VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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A **PROJECT PHASE I** REPORT (18CSP77) ON

"SAMRIDDHI AGRI-COMMERCE"

Submitted in Partial fulfillment of the Requirements for the VII Semester of the Degree of

Bachelor of Engineering in Computer Science & Engineering

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CERTIFICATE

Certified that the project work entitled **"SAMRIDDHI AGRI-COMMERCE"** carried out by **Mr. ARUN KUMAR N,** USN **1CR19CS025, Mr. DEEPU M,** USN **1CR19CS042, Mr. HEMANTH KUMAR N,** USN **1CR19CS069,** bonafide students of CMR Institute of Technology, in partial fulfillment for the award of **Bachelor of Engineering** in Computer Science and Engineering of the Visveswaraiah Technological University, Belgaum during the year 2022-2023. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the Report deposited in the departmental library.

The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the said Degree.

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Signature of Guide	**Signature of Guide**
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DECLARATION

We, the students of 7th semester of Computer Science and Engineering, CMR Institute of Technology, Bangalore declare that the work entitled **"SAMRIDDHI AGRI-COMMERCE"** has been successfully completed under the guidance of Dr. Shreekanth M Prabhu, Computer Science and Engineering Department, CMR Institute of technology, Bangalore. This dissertation work is submitted in partial fulfillment of the requirements for the award of Degree of Bachelor of Engineering in Computer Science and Engineering during the academic year 2022 - 2023. Further the matter embodied in the project report has not been submitted previously by anybody for the award of any degree or diploma to any university.

Place:

Date:

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ABSTRACT

E-commerce is one of the most influential innovations in the digital world. It has been estimated that nearly 95% of products would be sold online by the year 2040. However, traditional e-commerce is highly centralized and involves numerous intermediaries that add to the inefficiency and vulnerability of the supply chain. Moreover, this centralized system is not suitable for perishable goods like agricultural products. Hence, this project aims to develop a platform for streamlining the agricultural value chain and increase the transparency in transactions occurring at different levels. With reduced number of intermediaries, the farmers gain profit while the consumer receives high quality goods at nominal prices.

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CHAPTER 1

INTRODUCTION

The era of Information and Communication Technology (ICT) and digitalization has led to radical changes in the business environment, e-commerce being one of the main innovations. Nowadays, every individual and business are familiar with e-commerce to make sales or purchase products and services online. The way products and services are provided and availed has completely changed. In fact, by the year 2040, it is estimated that nearly 95% of all purchases will be through e-commerce [1]. Traditionally, an individual goes to the product or service provider, examines and understands the product and policies, decides whether or not to avail them, and finally completes hand-to-hand transaction. Whereas, in e-commerce, every aspect of the trade from product/service details and policies to transaction is performed digitally through the Internet.

E-commerce has mostly been a centralized platform since it's advent in the mid-90's. Marketplaces like Amazon and eBay aggregate and commoditize supply and channel demand. Products are kept in large company warehouses and distributed entirely by the organizations. Although viable for most products, this centralized mode of operation doesn't fare well for e-commerce of perishable products like agricultural goods.

To solve this issue is the main goal of Samriddhi Agri-commerce; a web application that aims to bring together farmers, consumers and transporters directly onto a common platform without the interference of intermediaries such as retailers and business tycoons. This e-commerce application in its ideal form would be able to bring greater profits to the farmer, while at the same time delivering fresh and quality goods to the consumer. Through a secure payment gateway, transactions can be performed and shared transparently among the transacting parties. Finally, an ML-based algorithm is used for recommending products to the consumer.

1.1 Relevance of the Project

In this era of digital transactions and e-commerce, consumers no longer visit physical shops to fulfil their needs and wants. E-commerce has revolutionized how goods and services are provided and availed, and digital transaction systems have made the whole process easier and faster than ever. But due to it traditionally involving a lot of intermediaries and mostly being centralized, e-commerce of perishable products such as agricultural produce is a huge challenge and not implemented as widely as other e-commerce. Moreover, the several months we spent in lockdown due to COVID-19 has taught us the importance of e-commerce of food, both for the consumer and the business.

Hence, this project is of high relevance to solve the issues related to e-commerce of perishable agricultural products. This project would help develop a system that efficiently and inexpensively delivers products directly from farms to consumer tables with minimal involvement of intermediaries, which otherwise would lead to increased prices and low quality.

