VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"JnanaSangama", Belgaum -590014, Karnataka.

MINI PROJECT-1 REPORT
on

ResQfood-Food Donation App

Submitted by

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Under the Guidance of
Dr. Rajeshwari B S
Assistant Professor, BMSCE

in partial fulfillment for the award of the degree of
BACHELOR OF ENGINEERING
in
COMPUTER SCIENCE AND ENGINEERING

B.M.S. COLLEGE OF ENGINEERING
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BENGALURU-560019

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B.M.S. College of Engineering,

Bull Temple Road, Bangalore 560019

(Affiliated To Visvesvaraya Technological University, Belgaum)

Department of Computer Science and Engineering

CERTIFICATE

This is to certify that the project work entitled **"ResQfood-Food Donation App"** carried out by **Jeevanthi Kashyap (1BM21CS080), Jyothika C N(1BM21CS083)** and **Palle Padmavathi (1BM21CS125)** who are bonafide students of **B.M.S. College of Engineering.** It is in partial fulfillment for the award of **Bachelor of Engineering in Computer Science and Engineering** of the Visveswaraiah Technological University, Belgaum during the year 2023-2024. The project report has been approved as it satisfies the academic requirements in respect of Mini Project-1 **(22CS5PWMP1)** work prescribed for the said degree.

Signature of the Guide
Dr. Rajeshwari B S
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External Viva

Name of the Examiner — Signature with date

1._____ _____

2. _____ _____

B.M.S. COLLEGE OF ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DECLARATION

We, **Jeevanthi Kashyap (1BM21CS080), Jyothika C N (1BM21CS083) and Palle Padmavathi (1BM21CS125)** students of 5th Semester, B.E, Department of Computer Science and Engineering, B.M.S. College of Engineering, Bangalore, hereby declare that, this Project Work-1 entitled "**ResQFood - Food Donation App**" has been carried out by us under the guidance of **Dr.Rajshwari B S**, Assistant Professor, Department of CSE, B.M.S. College of Engineering, Bangalore during the academic semester November 2023- Feb 2024.

We also declare that to the best of our knowledge and belief, the development reported here is not from part of any other report by any other students.

Signature

Jeevanthi Kashyap (1BM21CS080)

Jyothika C N (1BM21CS083)

Palle Padmavathi (1BM21CS125)

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1.Introduction

ResQFood is a food donation app driven by the fundamental belief that every individual has the power to make a positive impact, and that positive change can begin with the food we share. Unlike traditional donation platforms, ResQFood goes beyond financial contributions, allowing users to actively participate by sharing their surplus delicious and wholesome food. Our platform introduces a novel approach to giving that transcends monetary donations, tapping into the abundance of food resources available within communities.

One of ResQFood's standout features is its diverse range of food categories, ensuring a broad spectrum of culinary offerings that cater to various tastes and preferences. From freshly prepared meals to surplus groceries, the app provides a seamless and user-friendly interface that encourages users to share not only sustenance but also the joy of a good meal.

Tracking adds a dynamic element to the experience, allowing both donors and recipients to monitor the journey of their contributions. This transparency not only builds trust within the community but also fosters a sense of connectedness as users witness the immediate impact of their generosity.

At the core of ResQFood's mission is a steadfast commitment to reducing food waste. By redirecting excess food from individuals and businesses to those in need, we actively contribute to a more sustainable and compassionate society. Our app acts as a bridge, connecting surplus food providers with local communities, creating a virtuous cycle of giving that benefits both parties involved.

In the development of ResQFood, we have leveraged the power of Figma for creating an intuitive and aesthetically pleasing UI/UX. From wireframing to prototyping, Figma has been an invaluable tool, allowing us to design an interface that is not only visually appealing but also user-centric, enhancing the overall experience for both donors and recipients. And the app was developed using flutter and firebase.

ResQFood is more than just an app; it's a movement that empowers individuals to forge meaningful connections within their community through the act of sharing food. Join us in making a difference, one meal at a time.

2.Design Layouts: Screen Shots of Mobile App

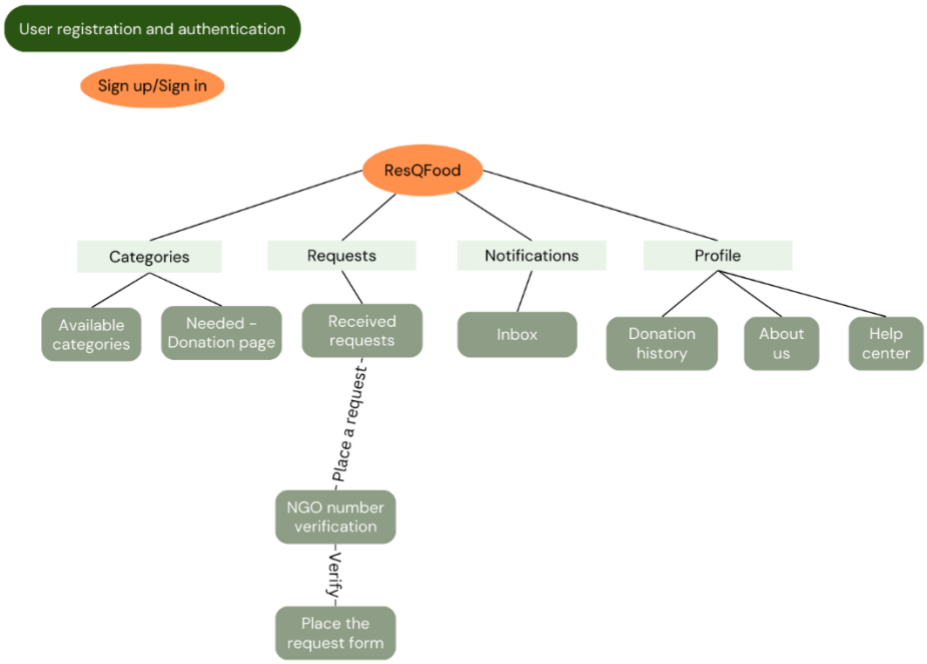

Fig 2.1 Flow of the app- navigation

In figure 2.1, the navigations in the app are shown. From the splash screen the sign-up screen is displayed, the sign in screen. Once the user is authenticated the user is directed to the home page. In the home page the bottom navigation bar consists of categories, requests, notification and profile tab. From categories the user can navigate to available and needed page. From the requests page the user can navigate to received requests. Only the registered NGO members can place request. The users are notified once the donation is made through the notification page. The user's details are displayed in the profile and user can logout from the profile page.

