



## Android integrated buyers and seller through a Novel App

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### Abstract

Today more than 60% of the world population uses a Smart phone and 80% of those smart phones runs on Android OS. Its 21<sup>st</sup> century now and customers in retail stores did not like to wait in a queue to do the billing of the product or room from store to store in search of single product. So as to the rescue Mobile Shopping application came to the scene making the shopping process less time consuming and more convenient. Also for a producer it becomes very difficult to go and search for an adequate place to sell their products especially for the small scale producers. This paper describes a new composing of 'Android Application' useful for Android Smart phones that provides a single platform to exchange their goods for both buyers and sellers. The aforesaid novel app is based on Android OS design to share the database with the website being run on a single server, it means our application will be a result of integration with the web server for sharing the required resources and the database. The primary focus of this research work is to create an internet based shopping opportunity using the novel android app and integrate the seller part inside it with the help of a software programmed to run on XAMPP Server that will be kept connected to the MySQL database at the same time. The GUI of the App will be suitable for different electronic devices be it be mobile phones or tablet. This will facilitate the customers to use the App for online shopping and even sell their products, on their devices with Android OS. The app is designed with a very attractive and user friendly theme that allows the user to modify easily according to their need be it for buying or selling a product through online. A proper application level caching is also desired to implement and maintain to support the developers.

**Keywords:** Android OS, SDK (Software Development Kit), MySQL Database, PHP, Android Studio, buyers, sellers, tables.

### Introduction

Electronic Commerce or e-Commerce is the term used to trade goods and services online where time or distance is no more a constraints for shopping. As such, m-Commerce (Mobile Commerce) is a platform for exchange of various goods and services between a producer and a consumer connected wirelessly through satellite devices like mobile phones and tablets. It is all set to be as the next generation or prime face of e-commerce. Nowadays, with the advancement of information and communication technologies and due to the introduction of a large number of e-commerce websites and applications, it becomes more difficult for an individual to choose the right application. As e-commerce deals with selling goods and services, buying those goods and services from the vendors is also become an inevitable. Traditionally, there were always different 'Websites' and 'Apps' for buyers and sellers. On the other hand, Android being an open source OS based on Linux platform; allows users to place the applications and widgets in their home screen according to their choice. The programs running on Android bears apk extension which is to be installed in the Smart phones. We know that Android programs are coded in C, C++, or may use Java programming languages but the UI is perpetually based on Java<sup>1,2</sup>. Android – the Google devolved operating system is a final outcome five different software components arranged together viz. Linux Kernel,

Libraries, Android Runtime, Application framework and Application layer through which a user usually interact . There would be a backend panel which would regulate all the happenings and keep a track of the security issues. In general MySQL is used for storing database all in details and can be connected to an android app with the database with the help of PHP. The data would be received in the form of json object from the PHP files and would be displayed in our android app.

Recently some Wi-Fi based mobile application has been developed for shopping mall directory to pass on the information to customers for enhancing their shopping experiences in those shopping facilities<sup>3</sup>. The information shared on this type of mobile applications helps the customers with names of the shopping outlets, their categories, shop locations, description and offers or even Floor Layout. In earlier days, an Android application was implemented using some Tablet PCs for providing a speedy and consumer friendly Hotel management system. It use to facilitate speedy Billing Process, Kitchen Order Ticket (KOT), or Customer Relationship Management System (CRM)<sup>4</sup>. Here, the frontend was developed using Java and the backend uses MySQL database. Meanwhile, some applications came out that automated the food ordering process in restaurant. They also allowed to provide feedback by the customers for those restaurant or food services which eventually improve the overall dining experience and hence

turned out to be revolutionary popular among people<sup>5</sup>. This Android Application on user's mobile allows accessing the wireless data available on the server so that the user can have the entire menu in details<sup>6</sup>. The customer then places his order from his android device. This order details are reflected wirelessly in the central database which when simultaneously shared with the Cooks or/and the Cashier. These are some research work that bears the foot prints early period of the android and its prototype development, basic building blocks, application and features of the android<sup>5</sup>. Since then several demonstration of web applications were observed depicting the reliability and feasibility while using relational database management system<sup>7</sup>. Hence we decided to choose MySQL technology which is very similar to a representative relational database management system. MySQL has always been known for its portability, scalability, speed, ease of operation and above all it's an open source. So MySQL is a popular and optimum choice among the web developers like us for better stability and security.