1.2 Problem Statement

In a traditional marketplace, the process of supplying any agricultural product from the farmstead to the consumer's table involves multiple intermediaries such as retailers and distributers. In a typical supply-chain, farmers sell their products at their farms to a middleman and then the product may undergo several transactions until it reaches a retailer, from where the consumer may purchase the goods. Although essential in the supply-chain, these intermediaries (including the retailer) act as points of vulnerability where the products can be tampered with or prices can be altered for profit. Also, greater shelf time in retails leads to spoilage and wastage of perishable goods if not sold out on time. Storage of perishable products in retails also incurs huge costs in equipment and energy. Moreover, there is a lack of transparency between the transactions.

To solve these problems associated with traditional agricultural commerce, this project proposes a web-based system that directly connects the farmers, consumers and

transporters, and allows selling, buying and delivering agricultural products in a timely, cost-effective and transparent manner. Since the products are delivered directly from farm to consumer's table without having to spend shelf-time in some retail, they are of better quality. Moreover, the consumer pays only for the product and transportation, and not for the profit of intermediaries.

1.3 Objectives

The main objective of this project is to develop a web application that enables farmers to sell their products, consumers to purchase them, and transporters to fulfil delivery. The web application should enable authentication to individual accounts, keep track of transactions, order aggregation, enable payment, notifications and recommendations.

Another objective is to group users into circles, a locality within which orders and supply can be aggregated and fulfilled in bulk. All farmers within certain a locality can form a selling circle and announce their sales. Similarly, the individuals in another locality can form a buying circle and place their orders. This concept helps in aggregating the sales and orders so that they can be transported in bulk, which would greatly reduce the cost.

Finally, this project also aims to develop an ML-based recommendation system that recommends products to a consumer. The recommendation system might be content-based filtering whereby the user is suggested with products that are similar to the ones he/she has already ordered, or collaborative filtering whereby the user is suggested with products based on what other users are buying. This feature would be helpful in suggesting new products to the consumer and also increase sale of the farmers.

1.4 Scope of the project

Agricultural start-ups in India are still at a nascent stage, with about 300 agripreneurs trying to solve multiple emerging problems in the Indian agribusiness ecosystem. The combined revenue of all agritech start-ups in India is estimated to be less than 100 million USD, which is a drop in the ocean in a market worth more than 350 billion USD.5 Thus, the opportunity to scale and disrupt is huge. India has made a strong name for itself in the global start-up community. It ranks amongst the top five countries in the world in terms of number of start-ups founded. It is estimated that India houses around 4,200 start-ups, creating more than 85,000 employment opportunities. By 2020, the number of start-ups in India is projected to increase to more than 11,500, with job creation from these entrepreneurs reaching 250–300 K by 2020. Moreover, banks and financial organisations also need to step up to the challenge and offer more creative models of financing for farmers, entrepreneurs, incubators, and accelerators. Schemes like the government's Startup Agri India scheme, the Digi Gaon (Digital Village) initiative, and Bharat Net Project can all work together to address the situation.

1.5 Software Engineering Methodology

The agile software development methodology was followed in order to develop and manage this project. Agile methodology is a way to manage a project by breaking it up into several phases that allow for rapid production and constant revision. It begins with discovering requirements and background survey. Then, once development begins, the team cycles through a process of planning, executing and evaluating. Continuous collaboration is vital, both with team members and project stakeholders. Agile development practices advocate adaptive planning, early delivery, evolutionary development and continual improvement to benefit the customers or end-users. It encourages flexible responses to change by breaking work into goals that can be completed within iterations of time frames, called sprints. Sprints are usually not longer than 2 weeks to 1 month.

Figure 1. 1 Agile Methodology (source: www.selleo.com)

1.6 Tools and Technologies

With the use of JavaScript, developers can fulfill the essentials of front-end development to back-end development.

MongoDB, Express, Nodejs, HTML, CSS, Bootstrap all these technologies are in popular demand.

It is open-source so already built tools help in quick development.