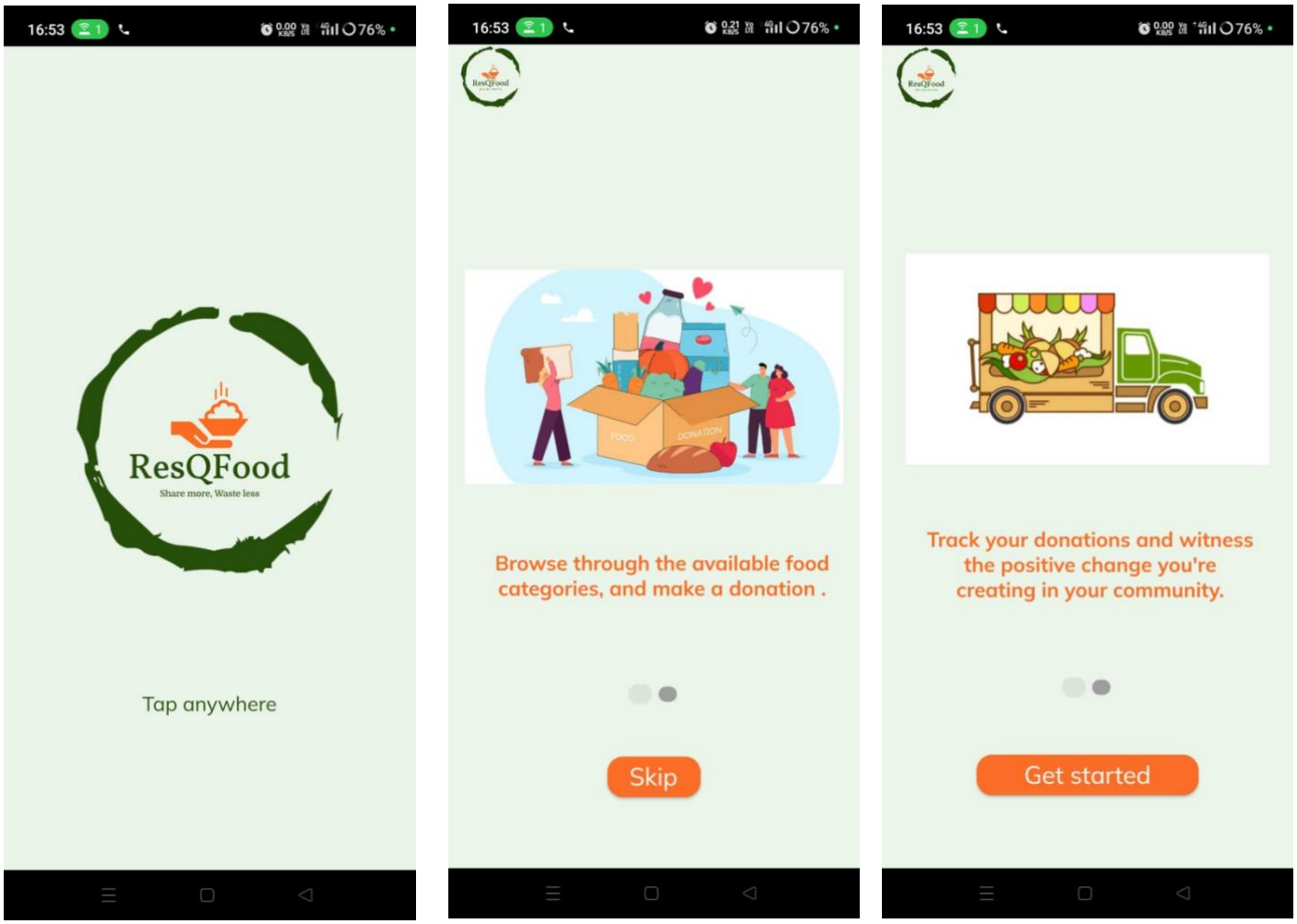

Fig 2.2 (i) Splash screen (ii) Get started page 1 (iii) Get started page 2

Description

Splash Screen: It is the first opening page of the application which contains the logo of the application. Tapping anywhere on this page will take the users to the 'get started page 1'.

Get Started Page 1: This page runs the users through a summary of the application. The users can choose the skip option, if they do not want the summary of the app. This page also has the logo of the app on the top-left corner of the page.

Get started page 2: This page runs the users through a summary of the application. The get started option will take the users to the sign up/ sign in page.

