



## INSTACART APP FOR FOOD PRODUCT

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### ABSTRACT

Some people include shopping as one of their daily activities, while others don't even give it a second thought. This comparison reveals the issues people have when purchasing. Limited time, foreign residents without cars, a transportation problem, the idea that going shopping is a waste of time, physical health concerns, distances to markets, and the challenge of finding certain things are just a few of the obstacles that individuals face when shopping. We have researched our concept, which is related to personal purchasing, as well as the issues described above. In order to combine various market stores and sellers, we created an application that can be used to purchase everyday food. This cutting-edge tool for personal grocery shopping enables customers to haggle with merchants online. then give them the stuff at their door and may speed up the online buying process by allowing users to simultaneously view an unlimited number of products.[1] Instead of physically wasting their time, this work encourages people to make the most of it by being safer and more approachable. Also, rather than travelling great distances to shop, consumers can order the item online from the comfort of their own homes. Also, this software might aid those who are experiencing health issues and are unable to physically purchase items in order to prevent further issues. [4]

### 1 )INTRODUCTION

Customers today will find the online shopping application to be quite helpful because everyone is so busy taking care of their daily obligations. The convenience of grocery shopping without the hassle of commuting to the store benefits the customers.

The clients only require a short amount of time to complete their list online. The programme is secure enough to allow users to conduct a transaction in a secure manner. In addition, the given goods will arrive in a very reasonable amount of time. The Instacart Roll Groceries App is an online grocery store that enables customers to haggle with sellers to purchase goods at a price that both parties agree to buy and sell by using

reverse auction mechanism. The online grocery market did not previously have this kind of capability. With the aid of our tech tools, the user of our grocery app can find the merchants who are listed on the app after searching for the needed goods on the app. Above a specific lower limit, each vendor is free to set the price at which they choose to sell their goods. Once the user has seen the sellers, he may want to purchase the item at a lower price than what the seller has listed. To do this, he can use the seller's "bargain" function to enter a price that the user would want to pay for the item. It is up to the user to decide whether to accept this offer. If the contract is accepted by both sides, we will deliver the product to the customer using our technology in exchange for a fee. The number of people purchasing online has increased due to the Internet's quick expansion. So, a lot of sellers concentrate on how people shop when they are online. In order to increase and preserve their competitive edge, managers must comprehend the aspects that influence customers' online purchase behaviour.

Consequently, this study intends to identify antecedents of online shopping behaviour. This paper provides a research model of online shopping behaviour based on the social cognitive theory. According to this study, perceived website complexity negatively affects online purchasing behaviour and trust indirectly influences online shopping behaviour. Trust favourably affects online shopping behaviour. These research results can be considered as references for future scholars and practical advice for platform management to better their businesses.

Food shopping of days has become a job. The client must constantly keep an eye on the groceries being brought home, while simultaneously managing shopping lists, directing coupons, waiting in line at check-out, reading the fine print on food cans, and even figuring out which rack and row that thing might be in. A big proportion of the supermarket consumers would consequently have an interest in an extra appropriate, swiftly grocery purchasing choice. The number of users of on-demand grocery delivery apps clients is expanding at a rapid scale. And as \scompared to the past, there is a remarkable increase in the number of grocery mobile app users. These people adore the thought of putting

online requests for groceries required by them and that being delivered to them.

All this happens without needing to visit the physical food stores and wait in queues to make payments. This basically is the reason behind this huge growth in the number of people who shop online.

## 2) Software and Methodology

**2.1 Android Studios:** Android Studio is exclusively built for developing Android applications. It contains of all Android SDK tools to design, build, maintain, test, debug and publish our programme. The IDE is created very efficiently which makes the developer's job easy. It also supports the IntelliJ IDE, the key idea behind this IDE is that it automatically detects the variables, methods, classes, built-in functions or it might be anything else when we press the first letter of it. Let's say we declare a few variables or methods that begin with a "S." The language will automatically detect everything that does and will offer suggestions. It also supports Git as a version control system to maintain the app modifications and push them onto github. All java files, layout files (for design) are combined into a single project effortlessly. At the conclusion of the project, the full application might be put as a . APK (Android Package) file, in which we can run the APK file in any device and use the application.