1.7 Chapter Wise Summary

Chapter 2 deals with the literature survey of existing research and studies on e-commerce of agriculture. Out of numerous papers reviewed, Three of the most significant and relevant papers were selected for this project. Chapter 3 explains the models and methods used to design the user interface of the website. It includes use-case diagram, Overview. Chapter 4 illustrates with Status and Road map.

CHAPTER 2

LITERATURE SURVEY

2.1 Overview

Title: A Study on Ecommerce Agriculture

Authors : Dr. C. K. Gomathy , V. Jaswanth Reddy , P. Venkatesh Assistant Professor, Dept. Of CSE, SCSVMV Kanchipuram, TamilNadu, India

Name of journal : A Study on Ecommerce Agriculture

Year of publication: 2021

Source: https://doi.org/10.22214/ijraset.2021.38648

Title: Multi Vendor E-commerce Website for Farmers

Authors : Gomathy C, Jaswanth Reddy,Venkatesh Pathipati

Name of journal : Research square

Year of publication: 2021

Source: https://www.ilkogretim-online.org/fulltext/218-1641925492.pdf

Title: Agricultural E Commerce Website In India

Authors : K.R.Saradha, J.Ranjani, D.Thamizhselvi, Nikhitha, UG Scholar, Dept. of IT, Sri Sai Ram Engineering College

Name of journal : Ilkogretim Online - Elementary Education Online

Year of publication: 2021

Source: https://www.ilkogretim-online.org/fulltext/218-1641925492.pdf

2.2 Multi Vendor E-commerce Website for Farmers

In this paper, Chandrasekharendra Swaraswathi Viswa Maha Vidyalayaidentify the inherent challenges that the farming community faces in traditional agriculture commerce, and explore the scope of e-commerce to solve them and to help agribusinesses in rural India.

In India, agriculture is the largest dependent sector. As we all know, farmers are struggling to meet their needs. There comes a thought to use software technologies to help farmers with our hands-on project. We are utilizing the latest tech simple to integrate agricultural efforts. Farmers are able to get knowledge of cultivation techniques. A simple user-friendly interface easily helps users to get into our website. Fortunate and very responsive which enables it to work effectively on any type of device. The website functions are in different languages like Hindi, English and some regional languages. The farmers who grow crops according to the season, after harvesting the crops they pack them and contact the vendor regarding the stock availability. The wholesale vendor asks for the price, the farmer tells the price at which he can trade at. The vendor who is striving for his profits negotiates with the farmer regarding the price the needy farmer sacrificing their profits generally accept the price told by the vendor. Due to financial conditions and the unavailability of vendors, the farmer will sell their products at low prices demanded by the market.

Farmers grew their crop since there are various other problems such as soil infertility, weather changes, seed defects etc. So they expect some profits for their products. Due to wholesale vendors and their marketing strategies farmers are not getting their required profits. The wholesale vendors after buying the crop from farmers at their quoted price, sell it to retail vendors. Then the retailer vendors sell it to end customers. Here the intermediate vendors are getting enough profits for their selling. Farmers only lose their profits even though the most hard work is theirs. Technology is the driving force in every sector. We use this technology to drive the farmers into a profitable way. Here we are introducing the multivendor E-commerce business for farmers to do their business. It will help farmers by giving an opportunity to sell their products easier on our digital platform. Our main aim is to develop farmers by using the new technology and

making their business more efficient and also it is used to speed up their marketing process. It will be helpful for farmers to generate profitable income. It will disconnect the connection with intermediate vendors that helps to save some money

Significant research has been done on the agriculture market and various studies in journals about the agricultural sector. Making a distinct platform for farmers helps them to share some information about agriculture. Technology is existing everywhere from well equipped cities to a small village in the current generation. So there are no difficulties in using the technology to move into this e-commerce field. In the study, we got to know that the majority of the farmers are not getting enough profits for their crops.

2.3 Agricultural E Commerce Website In India

In this paper, K.R.Saradha, J.Ranjani, D.Thamizhselvi, Sruthi K.R, Nikhitha explains about advantages of E-commerce agriculture.