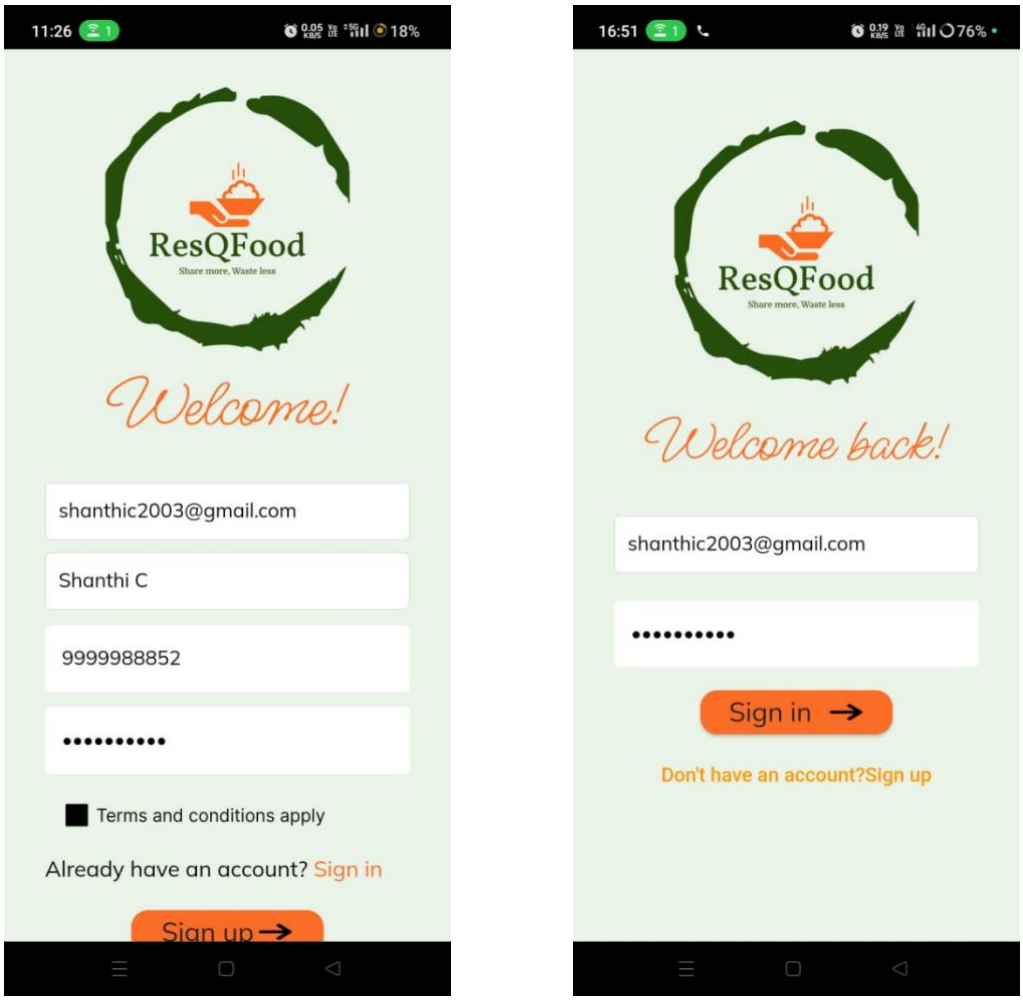

Fig 2.3 (i) Signup screen (ii) Sign in screen

Description

Signup Screen: This page is for the users who are new to the application. This page prompts users to give their details like email id, name, phone number, password. The users will also have to agree to the terms and conditions of the application. The page also contains an option where users who already have an account can proceed with the sign in page

Sign in Screen: This page is for the users who already have an existing account in the app. This page prompts users to fill in their email id and password for signing up to the app. This page also has an option for users who do not have an account and will take them back to the sign-up page.

Fig 2.4 Home page

Description

The home page is the main page of the application. At the top-left corner of the page is the logo of the application. The 'thank you' letters are posted on the home page to motivate users. At the bottom of the page is a navigation bar for navigating to the categories page, requests page, notifications page and the profile page.

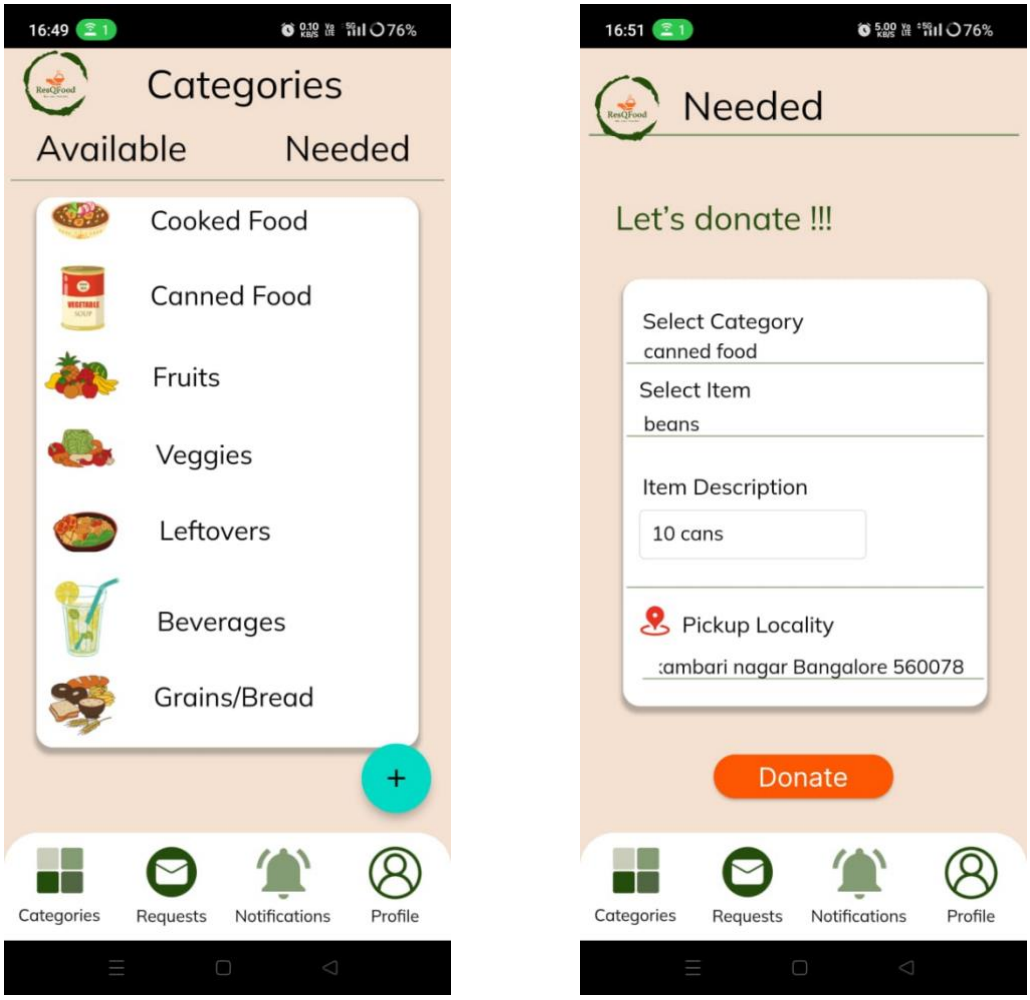

Fig 2.5 (i) Different food categories (ii) Donation page

Description:

Different Food Categories Page: At the top-left corner of the page is the logo of the application. By clicking on this logo, it will navigate back to the home page. This page has two main options- available and needed. The available option is only accessible for the registered NGOs. The needed option is for the users to make their donation. The available option further contains several categories of food that are available. At the bottom of the page is a navigation bar for navigating to the categories page, requests page, notifications page and the profile page.

Donation Page: This page appears when the 'needed' option is chosen. At the top-left corner of the page is the logo of the application. By clicking on this logo, it will navigate back to the home page. The users can make their donations by specifying certain details like category, item, item description and pickup locality. By clicking the 'donate' option, the donation is successfully made. At the bottom of the page is a navigation bar for navigating to the categories page, requests page, notifications page and the profile page.