This paper deals with a novel single mobile application i. e. 'Android App' for successful, easy integration the sellers and buyers. As it will save the memory on local disc and a user can simultaneously buy and sell from a single application. And for implementing this there is no better option than Android.

## Methodology

**Database for android application:** For an e commerce android application, MySQL is the perfect choice to create database and respective tables. It is an open-source relational database management system (RDBMS) which requires a database setup to be set. The e-commerce application has a MySQL database set on a XAMPP server which contains the all the items in the respective tables. It is as follows: i. Users table– It contains all

the information about a user. ii. Seller table– It contains all the information about a seller. iii. Products table- It contains all the required information of a product with pictures. iv. Cart table- It contains the products that a user stored in their cart. v. Orders table- It contains the details of orders of all the customers. vi. Category table- It keeps track of the categories that are present for customers.

**Design and implementation:** For developing an e-commerce application firstly we need to install Java Development Kit (JDK) into the system. Then we use the Android Studio with a plugin of Software Development Kit (SDK)<sup>8</sup>. It can be integrated along with PHP in order to connect to the MySQL database and XAMPP. It then needed to be installed into the system<sup>9</sup>. Next, for the development application in an actual Android run-time environment i.e. to design, debug, and test the applications the Android Emulator is used.

The algorithm is defined as: i. Step 1: Create a new Android Studio Project. ii. Step 2: Add all the dependencies and in built packages that we require, iii. Step 3: Add the permissions required to access the internet, internal storage, camera, etc. iv. Step 4: Create packages and import classes according to the need. v. Step 5: Create database named sewa\_e-com in MySQL. vi. Step 6: Create tables (i.e. users table, seller table, products table, category table, cart table, orders table). vii. Step 7: Let the seller enter values into the table. viii. Step 8: After the verification in done, the product's status changes to verify and the product get shown in the product list. ix. Step 9: Exception handler, x. Step 10: Write script for each table to perform the activities on it. xi. Step 11: Update values of table, xii. Step 12: Create package to update documents of verification to the database, xiii. Step 13: Display item list, xiv. Step 14: Display category list, xv. Step 15: Integrate payment gateway.

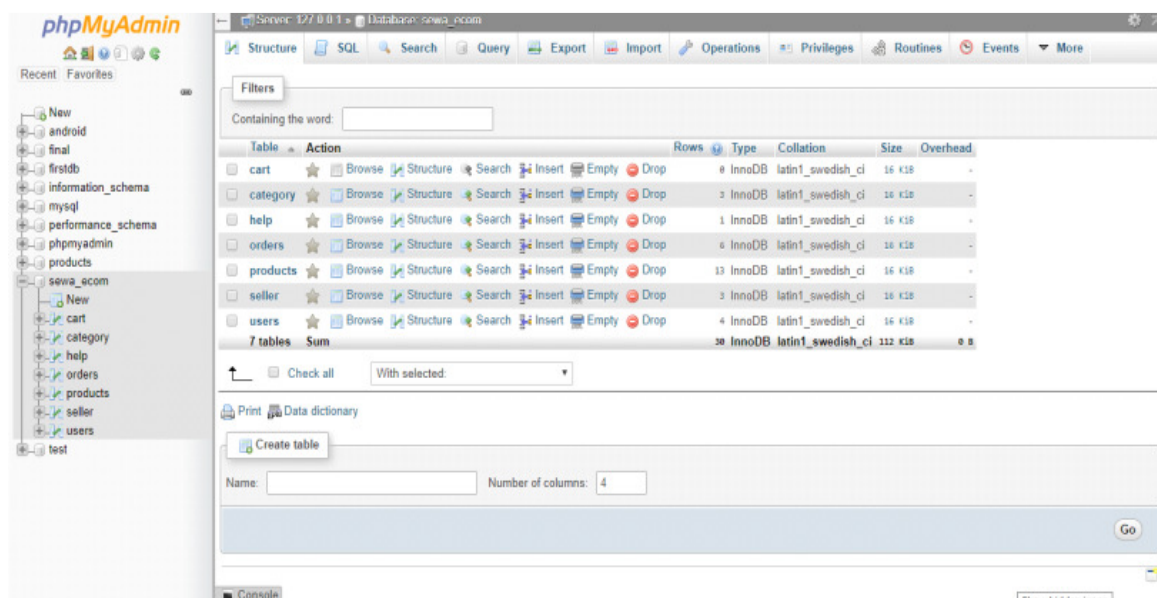


Figure-1: MySQL Database.

