

## Carts

### (A Collaborative Shopping List Android App)

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**Abstract-** This paper is proposing an Android app which is based on an online shopping list and will allow multiple users to shop the same set of items and meals, simultaneously. If only there is some way with which we could communicate, something collaborative that would be right there at the store with you, like an app. There are various competitors in the market, but if we focus on things like the real-time update nature of the app and the collaborative nature of the app, we think we have a runway to make this idea take-off. Consider a case when two of the roommates went to the shop at different or same time, and both of them bought the same item, making one of them needless at that moment. This happened because they had no sort of communication while shopping, and no way of knowing that whether or not the item has been bought. Therefore our proposed app would bring a collaborative nature and real-time upgradation to the shopping experience.

**Keywords-** Android app, Real-time upgradation, collaborative nature.

#### 1. Introduction

Internet is the rapidest growing media during the past decade. Especially, online shopping is a rapidly growing e-commerce area. Online shopping has become a major part of people's lives. A core component of e-commerce is having a shopping cart. To establish an e-commerce website, every online entrepreneur needs to have an online shopping cart. According to the records there are approximately 300 million users of smartphone [1].

Our application "Carts" is an advanced shopping cart system, in which a user can shop along with their friends and family in a real-time environment simultaneously. The users can connect with each other by installing the apps on their mobile devices, and can simultaneously operate on the lists by sharing the lists with each other. Also the app will be connected to a backend service- Firebase, which will be used for storage as well as user authentication at the same time.

#### 2. Literature survey

Study of Google Firebase API for Android by Navdeep Singh, introduced us with Firebase, which is a google provided API for database storage and syncing into your Android, iOS and web application. Google Firebase has many features like user authentication database storage and hosting notifications etc.[2]

Understanding Android Security by William Enck, Machigar Ongtang and Patrick McDaniel introduced us to the openness of these new environments and how it will lead to new applications and markets and will enable greater integration with existing online services. Android users simply supply a username and password, and their phones automatically synchronize with Google services. Their article attempts to unmask the complexity of Android security and note some possible development pitfalls that occur when defining an application's security.[3]

Android operating system by Saurabh Bharadwaj, Priyanka Chouhan, Richa Sharma and Preeti Sharma gave information about the Android operating system. Google developed Android as part of the Open Handset Alliance, a group of more than 30 mobile and technology companies working to open a mobile handset environment.[4]

### 3. Methodology

“Carts” is an android application that basically focuses on the shopping carts that are collaboratively and collectively worked or shopped on by a group of users. The Application uses Firebase Real time Database and Authentication services. The data is stored as a hash map on the Firebase Console that is logged onto via the account created on Google. In this to be user ,the person needs to be registered on the app via email/password registration that is maintained by firebase API or the google Accounts system. Once you are an authenticated user or member of this application your are given two tabs one of which is the shopping ,the other being the meals part .

On the main page via a floating action button at the bottom right of the page a new list could be created simply by giving it a name. Once the list is created list items can be created easily by giving them a name , items on being created are displayed in the list with a delete option on the right side.List menu contains a green button which serves as an indicator whether the person logged into the app is currently shopping in that list or not .Just below the name there are currently active shoppers shown in the Lists Screen.

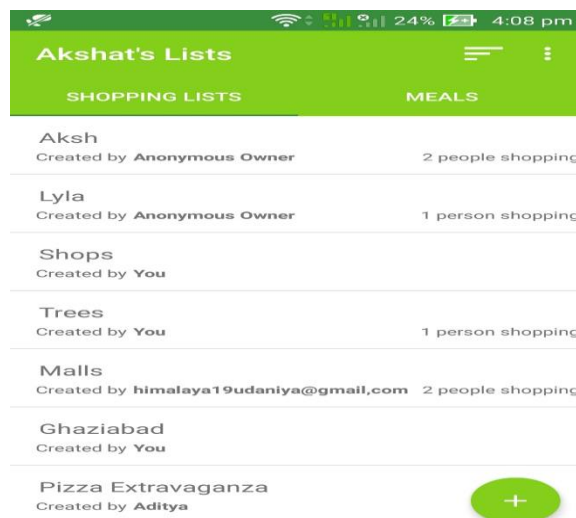
On the main screen there is a way to sort the given lists by order time , alphabetically , or by publish time. The list screen also contains a feature such that when an item has been bought , item name gets a strikethrough and moves that item to the bottom of the list separating the bought and unbought items .

Another feature brings a sharing list option among the friends that are already registered on the application . To share a list use the menu in the List Screen to get to the Sharing screen in which on entering your friends email , you can share the list with your friend who gets notified about the list you share .