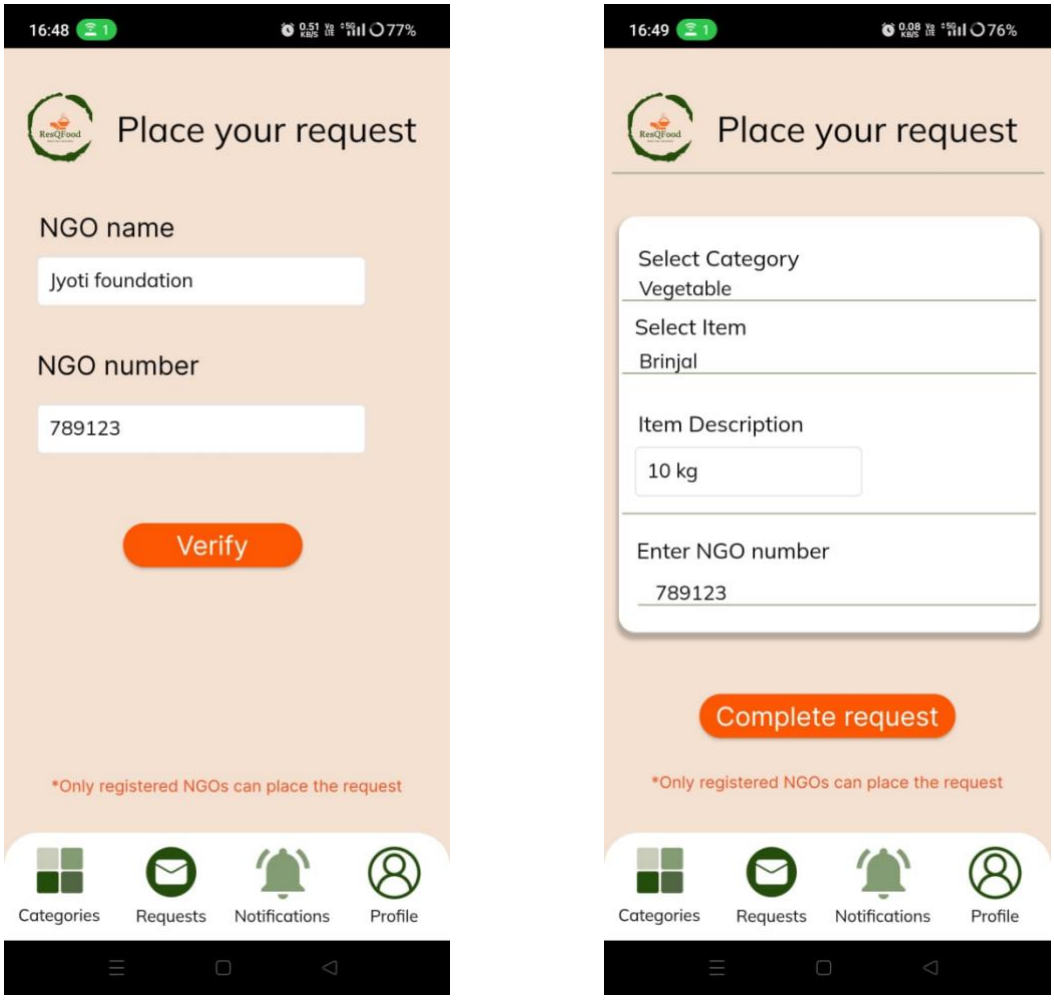

Fig 2.6 (i) Received Requests screen (ii) NGO verification (iii) Place your request screen

Description:

Received requests screen: This page shows a list of requests. At the top-left corner of the page is the logo of the application. By clicking on this logo, it will navigate back to the home page. The requests shown on this page will contain the item category, item name and the item quantity. By clicking on the 'place a request' option, the request can be made successfully by the NGOs. At the bottom of the page is a navigation bar for navigating to the categories page, requests page, notifications page and the profile page.

NGO Verification: This page is only for the registered NGOs. At the top-left corner of the page is the logo of the application. By clicking on this logo, it will navigate back to the home page. For making a request, the NGOs must verify their identity in the community for which the app prompts them to fill their details like NGO name and NGO number as a part of verification process. By clicking the 'verify' option, the verification process is complete. At the bottom of the page is a

navigation bar for navigating to the categories page, requests page, notifications page and the profile page.

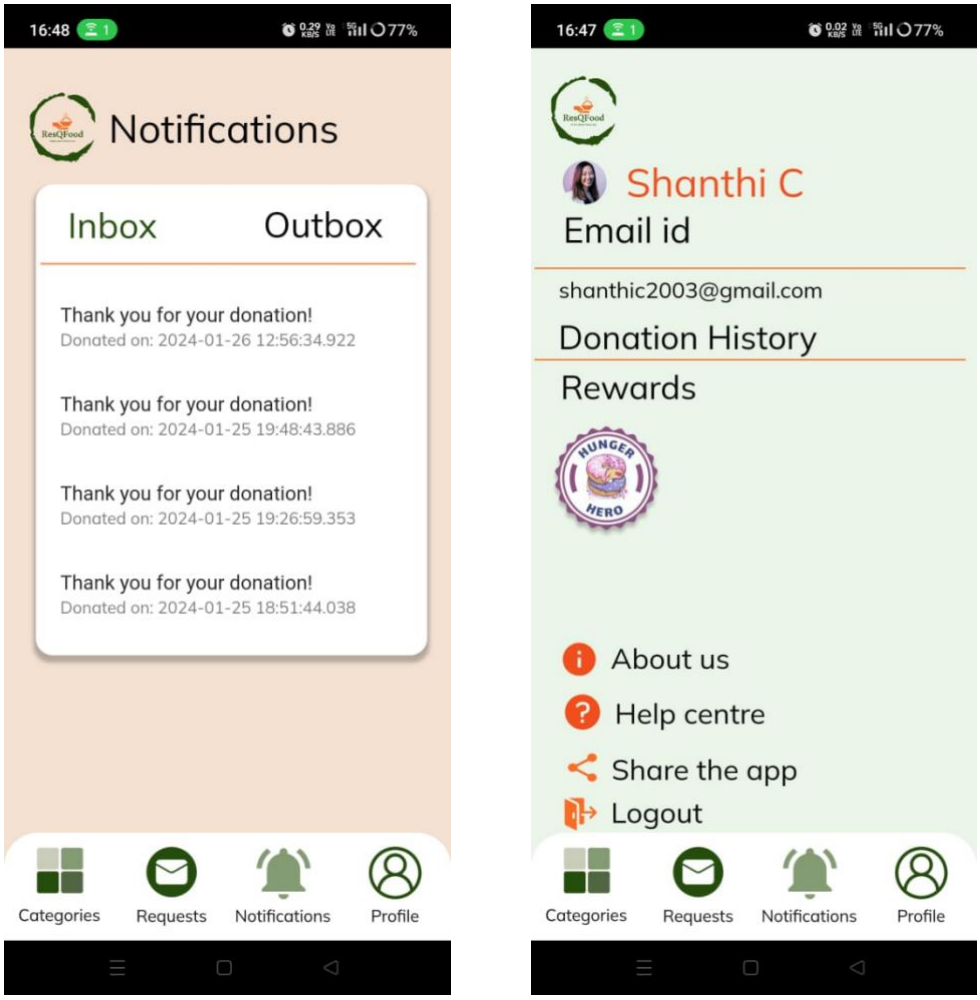

Fig 2.6 (i) Notifications screen (ii) Profile page

Description:

Notifications Screen: This page is meant to display all the notifications for the users. At the top-left corner of the page is the logo of the application. By clicking on this logo, it will navigate back to the home page. This page has two types- inbox and outbox. The inbox contains all the received messages regarding the application and the outbox generally contains 'thank you' messages based on successful donation made. At the bottom of the page is a navigation bar for navigating to the categories page, requests page, notifications page and the profile page.

