to the store.

Target Audience

- This application has been developed keeping in mind the people who try hard to be economical with their expenses.
- Low-income group such as students as well as the working professionals with moderate income.
- Also, at this moment the scope of this application is limited to Halifax city as for any product, only the prices from stores within the Halifax region will be compared.

Usage Environment

- SmartShopper app requires internet connectivity.
- As long as the user stays connected, the app can be used from anywhere.
- Users are more likely to use the app from home, before going out for buying stuff they need. Also, staying connected to the network is not critical for the app as users can use the app once the connectivity is back. Connection drop and sudden non-usability of this app has minimal impact on user's state of mind.

Primary Features

- Search Product by name
- Search Product by barcode
- Show Product Details
- Shopping List
- Navigate to nearest store.

Business Model:

- Application will be available on the google play store if uploaded.
- Application is currently available on Gitlab repository (<https://git.cs.dal.ca/tarpara/smartshopper.git>)
- We are adopting the Free Model that is completely free (No ads as well)

Usability

- Help and Documentation provided
- Ease of Use – Simple User Interface
 - Simple Navigation
 - Clear and Concise Content
 - Complete onboarding – Using the Intro Slides

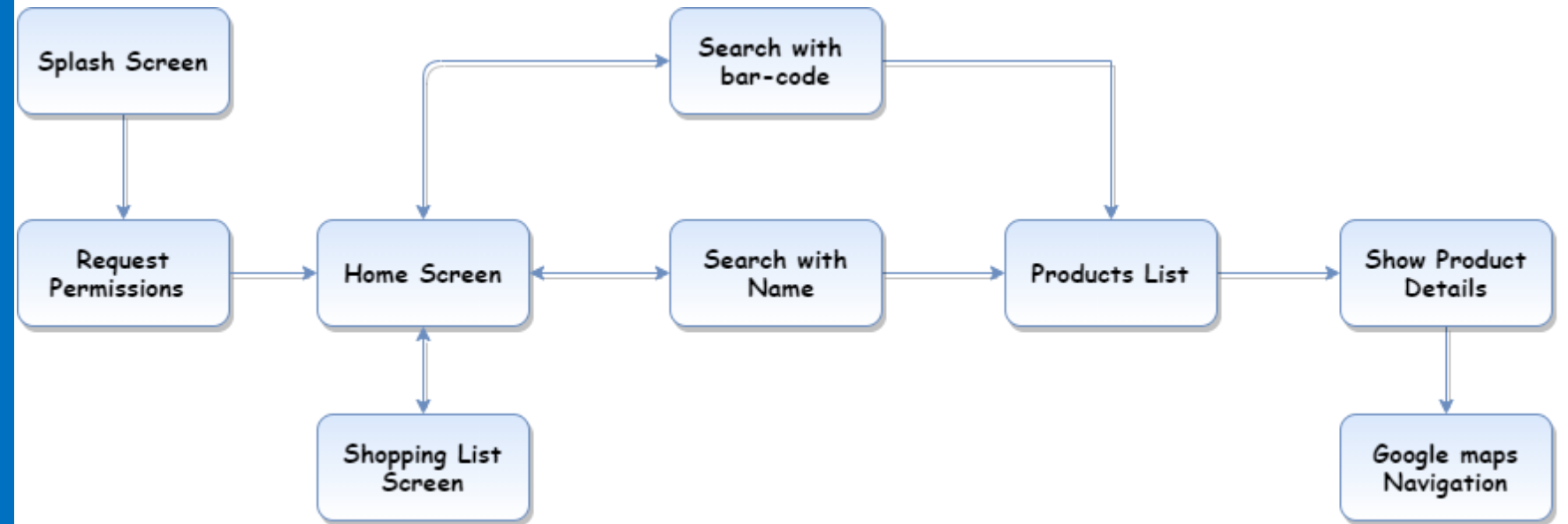
Accessibility

- This application can be run only in a device with Android Nougat and beyond with covers 86% of all android devices. (<https://gs.statcounter.com/android-version-market-share/mobile-tablet/worldwide>)
- Requires internet connection to work.
- Requires camera for best results.

Security & Legal compliance

- Only the Camera permission is requested to scan barcode.
- The location permission is not needed by this app since the store location will be shown using the google maps app.
- The images captured by barcode scanner processed locally.

Application Flow



Limitations

- Cannot sort the products by closest store due to free API key limit.
- Cannot search multiple products at once.
- Does not open the google maps within the application.
- Does not fetch the actual prices of the product since the product details API is mocked.

Planning

- **Feasibility Analysis, Potential Risk and Mitigation:**
 - SmartShopper is an application which compares the prices of commodities across different stores. Hence, the data required shall be accessed via the stores' API.
 - In the case of restricted API access, the app can be made to work with mock data and can satisfy the functional requirements.
 - Since the data are loosely coupled from the application, the app can be developed but requires adjustments in the schedule to accommodate time for data modelling and mock data creation.

UI/UX Design

- **Material Design**

- SmartShopper follows material design guidelines provided by Google, for improving user experience in mobile application (<https://material.io/design/>)
- This app also implements dynamic duration for animations (Introduction Slides), which makes content easy to follow for users. (<https://material.io/design/motion/speed.html#duration-easing-dynamic-durations>)

- **Wireframe**

- Wireframes are designed considering users' behavior while shopping. HomeFragment is at the center since users tend to search the product by name most of the times. BarcodeScanner is on the right as users tend to search for any camera-based functionality to be accessed from either the center or on the side on which the camera is present (right for most of the phones)
- BottomNavigation and other elements that requires user interactions are placed according to material design guideline, to make them easily reachable in modern large screen smartphones.

Prototyping & Development

- The app had two prototypes for products list screen.
 - The first prototype used recycler view with card view.
 - In the second prototype, we used recycler view with folding cell view.
 - We discarded the first prototype and adopted the second prototype.
- We also created a prototype for google maps within an activity.

Testing

- App was rigorously tested by:
 - End-To-End Testing
 - Manual Testing
 - Integration Testing
 - Chaos Testing

Application Demo



Conclusion

- Developing Smart Shopper was a great journey.
- During the development process we learnt a lot about project deliverables, working on Version controls, Android App Development and finally the essence of teamwork.
- Accepting and considering each other views was the most important quality we learned and developed during the app development.
- SmartShopper is an application which strives to provide our users with the information about the cheapest groceries and other household products by comparing the prices from various stores.
- Developing this application gave us all a real time exposure to industry projects and how to deal with last moments chaos.

Thank You