

# OpenKart: Collaborative Shopping and Ride Sharing

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## ABSTRACT

With the advent of technology, most of the people wish to purchase goods online. However some people are reluctant to buy goods online. One of the major reason for this is that users have to pay shipping charges if their total shopping amount is not exceeding the free shipping amount. To solve the problem people tend to ask their friends to collaborate or buy unnecessary things just to exceed the free shipping amount. We are looking at an innovative approach to solve the above challenges by reducing the cumbersome task of finding people in nearby area and providing a single platform to resolve the above problems.

**Keywords:** Collaborative Shopping, Ride Sharing, Android App

## 1 INTRODUCTION

We tend to face many challenges while trying to adapt to a new city or country after we move. Especially when students travel to another country for further studies or research project, they have problems in commuting to grocery stores without cars or while buying things online and not be able to reach upto free shipping amount. In the beginning it is difficult to find people to collaborate in buying things together or commuting together to grocery store.

We ourselves have faced similar problems and have found solutions like forming a group on social media like Facebook and WhatsApp, and asking fellow group members whether they are buying something from particular website or going to grocery store that weekend. This takes a lot of trouble and sometimes it happens that people dont check the group or arent members of group and thus bear some loss by ordering something

extra or paying the shipping amount. Thus, taking an inspiration from that, we are providing a single platform in form of an android application that would solve all above problems and help the users to collaborate easily to solve the above mentioned problems.

## 2 STUDY

### 2.1 RESEARCH QUESTIONS

Fifty five students were surveyed to understand their experience with buying grocery online. In this section we elaborate the various questions which were part of our survey and the reasons for asking these questions.

**Survey Question 1: How often do you face a situation where you want to buy something online but your total amount is not exceeding the free shipping amount?**

We asked this question to gauge how many people wish to order grocery online. This gave a rough estimate of what percentage of people would be benefited by creating an app for collaborating people.

**Survey Question 2: How often do you buy unnecessary things, just to reach the minimum bill amount?**

This question would make us understand that how often users go for the option of getting unnecessary things instead of trying to find another option. This would also suggest us the usefulness of our application in helping users avoid this situation.

**Survey Question 3: How difficult it is to find people to order together?**

This question was asked to understand how comfortable people are in collaborating with other people for ordering online.

**Survey Question 4: Do you think you spend a lot on commute while visiting grocery stores?**

This question would describe the level of satisfaction of users regarding the amount they are spending on commute to a grocery store.

**Survey Question 5: How often do you expect to share your cabs while visiting these stores?**

We were interested to know whether people are in favor of carpooling or not. This question helps us know the comfortability of users in sharing their rides to nearby stores.

**Survey Question 6: How difficult it is to find people to share your ride with?**

This question again tells us the usefulness of our application. The purpose of this question is same as Question 3 but instead of online shopping this is about the ride sharing aspect of our application. If people can easily find others to share their rides with then there is no use of such an application and so it was an important part of our survey.

**Survey Question 7: On the scale of 0 - 7, how cool would it be if there was a single app to solve all the above problems?**

This question was proposed in order to know what and how users would welcome our application when launched. It answers whether there is a need of an application to ease the process of finding people to collaborate for the above mentioned situations.

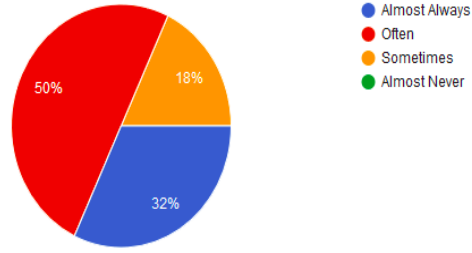
## 2.2 DATA COLLECTION

The main source of data for this study included:

1. Results of survey consisting a set of questions
2. Audio recordings of subjects being interviewed.

**DC1:** We created a short survey consisting 7 questions that we shared among user groups of mainly international students. In the survey, we carefully documented questions that would give us insights on what all problems the international students face while doing online shopping for groceries and other household stuff. The users were assured anonymity and were asked to filled the survey based on their shopping experiences with online shopping portals such as walmart.com, instacart.com, costco.com, etc. and also based on their visits to stores such as Patel Brothers, Walmart, Crab Tree, Around the world, etc.

**DC2:** We also interviewed students asking them to talk about the problems they face while doing online shopping or visiting grocery stores. We asked them if they would be interested in an app which allows them to collaborate with other students for placing online order together and also finding students to share a ride with, that ways make their life easier. The observations were made and analyzed based on their responses.