**2.2 Firebase:** Firebase is one of the prominent backend systems which is utilised by so many developers to provide backend assistance to their applications and websites. It is the product of Google which provides services such as database, storage, user authentication, and many more. In this tutorial, we will construct a simple app in which we will be integrating our Data to Firebase Realtime Database. Notice that we are going to implement this project using the Java language.

Firebase Realtime Database is a NoSQL cloud database that is used to store and sync the data. The data from the database can be synced at a time across all the clients such as android, web as well as IOS.

The data in the database is saved in the JSON format and it changes in real-time with every connected client.

The key advantage of using the Firebase Realtime database is that the data is updated in a real-time way and you don't have to make any queries for the data updates or modifications. Every time data changes, the database employs data synchronisation to ensure that linked users are immediately updated.

Your programmes maintain responsiveness when using Firebase Realtime Database even if the gadget loses its connectivity to the database. Once the user has established the connection he will receive the changes made in the data from the database.

The data saved in the Firebase database can be simply accessible using the online interface of Firebase. You may maintain your database from Desktop as well as mobile devices. You may manage the rules of the database which gives permissions to read and write activities to the database.

**2.3 Creating Mobile E-Groceries Model:** Requirement analysis: In this stage, a requirement analysis of all the tools, features, software, and hardware was conducted. The software required for the creation of the suggested system is Java for Android application, XML for front end design and firebase for the database.

The major aspect of the system concentrates on the benefit for both client and store; the key feature is it incorporates both online and offline methods of buying.. By reducing the time needed for grocery shopping, this software will assure quick business and provide users more free time. The interface and interaction design is anticipated to help with this. Planning for project management comes first, then planning for the design phase, which could include simulation or pilot testing of the system development before it is actually developed as well as the creation of system pictures and icons. The real system development phase, where the design is done, is the coding phase. When it comes to the standard software development process, this is typically the case. The administrator use case gives a direct connection with the login page, examining users' personal information, adjusting inventory and promotions, viewing order details and a login out page. Users that have registered with the system will be monitored, and they can update their personal data over time.

Data flows through the system with ease thanks to the business logic. The database architecture depicts how the database would interact throughout the flow of request and answer. The order is kept in the order table after a customer makes a purchase. Order table is related to the order item table which comprises of order id, product id and quantity. Order and order item tables will contribute to the purchase history which is the receipt table. The product table provides the buyer with the product id, name, price, code, and category information so they may easily make a purchase. When clients register, the data will be recorded on the customer table. Order table contains order information from the customers. . Order table contains order information from the customers. Order item table holds data for quantity purchased by the customers. All of the history of purchased goods will be kept in the receipt table once the transaction is complete. The inventory's products are listed in the product table. When users log in, they will use the system to browse or purchase things. The system will then send the purchase information to the merchant after a purchase has been made. It's time to start developing code once you know exactly what your programme will perform. There is a three-phase development procedure for all apps • Design and architecture • Development • Quality Assurance. This translates into phases in your grocery app development life cycle: • Conceptualization

## 3)Case study

2] The way that people shop has completely changed in recent years. This isn't just because more people are using the internet, but also because the ecosystem that supports it has undergone significant change. Numerous businesses have modified their business strategy, modernised their payment system, and worked diligently to improve the logistics and general functionality. Consumers now prefer to shop online when they have spare time rather than going to physical stores, which reflects a change in customer attitude. There are investors who have a strong interest in funding the e-commerce industry[5] One of the primary avenues for daily buying is online shopping. Customers typically provide written reviews and ratings after making a purchase, which

serve as significant starting points for other customers when deciding between similar products and suppliers.

To help sellers and buyers gain a more in-depth understanding of possible customer behaviour and to facilitate faster and more direct comparisons, a structure for text analysis that quantifies the consumer happiness buried behind the review language has been developed.

Logit regression and linear regression polls were run using real purchase data from 732 consumer homes. According to this study, convenience factors and lifestyle factors associated to food have different effects depending on the environment and product categories. It's interesting to note that the adoption of online grocery shopping was unaffected by the time needed to access offline grocery markets, one of the convenience variables. It did, however, have an impact on the cost of the online grocery order. [12] Due to store closings and their fear of getting the coronavirus in public, more and more consumers are choosing to shop online as e-commerce becomes more prominent and the coronavirus situation worsens. While traditional retail offers consumers a wide range of interactions, online shopping has been lacking in these kinds of interactions. [25]

The impact of social connection on consumers was examined through an experiment using several indicators. The outcomes demonstrated that consumers' avatar-mediated interactions have a positive effect on their social presence. Additionally, it shows how the social interaction between avatars increased consumers' sense of immersion and social engagement in the retail setting.