Profile Page: This page contains the user details. At the top-left corner of the page is the logo of the application. By clicking on this logo, it will navigate back to the home page. The page will display user details such as name and email id. This page keeps track of the donations made by the user through the application in the 'donation history' category. It also has an option called

'rewards' where badges are given as rewards based on donations made by the users, to keep them motivated. The app also navigates to the 'about us page', 'help center page', 'share the app page'. The last option present on this page is the logout option. At the bottom of the page is a navigation bar for navigating to the categories page, requests page, notifications page and the profile page.

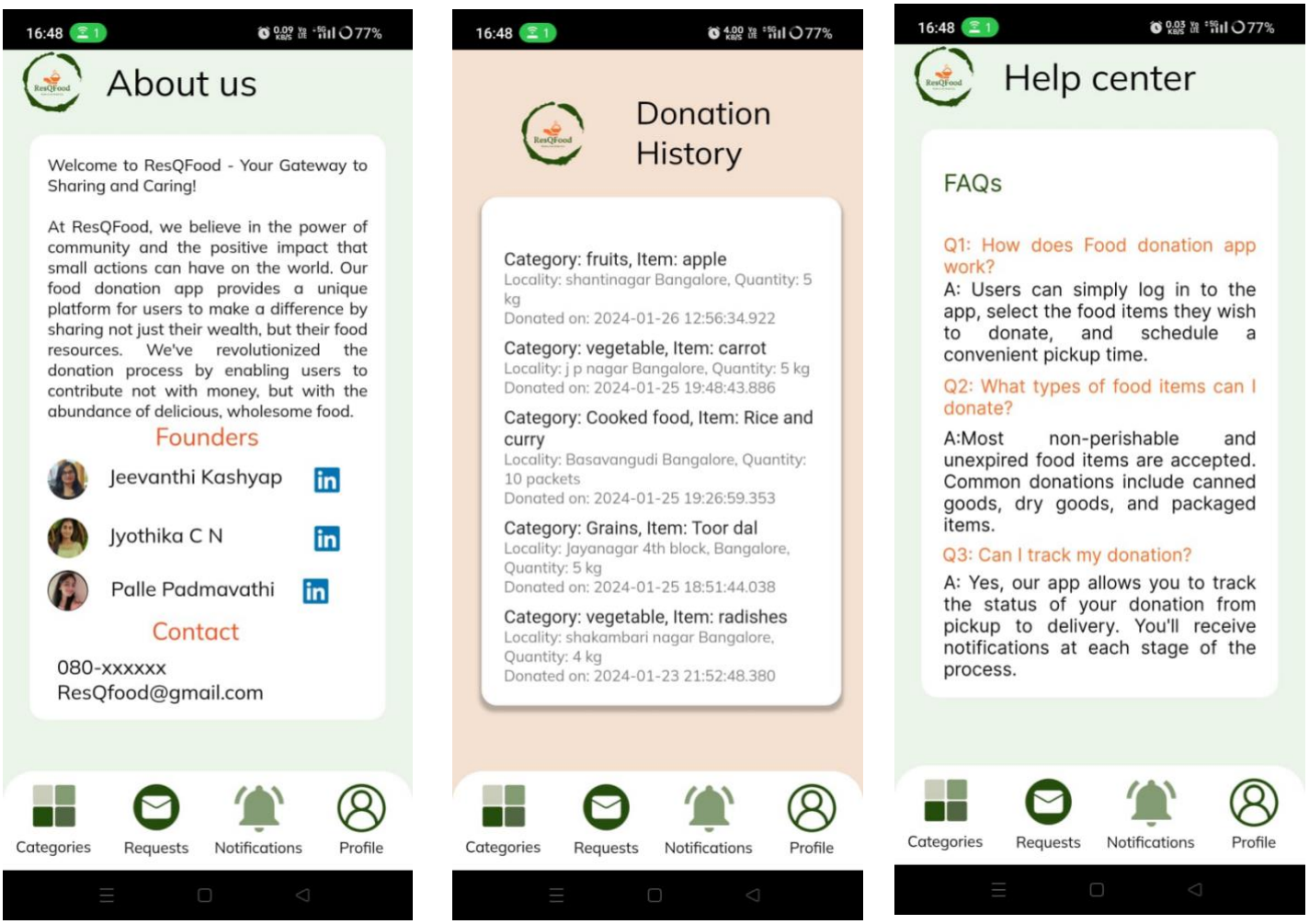

Fig 2.6 (i) About us screen (ii) Donation History (iii) Help center screen

Description:

About us screen: This page contains details about the application. At the top-left corner of the page is the logo of the application. By clicking on this logo, it will navigate back to the home page. The page gives a brief description of the application. It displays the founder's profile details. Finally, the page has the contact information for users' customer support. At the bottom of the page is a navigation bar for navigating to the categories page, requests page, notifications page and the profile page.

Donation history: This page contains a list of donations made by the user over a period. It displays donation information such as category, item, locality and date and time of the donation. At the bottom of the page is a navigation bar for navigating to the categories page, requests page, notifications page and the profile page.

Help center page: This page contains the most frequently asked questions (FAQs) regarding this application. At the top-left corner of the page is the logo of the application. By clicking on this logo, it will navigate back to the home page. At the bottom of the page is a navigation bar for navigating to the categories page, requests page, notifications page and the profile page.