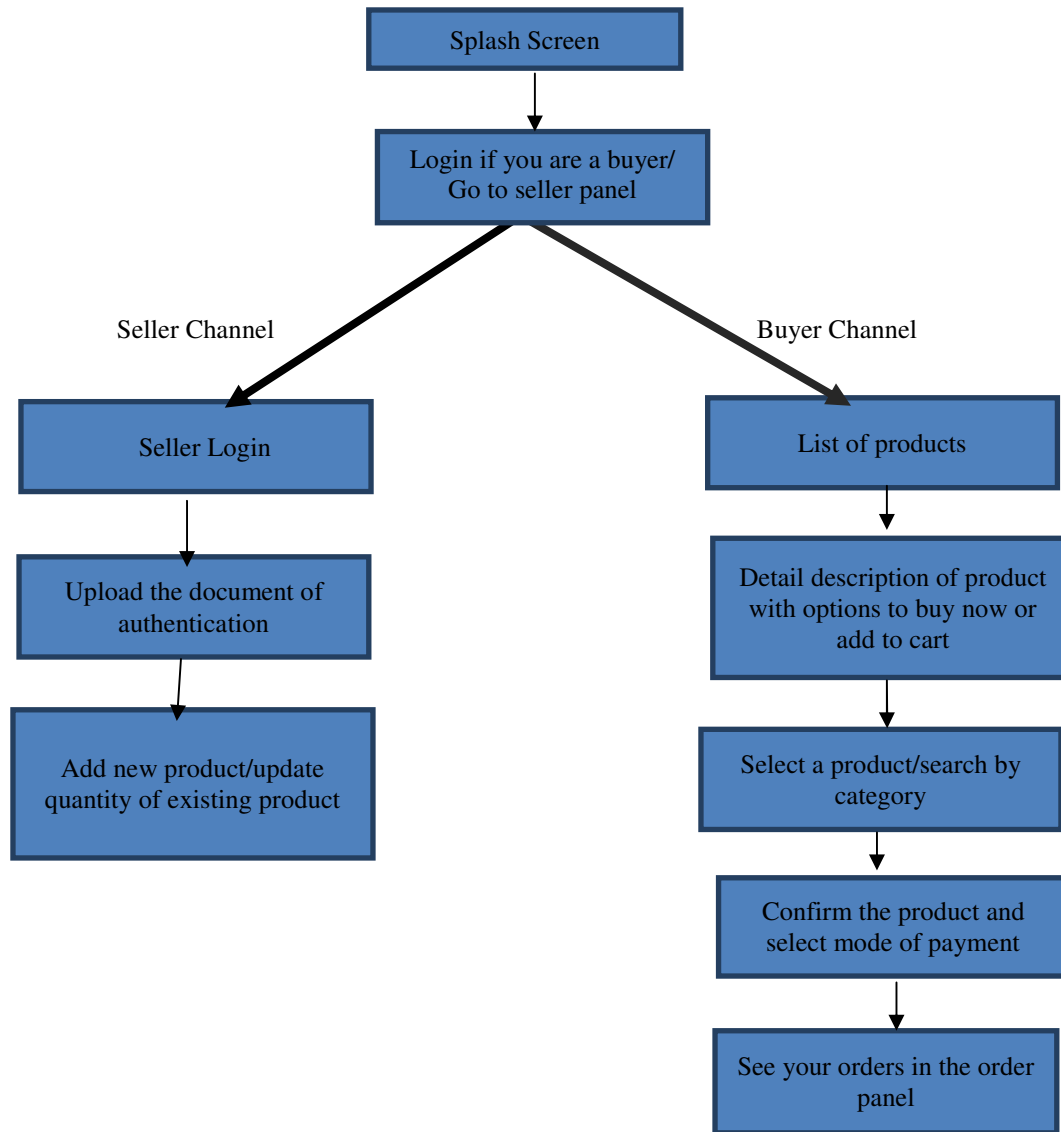


Figure-2: Flowcharts.

## Results and discussion

Initially a person needs to download and install the application into their Android device. As the installation gets completed, users need to login according to their choice of service providers (Sellers) or being Service Consumers (Buyers). In both buyer and seller panel, one needs to register and authenticate themselves by providing the username, password, etc. Though this Android App users would experience a dynamic communication between the consumer and the service provider.