#### 4) Why people prefer online/switch to online:

##### 1. Curiosity

One essential aspect of being human is curiosity. It's the reason why many customers who have previously been content with supermarket buying in-store would give online deals a try. Some customers might start buying food online more frequently in the future if these deals not only satisfy their curiosity but also deliver a satisfying shopping experience.

##### 2. Flexibility

The benefits of food shopping in-store are numerous. Also, it places limitations on their availability schedules. On the other hand, online grocery stores assist clients in organising their food purchases from order to delivery so that it can easily fit into their daily schedule.

##### 3. Time Saving

Time is a valuable resource. The time required for in-store grocery shopping, which includes travelling to the store, finding parking, and standing in queue at the register, can be considerable. User-friendly online deals, on the other hand, can contribute to accelerating grocery buying when combined with prompt delivery.

##### 4. No Closing Hours

Most people have probably had the experience of being late and finding a store closed. Particularly those who work do not always make it to the store during opening hours. In contrast, an internet store is constantly available for business. So, customers may order groceries online anytime they have the time, day or night

##### 5. Spontaneous Shopping

Nowadays, almost everyone has a smartphone within arm's reach at all times, making grocery store online specials readily accessible and removing the need for in-person or computer-based buying. Instead, customers may get anything they want whenever they want it, whether it be on their way to work, in front of the refrigerator at home, or even in-store if their preferred pizza is once again out of stock.

##### 6. Home Delivery

Customers of several food shops who offer home delivery services can save money in addition to time. Additionally, they are no longer need to lift cumbersome shopping bags. For older persons or people with impairments who find it difficult to purchase in-store, this benefit can greatly ease their lives.

##### 7. Greater Variety of Choice

Due to storage space restrictions, a neighbourhood grocery store is unable to carry every item that a customer might need. Online grocers can offer their consumers a much greater variety of products than is likely to be accessible in-store because these restrictions do not apply to online stores. So even the most unique requirements can be met by an online grocery store.

##### 8. Attractive Product Presentation

The secret to generating strong in-store sales is appealing product presentation. An online store can showcase things in a variety of other ways to entice customers to buy them, including well-organized product photos, detailed product descriptions, recipes, and instructional videos.

##### 9. Attractive Deals

In addition to having generally low profit margins, internet food shopping involves a number of time-consuming, expensive processes. Because of this, supermarket shopping online is frequently more expensive than in-store. However, tempting internet discounts are rather typical, particularly now that many retailers are vying for online shoppers. Therefore, online deals can even appeal to frugal consumers.

##### 10. Convenient Price Comparison

It takes a lot of time and effort to compare pricing in-store. Because of this, price comparison websites have developed for online shopping that display the customer in real time which retailer is selling the goods in question for the cheapest price. Price comparison websites will start to appear for this industry as well as online grocery stores become more well-known.

#### 5) Bidding (Bargaining)

A web-based application called an online auction system allows vendors to offer their goods online. It is a well-liked technique for both purchasing and selling goods. Its development aims to make the auction system more dependable, simple, and quick. The purpose of the online auction system is to give the user greater investment options. Additionally, it saves time and allows consumers to invest in the companies they choose. Through the application, customers may place bids on farm products, cutting out the middleman and helping both farmers and customers. In this study, we present a dynamic auction-based system for buying

and selling agricultural products. The web application will enable the manager of the online auction to sell the goods via the chosen individual. To log into the system, users must have a valid user ID and password. The administrator will post the product's image and specifications here. The product may be chosen by the buyer, who may then place a bid. The seller will establish a time limit for the bidding, which will be adhered to. The item will be sold to the highest bidder when the time limit has expired. Our main goal is to give farmers the right software environment so they may profit as much as possible. Customers can use it to open the grocery shopping app, select a nearby retailer, place their order, and settle their bill.

## 6) App Features

You may integrate a lot of features for your clients in this app. The grocery delivery customerside app must have the following features, which are listed below.

### 1. Profile Creation and Editing

This will be the first step customers take when they download your app, to create a profile. Users will need to track their orders, make payments, and more, therefore it is crucial. The user will therefore need to create a profile in order to customise anything. The user will be able to enter the necessary information into the app and customise the profile as needed thanks to a registration and profile building tool. Users will be able to change their information and adjust preferences and settings using the edit profile feature.