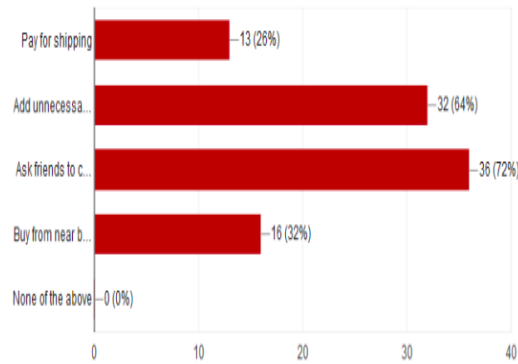


## 2.3 SURVEY RESULTS

### 2.3.1 FREQUENCY

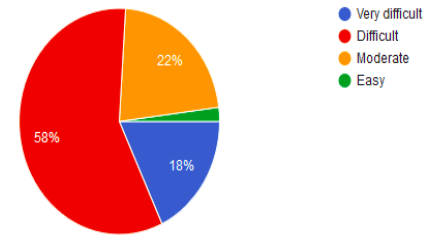
The survey results indicate that, 50 percent of students taking the survey face the situation often and 32 percent face it almost always which definitely encourages our idea.

### 2.3.2 OTHER OPTIONS



Other curious point here is, what do students do when they face such a situation. So in the survey we provided them the most common options and the results show that most of the times, students ask their friends to collaborate in placing online order together or they add unnecessary things to reach the minimum order amount.

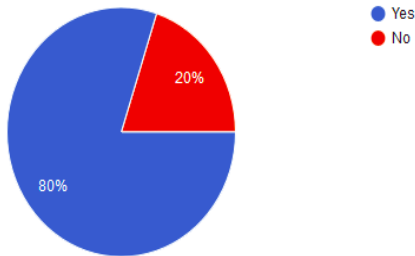
### 2.3.3 DIFFICULTY TO COLLABORATE



We found that it is quite difficult for students to find people who would want to purchase stuff from the same

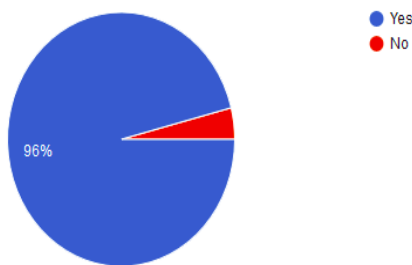
store and would like to collaborate to place the order together. It consists of 76 percent of total results.

### 2.3.4 AMOUNT SPENT ON COMMUTE



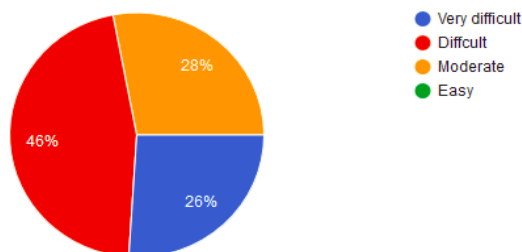
The survey results show that 80 percent students think they spend a lot on commute to stores like wal-mart, around the world, crab tree, etc.

### 2.3.5 SHARE CAB

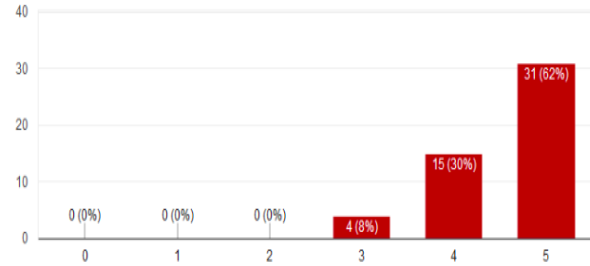


We found that majority of students wish to share their cab, while visiting grocery stores which actually makes sense as most international students don't own cars and cost of cabs individually are generally high.

### 2.3.6 DIFFICULTY TO FIND PEOPLE FOR SHARING CAB



We also noticed from the survey that, students find it difficult to find people to share the cab with while visiting grocery stores. 26 percent say that it is very difficult to find people to share the cab, while 46 percent say it difficult.



### 2.3.7 NEED FOR APP

We asked the survey takers to rate an app that would solve all the above mentioned problems, on scale of 0-5. And we found out that 92 percent have rated it 4 or above.

## 3 IDEA

We are creating an android application which will help the users to find and collaborate with other nearby users in making order with total amount above free shipping amount, sharing a ride to grocery store or mall and making a bulk order to get a wholesale price on goods. One of the many features of this application would be a pop-up notification to users when some other user in nearby radius places a prospect order or gives detail about sharing ride on particular date and time to grocery store or mall. This application would be focused on students as its majority audience and will make a cumbersome task a lot easier and quick.