If a buyer wants to see if an item is available on the product list, they can just type the item they are searching for and the related items would be shown to them, for example- If a buyer wants to see if apples are available or not, they could just type apple and before even typing the whole word apple even after typing “ap”,

all items having ‘ap’ appears. Even a buyer could even search for an item by categories, as there is a separate panel to see all the categories available and on clicking each category one can easily see the products under each category. There is also a panel where user can see the history of the products they purchased and also cancel the undelivered products or return within 7 days.

Meanwhile in the cart screen a user can notice two things, i. Add to Cart: This button allows the consumer to add the product of their choice into the list of items that they decided to purchase. ii. Buy Now: This button will redirect to payment page for completion of the billing process.

A payment gateway is integrated with the application so that people could pay without using cash with the help of electronic

banking or though credit/debit cards and it is highly secured with everything been encrypted, therefore there is very less chance of loss of the valuable information provided by the buyers.

For the seller part, the seller needs to specify if he wants to sell a new product or update the quantity of a product he earlier sold. If he is selling a new product, the needs to enter all the required details and later needs to upload an authentication document to ensure his authenticity to see an individual product. After the product is authenticated, the product appears in the product list a buyer sees.

There is also a panel for Frequently Asked Questions and About Us through which a user could easily get in touch with us if they encounter any issue.

The developed application has the following activities:

**Splash Screen:** It shows the organization icon and a short description about the organization.



An NGO with a mission of Socio Economic Cultural Educational and Research development for empowerment of every individual through skill, knowledge and alternate sustainable livelihood

Figure-3: Splash Activity.

**Classification Activity:** As the Splash Activity completed successfully, one needs specify themselves through the classification activity whether they are a buyer or a seller.

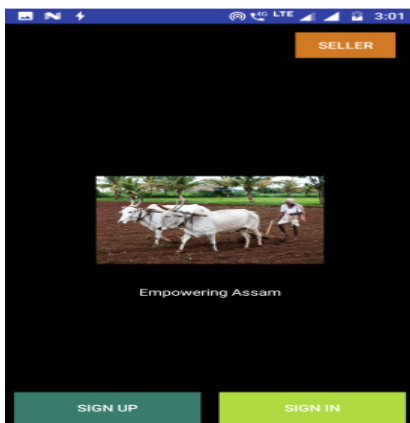


Figure-4: Classification Activity.

**Detail Activity:** Upon clicking any product appears the detail activity, it shows the details of a product along with the quantity available and from here only we could either directly buy the product or add to cart.

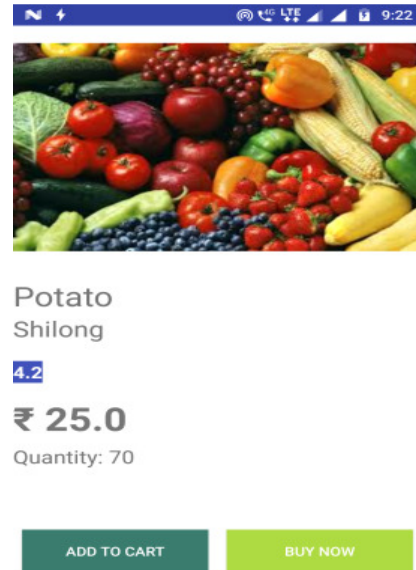


Figure-5: Detail Activity.

**Cart Activity:** Cart Activity appears when a buyer requests to see the cart by clicking cart, it consist of the list of item that the buyer has added into the cart. The buyer can either individually select each item or decide either to proceed or to remove the item from cart or by clicking the proceed button, confirms to buy all the items present in the cart.



Figure-6: Cart Activity.

**Orders Activity:** Unlike Cart Activity, Order Activity also appears when a buyer requests to see their orders, it also consist of the list of items that the buyer has already ordered. On clicking each order, the buyer can modify their order.

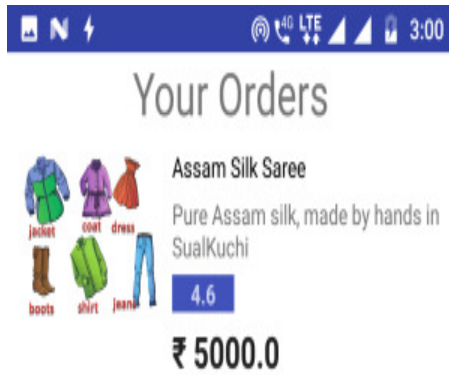


Figure-7: Orders Activity.