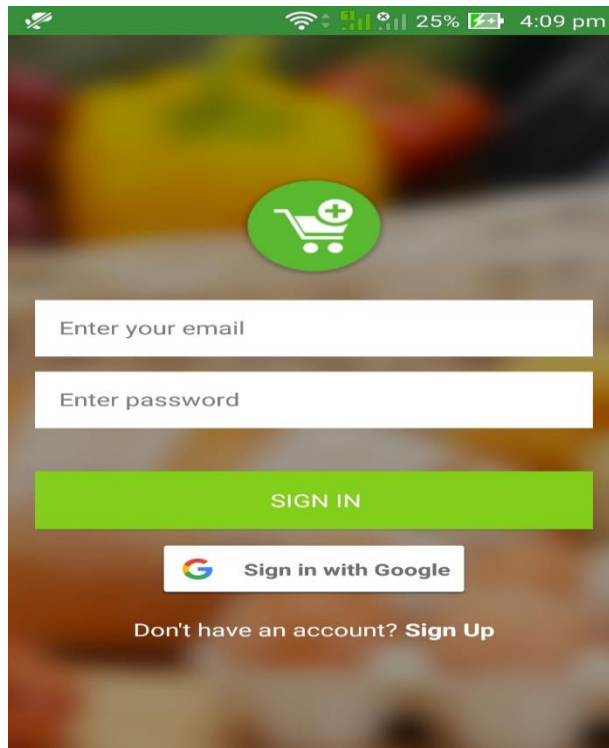
### 4. Implementation

The application consists of the following Wireframes:

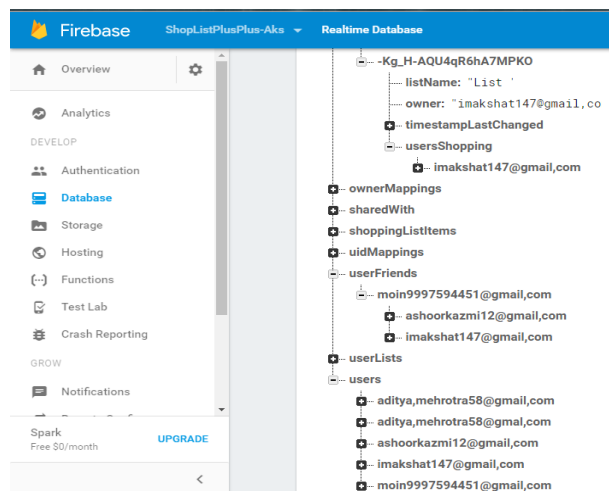
- I. **Version 0.1** – This is where we will decide what kind of stack we are going to use. This version will be responsible for writing and reading one piece of data from the online data storage that we just setup.
- II. **Version 0.2** – Consists of other screens such as the all shopping list screens and shopping list details screens to get the data that is stored in the database and decide how to visualize it to connect to the database.

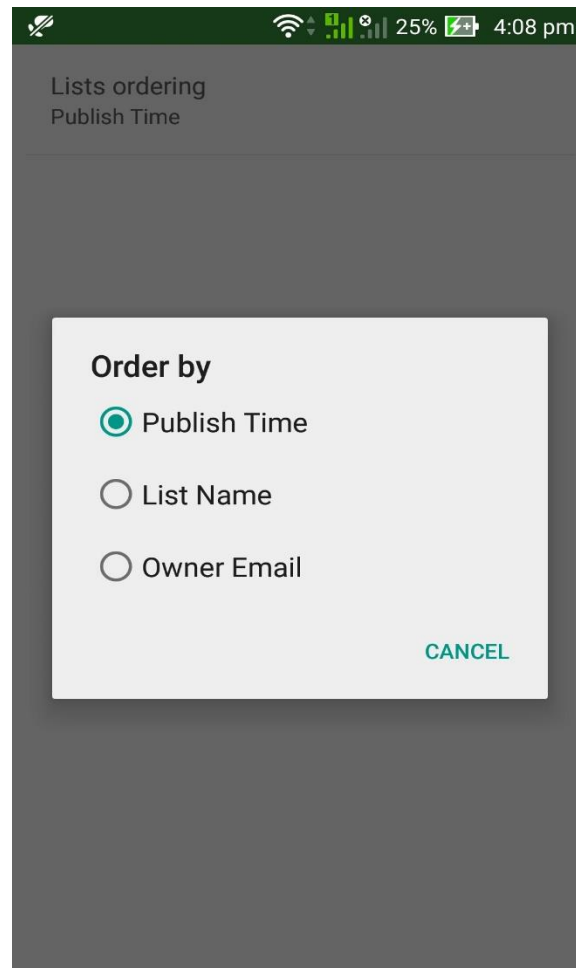


III. **Version 0.3** – Consists of the sign in and create an account screen to the application that will allow for authentication and user accounts.



IV. **Version 0.4** – we could cover how to use all the user data that we just grabbed to allow for sharing user list. Also , since we are accumulating all the user data, we would probably want some way to sort and filter it.





V. **Version 0.5** – To address security and database permissions.

## 5. Conclusion and Future Scope

In this paper, we proposed an application using which the users can shop in a collaborative and collective way to enhance and simplify the shopping experience. This application would make use of Firebase API and Material Design specifications for the User Interface. This application would be useful for users who want to experience an advanced shopping cart system.

The application will provide a friendly user interface for the users to shop for the various products and also to add friends and share lists with them. The real-time management of the application will help to monitor the action of the users and his friends, simultaneously, while shopping of various items in a convenient way. Also, the application would save time while shopping for various products.

## 6. References

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