E-Commerce presents an advantage to both consumers and sellers. It eliminates mostmiddlemen and inventory reduction which makes it easy for a seller to pass on the benefits to consumers at low prices. For consumers, easy delivery becomes an advantage with low prices while, on the other hand for sellers,cross-boundary selling gives multiple benefits, thereby making it a saviour of search reduction and negotiation costs as well. It has been successfully used by fewenterprising people in agricultural marketing as well. For instance, Big Basket, an online grocery portal, books orders from online consumers and delivers sorted and cleaned groceries, vegetables and fruits to them. Giants like Godrej natures Basket and Grofers are also doing the same, whileglobal giants like Amazon are eyeing for the potential in the market. It may though be limitedto tier one or two cities only. This can though be identified as an area with immense potential for agricultural marketing,which is highly suitable for markets of exotic fruits, vegetables, grains, spices and selective organic food. This innovative model can drastically reduce middlemen costs from thesupply-chain and can make a good connection between farmers and consumers. It can bring niche products to nationwide markets. Agriculture, especially horticulture produce belonging to niche and speciality segments, produced in relatively low quantity in remote geographies. Farmer Producer Organisations involvement in such

niche segments is required togive it a multi vibrant market presence.sub-topics, then no subheads should be introduced.

2.4 Market Analysis

Most off the applications are developed with the motive of profitability and monetising the platform.

Such applications does not focus on topics, which does not generate revenue.

The application we are developing mainly focuses on developing strong connection between farmers and consumers community and deliver a quality product for customer.

CHAPTER 3

PROBLEM FORMULATION

This website, entitled “Samriddhi Agri-commerce”, was designed by keeping in mind the inclusivity of users with all levels of digital literacy. Since this web app can be used even by illiterate farmers to sell their products, it was made with a very simple and easy-to-use user interface. It consists of easily visible buttons, very little text and various visual cues that make it intuitive and easy to learn.

The existing system in farming commerce is very inefficient and tedious for both farmers and consumers.

The goal of our project is to provide a cooperative commerce application enabling an efficient produced supply-chain from farmers to consumers where different groups cooperate in not only enabling the markets but to run efficiently.

3.1 Use Case Diagram

Use case diagram is given to illustrate the roles and functionalities of each user. Samriddhi website has three main actors: farmer, consumer and transporter. The use case diagram is shown in Figure 4