### 2. Signup and login

The development of user profiles and registration go hand in hand. For the sake of clarity, we have listed these as independent features.

Developers can provide the ability to register using social network accounts to make the registration process quicker and simpler. The second option is to sign up using a username and password. Your app can offer either one of these choices or both. The majority of users will forget their passwords at some time in the future, so don't forget to add the forget password option in your app.

Advice: You should make it simple and hassle-free for users to register. To be honest, nobody loves or has time for a difficult signup process.

### 3. Search Groceries

One of the most noticeable and important features of a grocery delivery app is this one.

Once logged in, a user can search for groceries or even neighbouring grocery stores after logging into the app. A simple search function will be useful for finding the things the user needs to order online. You have a list of all the grocery goods and stores, organised by name, location, grocery type, and product preferences (fruits, vegetables, packaged foods, etc.). This is how it works. The user will find it much simpler to look for the items they wish to order thanks to this smart list. They can browse the lists, choose a nearby food store, and place their order.

### 4. Checking Local Grocery

Stores Once the user has located a nearby grocery store, the user will want to review the vendor's profile to confirm that

they are placing their order from the appropriate location. This informs clients about other people's opinions of the grocery shop, such as whether orders are delivered on time, whether the given goods are accurate and contain all the proper products, or whether payment refunds, if any, are started and completed on time. This function will assist you in ensuring excellent customer service because stores with high ratings will receive more orders than those with low ratings.

### 5. Add To Cart Option

For me, this is among the most crucial aspects that any app for shopping or purchasing groceries needs to have. Here's why customers might purchase orders from various websites and retailers. You cannot anticipate them to place an order from a single location, finish the order process, pay the retailer, then proceed to the next location to place an order, and so on. To allow users to choose all of their things from whatever location they like, put them to a cart, and then place their order all at once, a cart option is offered.

Additionally, shoppers occasionally add products to a basket but finish the order the next day or at another time. A cart guarantees that the chosen items are saved.

### 6. Payment Gateway

The users' order has been placed, and now it's time to finish the transaction by checking out. An significant component is online payment. You can link your grocery app with many payment alternatives, such as payment through credit cards, payment through debit cards, PayPal or Stripe, or even a cash delivery option, to make it simple for the customer to pay online. Users will enter and disclose their card details when making purchases online. Assuring the payment process's safety and security is important. More customers will use your app to pay online with a secure payment option, which will boost customer confidence in your company.

### 7. Order History

Customers may want to view their earlier orders. It could be for a variety of reasons, such as the fact that they want to order the same item from the same retailer or just want to know how much they spent on groceries last month. Customers can check their previously ordered items with the aid of this function. They won't need to look for and select the same retailer again because they can place the same order from the same seller this way.

## 7)Business model in digital grocery:

### 1. The Inventory Model

The platform holds the goods or supplies that come from different suppliers directly. Customers place orders, which you then collect and deliver via an internal or external supply network. Regardless of the vendors, the orders are sent to customers with the site's logo on them.

This strategy is typically applied for convenience in single-product and specialised stores. For instance, the daily supply of vegetables or milk.

Businesses that use the inventory model to keep an eye on product consistency. Additionally, businesses have larger profit margins when they completely control the supply chain by making their own purchases. For instance, Big Basket sells the products directly to farmers, retailers, and distributors before storing them in their warehouses. Big Basket A sizable

basket controls the distribution in order to manage client service completely.

The approach is pricey because it necessitates the setup of a warehouse, quality checks, warehouse management, and shipping. If products are not utilised within a certain period of time, it is also feasible to wash them. For effective control of their lines, players like Big Basket frequently advertise proprietary labels like Fresho, the well-known / Royal (staples). Given the initial investments, the inventory model appears more bullish about the e-grocery sector.

2. The Multi-Vendor Marketplace Model The platform does not handle the stock. Instead, it binds customers to the adjacent grocery stores. The client enters their order on the internet, which is then converted into their own online food stores. An internal logistics network manages the transports, gathering the items and shipping them to the client. The business distributes orders to customers using the branding of each location. Amazon uses this strategy across all of its operational regions. Due to its market success and contribution to maximising conversion, a multi-vendor model becomes a crucial addition to the on-demand or online grocery architecture. You can easily adhere to this approach while implementing a multi-seller module in accordance with your eCommerce website. One of such apps is Magento Multi-Seller Extension for the platform focused on Magento.