## 4 TECHNICAL DETAILS

To create our Android application we are using Android Studio. We chose Android Studio because of many reasons like rich layout editor i.e. preview layouts on multiple screen configurations, deep code analysis i.e. it gives detailed explanation about an exception based on the annotation added, template based wizard to create common layouts, gradle based build support, etc. To store our data we are using Firebase which is powerful Google platform for realtime database, hosting, authentication, storage, cloud messaging, test lab, etc. Firebase is capable of handling 100,000 simultaneous connections at a time giving our application an added advantage.

## 5 TIME LINE

The project has to be completed by the mid March and so we are going to keep up with the following timeline:

- Till 31st January - Research and conception of idea

- 1st Feb to 4th Feb - Develop basic architecture
  - Main activity of app
  - Login page activity
  - SMS authentication for easy sign-up with auto detection of verification code.
  - Email and Google authentication
- 4th Feb to 13th Feb - Implement the shopping collaboration module
  - Integrate Google Maps
  - Enable Firebase service
  - Implement business logic for allowing user to creating prospect order
  - Use GeoFire to find location nodes with a particular radius from specified location
  - Implement push notification functionality, that allows users to know about the prospect orders being creating within their desired location range.
  - Real-time chat functionality with notifications.
  - Aid scalability by Dynamic loading of items in recycler view to allow quick loading of data when there are thousands of post.
- 14th Feb - 22 Feb - Implement the car sharing module
- 23rd Feb - 28th Feb - Deploy the Beta version and make the necessary changes/fix bugs.

## 6 EVALUATION AND ASSESSMENT

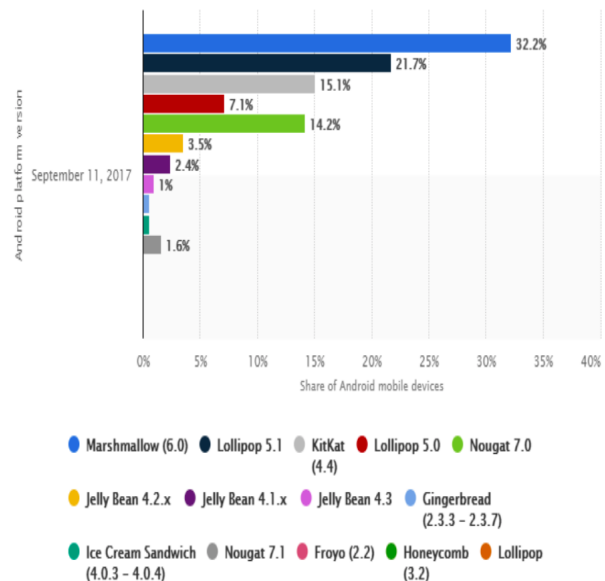
We are following the below given evaluation plan for our project:

- **Formulation of evaluation questions:** To evaluate our application we thought of giving the beta version of our application to potential users and ask them to test the application. This would also give us an idea about real time performance optimization of application. Also we will be able to use the Firebase test lab to write test codes for the same purpose.
- **Conceptualization of how to measure outcomes**
- **Analyze the evaluation data:** To analyze the statistics we would be using the Firebase analytics which would help us understand how users behave which enables us to make informed decisions for our next step.

- **Utilize the results of analysis in decision making:** Using various results of analytics we can make decisions regarding performance optimization and application marketing which would further help in satisfying the users and making our app popular and better.

Our application would be highly scalable and secure because of the use of Firebase which provides authentication and upto 100,000 connections simultaneously. Also some added advantages would be real time access to database and massive storage. One disadvantage would be searching and navigating the database because Firebase stores data in JSON format in form of tree structure of nodes hierarchy.

We have performed assessment of our project based on criteria like predictability, security, scalability, availability, etc. Our application would work with all the Android versions 4.0 that is Ice Cream Sandwich and above, which increases the availability as almost every Android phones supports it. The picture shown below shows the statistics based on which we have assessed the availability:



## 7 CONCLUSION

Our thorough research on international students group has given us a revelation on the problems faced by them during grocery shopping. Some problems found were minimum free delivery amount and difficulty to find people to share a ride. And we would like to solve this difficulties.

From the observation and results, we conclude that a majority of people would like to have an application

that help them to collaborate with other fellow students for grocery shopping. Also carpooling option with Uber and Lyft is not available in many cities such as Raleigh. Our app with also help people to find other people near them to share a ride. Hence making the lives of international students simpler.

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