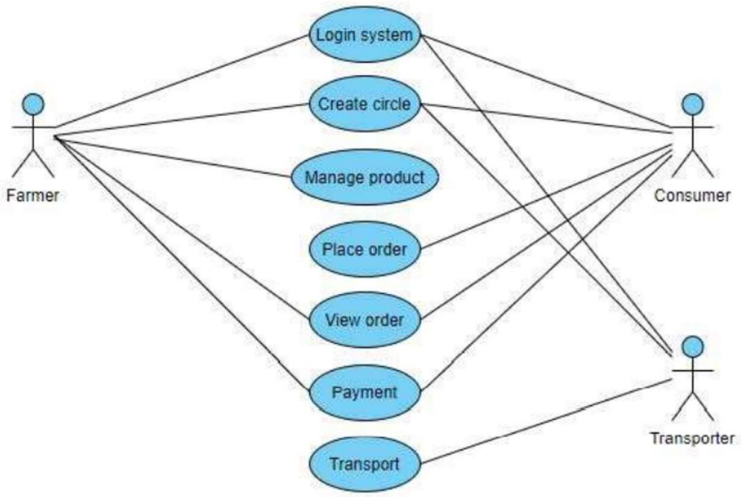


Figure 3. 1 Use case diagram

3.2 Overview

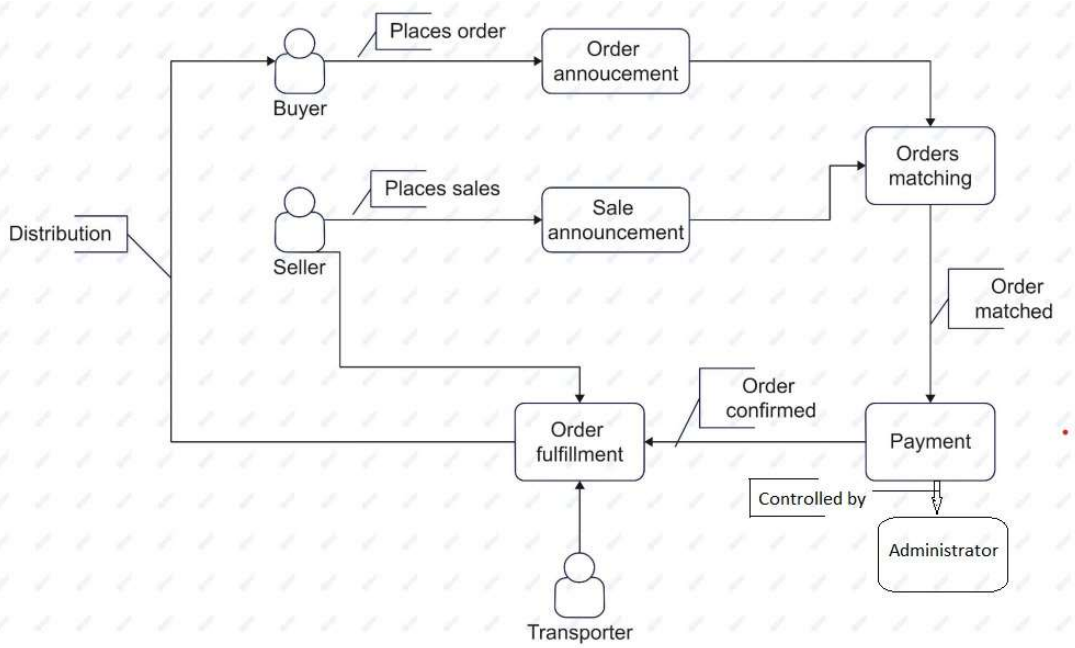
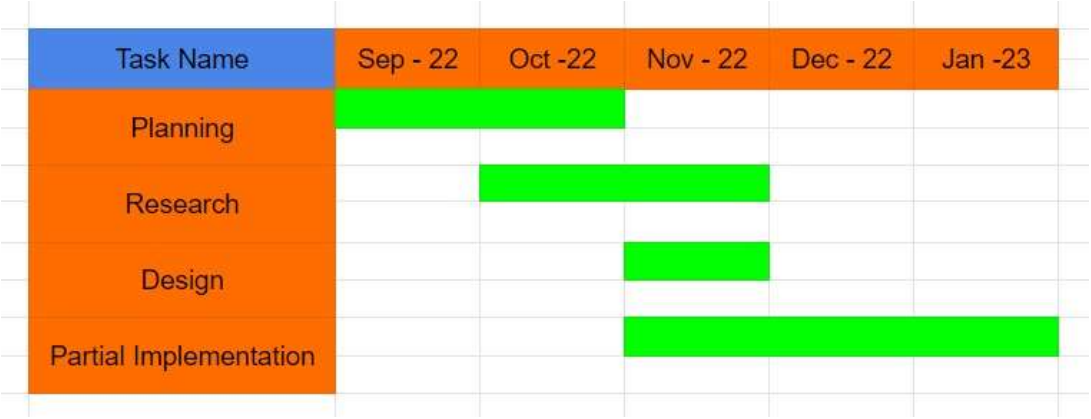