3.Database Table Screen shots

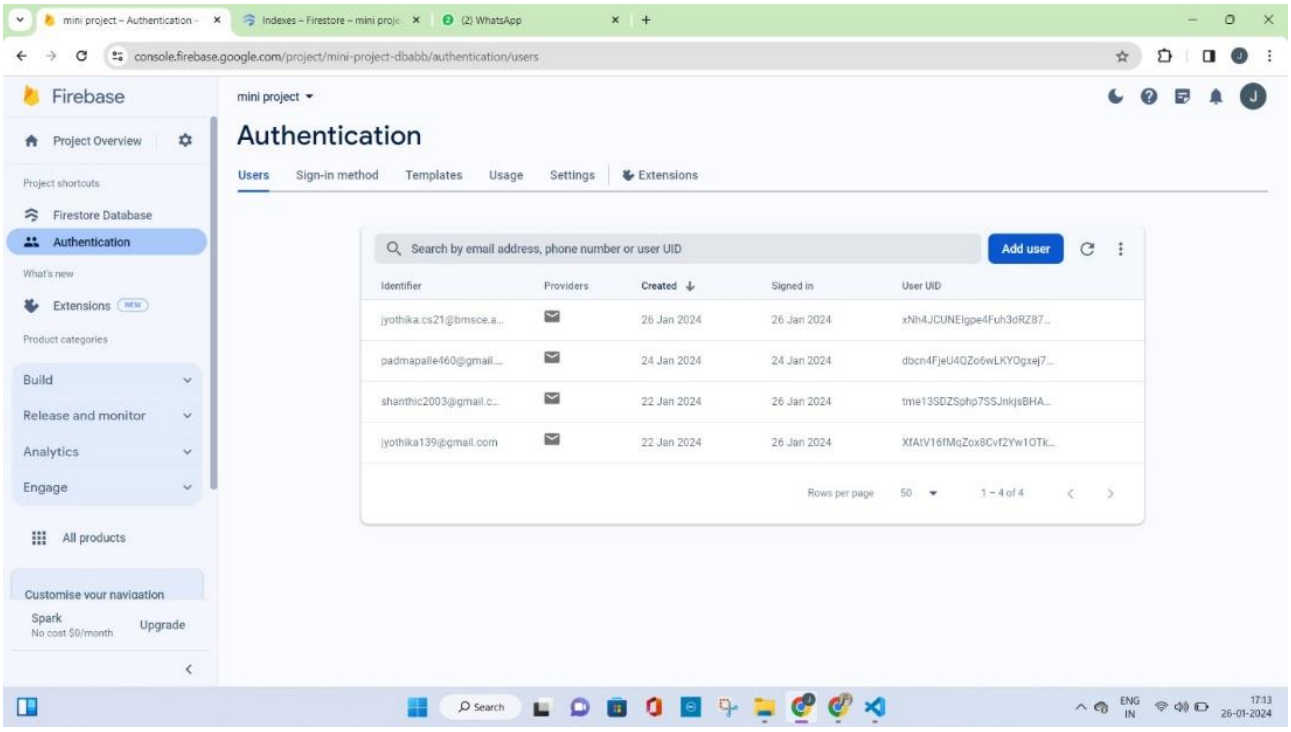

Fig 3.1. Firebase authentication

In fig 3.1 The firebase authentication is shown; the authentication has the following fields:

- Identifier: email id
- Created at: date
- Signed in: date
- User id (unique for every user)

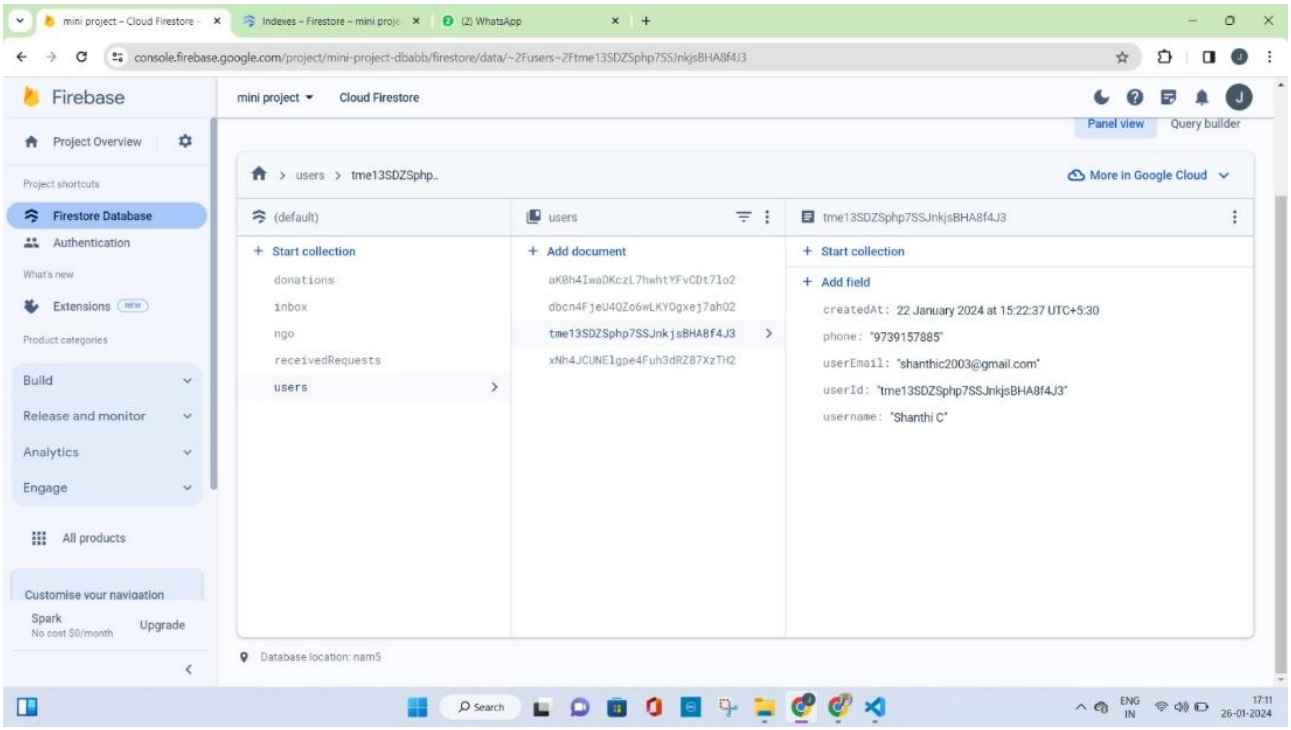

Fig 3.2. Firebase 'users' Collection

In fig 3.2 The firebase user collection is shown; the collection has the following fields:

- Created at: timestamp
- Phone: user's mobile number
- userEmail: user's email id
- userId (unique for every user)
- username: user's name