**Category activity:** A buyer can also search products by the respective categories the product belongs to; Category Activity shows the list of categories that are being dealt with. Upon clicking each category, the buyer can see the list of products under that category.

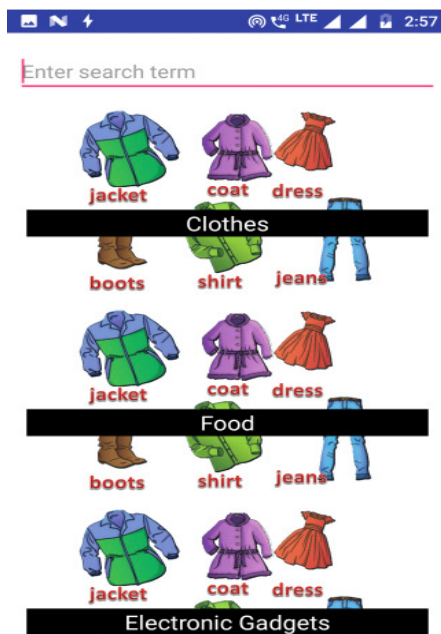


Figure-8: Category Activity.

**Old Seller Activity:** Old Seller Activity appears after the successful login of seller, it shows the list of products that a seller has already requested to see. Upon clicking each product, the seller is directed to a detail page of the product where on clicking add quantity button they can update the quantity. There is a menu screen attached with the Old Seller Activity from where the seller could navigate to the New Product Activity, Authority Activity, Help Activity, Contact Us Activity and FAQs and also Sign Out button to logout.

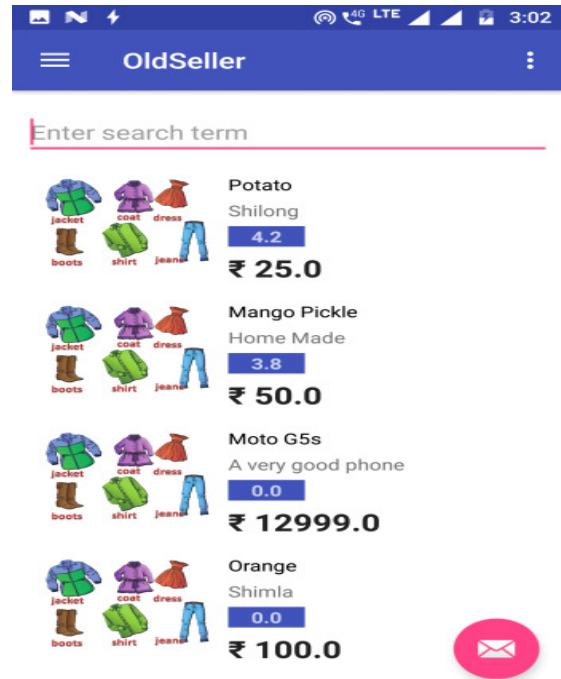


Figure-9: Old Seller Activity.

**New Product Activity:** When a seller wants to add a new product they click on the New Product, it is the activity where a seller needs to enter all the necessary details of the product.

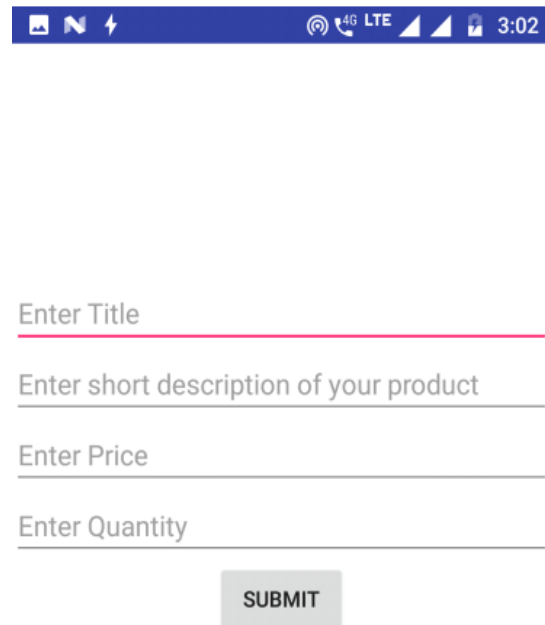


Figure-10: New Product Activity.