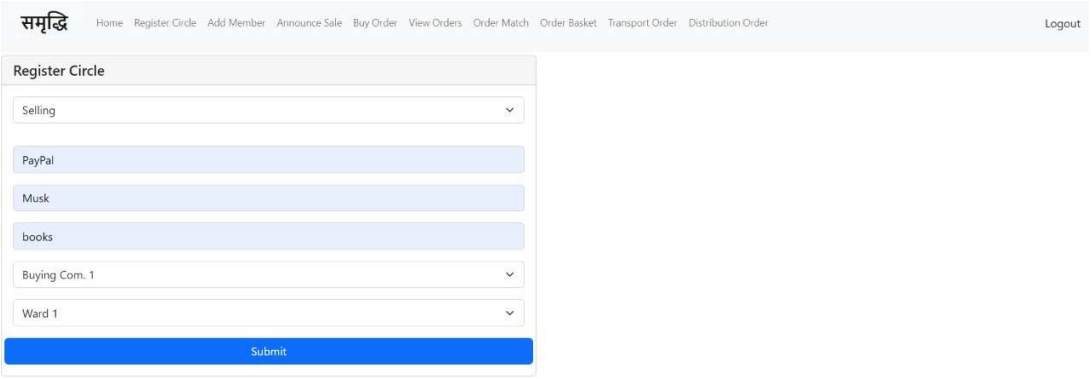
Figure 3.2 Overview

CHAPTER 4

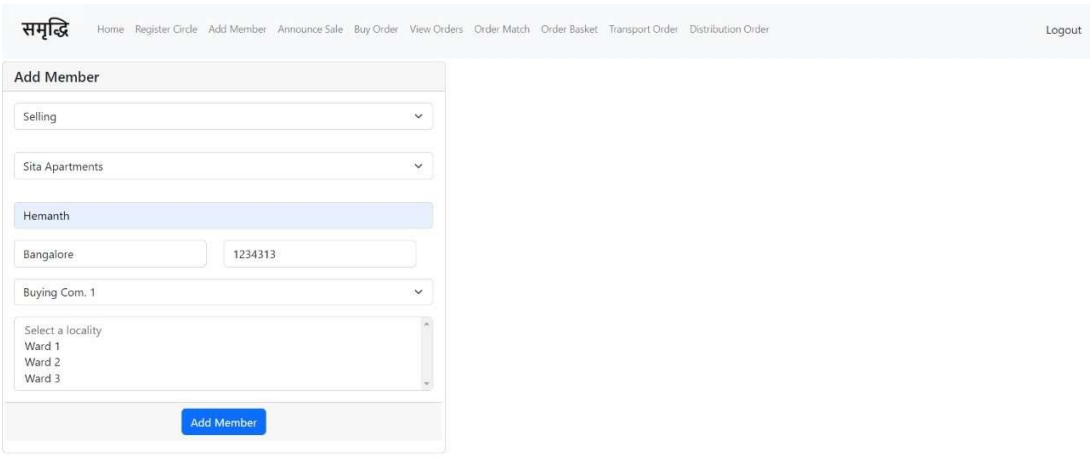
STATUS AND ROADMAP



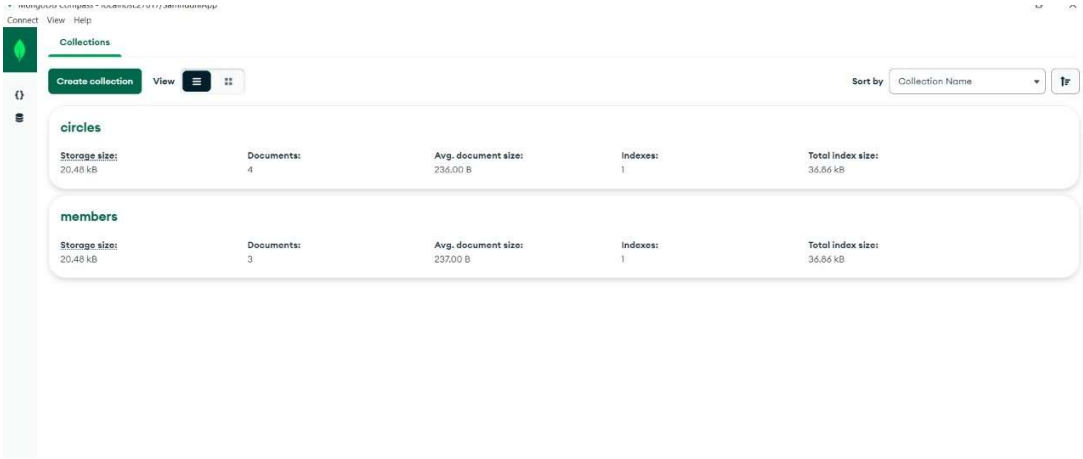
4.1 Status and Roadmap



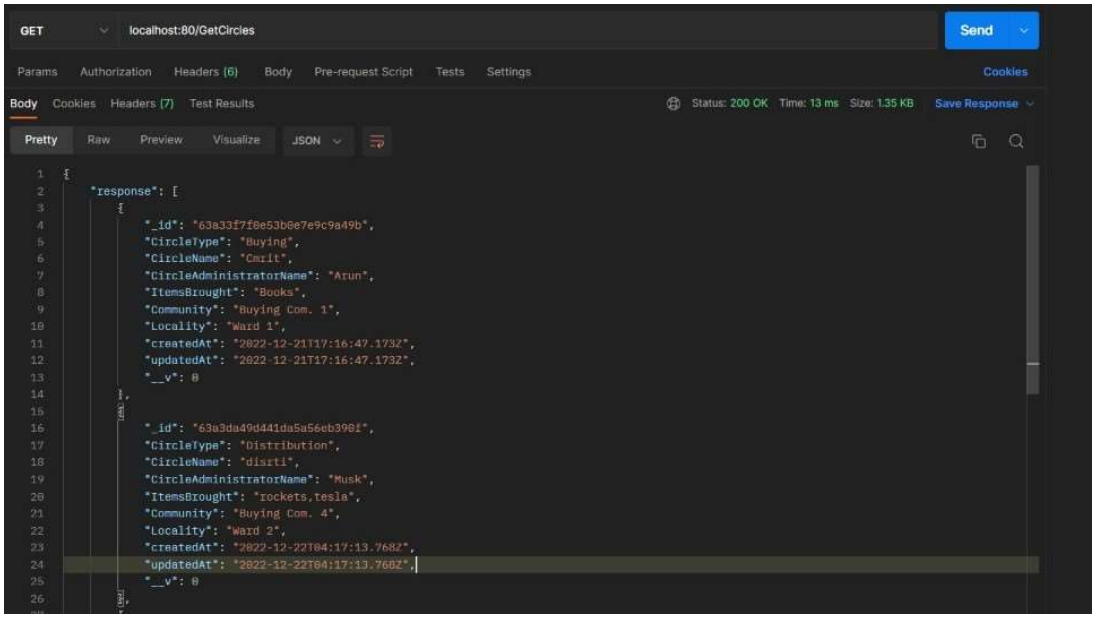