### 3. The Shopping Model

The Shopping Model is the most widely used option in the global economy. This approach applies to almost every behemoth with a hybrid shape. The only difference between it and the multi-seller model is that customers don't select the shop before placing their order. The software programme manages its own distribution network. If an order is placed, the business forwards the information to its suppliers, who are responsible for procuring and delivering the products to the company's customers.

Instacart adheres to this business strategy. They often refer to the delivery staff who shop for consumers at supermarkets as "shoppers." In actuality, this approach has helped grow a number of sizable internet food supply businesses. In actuality, just a thorough supply and storage network is needed, which they can easily offer with their current model of food supply.

Networks should make use of the current business model and infrastructure to offer couriers, gifts, and other commodities.

### 4. The Hyper-Local Model

The hyperlocal marketplace, as its name suggests, is a market that caters to the needs of a limited area.

A short walk from your house would definitely lead you to a similar store, although one that is big and limited but is self-sufficient and meets almost all of the needs of the neighbourhood's residents.

The most recent e-commerce buzzword is a hyperlocal structure. Due to food delivery, online grocery buying, home shopping, personal care services, etc., the success of hyper-local ecommerce websites has significantly changed.

Local offline retailers and service providers now have fresh leases on life thanks to the advent and growth of hyperlocal networks. Despite the novelty of the concept, the internet's widespread use means that the globe is no longer novel.

. It has the power to raise offline retailers' businesses to entirely new standards.

The unique selling proposition of hyper-local e-commerce companies is their readiness to sell goods and services incredibly quickly. The hyperlocal distribution methods promise their customers that they would pick up the products you ordered in as little as an hour. Hyperlocal credits have been considerably easier if you require food from restaurants that you don't usually bring home or order food you need in a short amount of time.

### 5. The Online-Selling Model

Depending on your selected company approach, the specialty offers a range of opportunities to make money. The existing multi-seller platforms for e-commerce and the food supply actually accounted for the majority of its revenues. You should incorporate the following channels to boost sales:

Merchandising

Selling their own products online is one of the most well-known ways that businesses using this working model make money. You must first build your reputation and authority online before you can sell your branded goods independently on your website and earn money. Examples of such goods are kitchen appliances, cans, and reusable containers.

Commissions

Another option to monetise your business is to charge the seller or store a fee for each sale they make on your websites.. They may also charge different commission rates for specific commodities and areas depending on the market and supply chain, among other things. Customers can pay for these things through subscriptions without having to place individual orders for daily delivery. Everyday purchases made by consumers will fit within the model. Regular providers of milk, fruit deliveries every week, grooming tools and supplies every month, etc.

Prices for services

To retailers and partners who do not have a membership, they may add a surcharge for each sale they make. They would have to sign up for the subscription package in order to avoid paying the subscription charge. Promotions allow businesses to increase traffic to their homepage or search results by charging a premium.

Advertisement banners are also seen by sellers in this source. To advertise discounts in the membership plans, these initiatives might also be clubs.

Customers who purchase memberships receive key benefits include spike charges, early arrival, faster delivery times, and free shipping. Giving the store or partners a complementary loyalty programme will also enable them to sell items or receive better rewards from their website.

**8) Future scope:**

1. Home delivery: Sellers deliver products directly to clients.
2. Virtual Interaction: Through phoning or chatting, customers can communicate with one another and with the vendors.
3. Grocery app in multiple smart devices : One can order groceries using smart watch/ laptop/ smart television.
4. Last-minute sales: non-fresh product sales and stock clearance sales.
5. Saving grocery lists: Reverse the previous sequence.

**9) Conclusion:**

Consumers now have access to technology that offers a superior online shopping experience, and this trend will only increase in the future. People have predicted that internet shopping will eventually surpass in-store purchasing due to the swift rise of products and companies. In markets where customers feel more at ease seeing and handling the object being purchased, physical and mortar stores are still in demand, despite the fact that this has been the case in some places. However, the accessibility of online purchasing has resulted in a better informed consumer who can comparison shop quite easily and without having to invest a lot of time. Conversely, the low cost of operating an internet store has allowed numerous small merchants to thrive that otherwise would not have been possible. In the end, both buyers and sellers benefited from the circumstance.

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