**Old Product Activity:** When a seller wants to update the quantity of any product they already sold, on clicking add quantity button they are directed to the Old Product Activity where they can add the quantity.

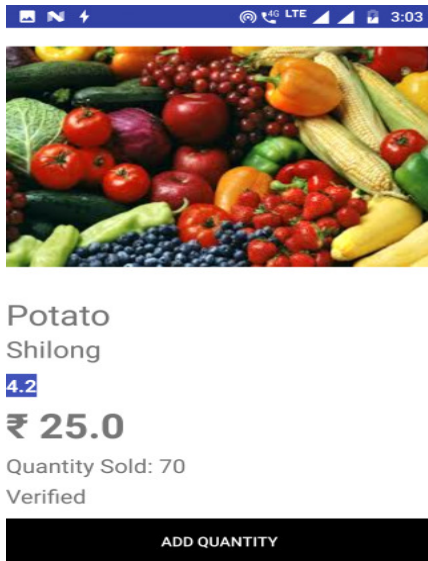


Figure-11: Old Product Activity.

**Authority Activity:** As maintaining the quality of the product and avoiding fraud sellers is an integral part of the seller application, in the authority section the seller needs to submit the required documents to authorize that they are a genuine seller.

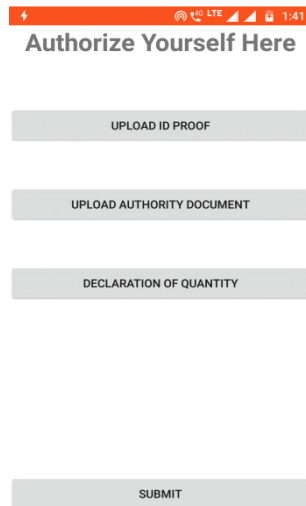


Figure-12: Authority Activity.

**Help Activity:** Help Activity is basically designed to provide guide and support to the sellers/producers if they need any.



Figure-13: Help Activity.

**Contact Us Activity:** This activity has the contact details of the organization with a briefing of the organization.



We are always here to help you.  
 Please ping us up anytime you need our help

email:  
 info@sewaorganisation.org  
 phone: 8011923057

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Figure-14: Contact Us Activity.

**FAQs Activity:** This activity consists of the question that may arise after installing the application, question other than that can also be asked to the help desk.

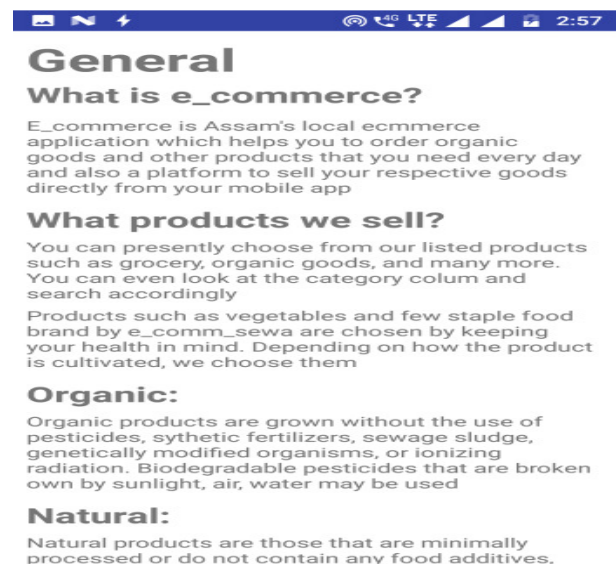


Figure-15: FAQs Activity.

## Conclusion

In this paper we have presented a buying and selling e-Commerce mobile application, developed for Android using MySQL database, mainly for those buyers who have very less time to spend on their day to day life and those sellers who are unable to find a safe platform to sell their goods. The user needs to download and install the application into their android phone and classify themselves as buyer or seller and then work

accordingly. For the buyers after buying any product they could also pay using the payment gateway that has been integrated into the app and the transactions would be very safe. For the sellers, it would be a great platform to sell their goods and to ensure quality and authority of the seller they also need to authorize themselves by uploading the required documents on to our database through the app. The app having both buyer and seller integrated inside saves the requirement of different apps and thus saves memory.

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