4.2 Registering Circles



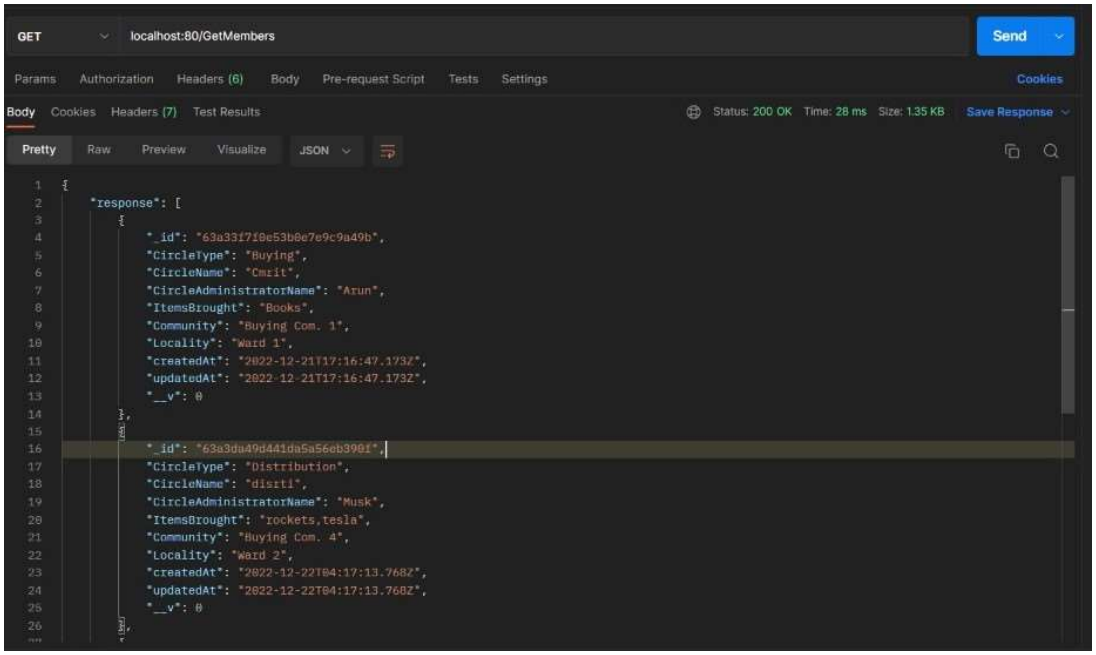
4.3 Add Members



4.4 Database with collections



4.5 Fetch Data API for Circles



4.6 Fetch Data API for Members

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