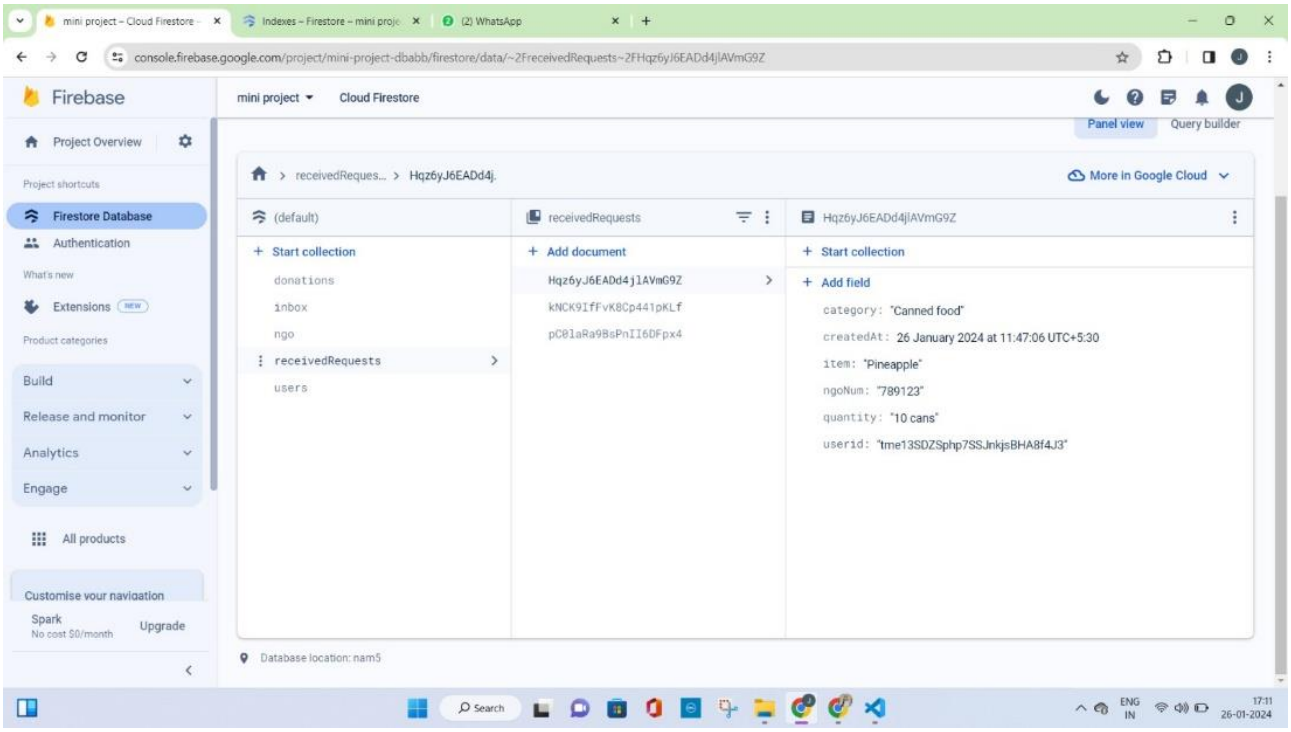

Fig 3.3. Firebase 'receivedRequests' Collection

In fig 3.3 The firebase receivedRequests collection is shown, the collection has the following fields:

- Created at: timestamp
- category: food category. E.g.: Fruits
- item: food item. E.g.: Apples
- quantity: item description. E.g.: 5 kg
- userId(unique for every user)
- ngoNum: NGO number

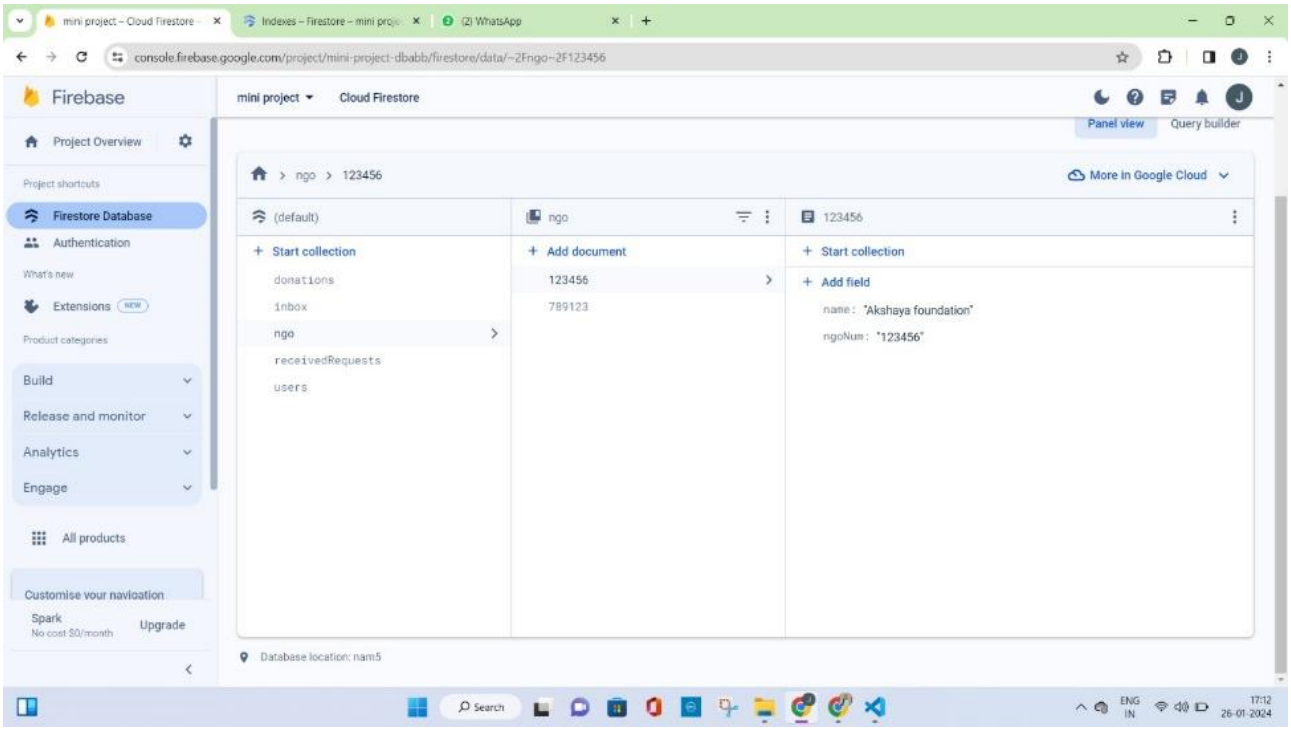

Fig 3.4 Firebase 'ngo' Collection

In fig 3.4 The firebase ngo collection is shown, the collection has the following fields:

- ngoNum: NGO number
- name: the name of the NGO

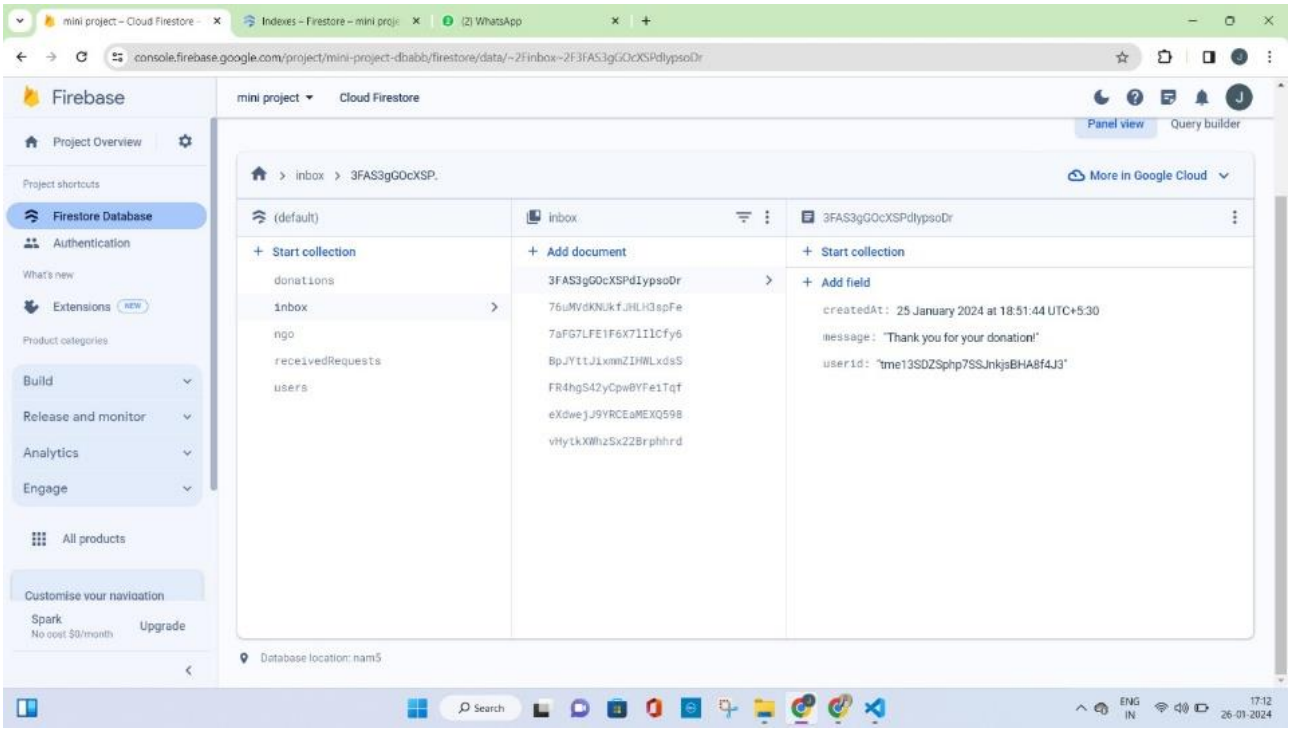

Fig 3.5. Firebase 'inbox' Collection

In fig 3.5 The firebase inbox collection is shown, the collection has the following fields:

- Created at: timestamp
- Message: thank you message for the donation
- userId (unique for every user)

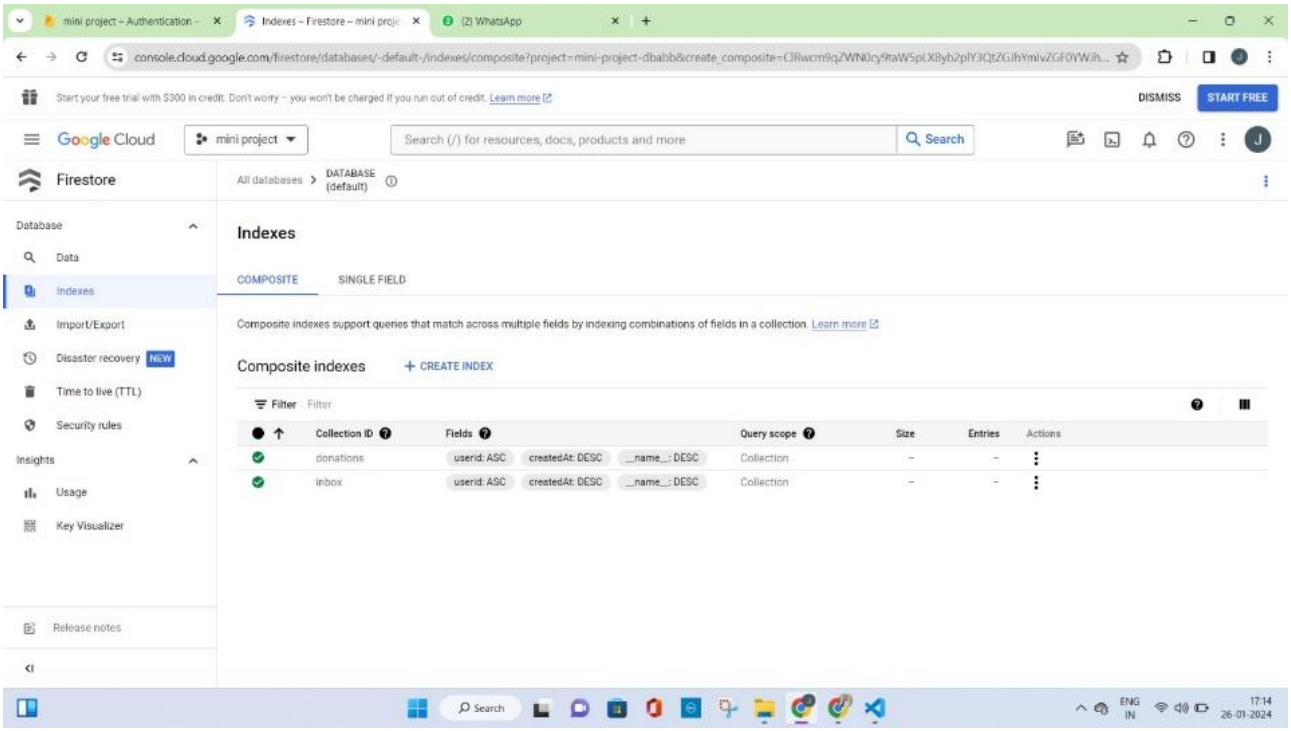

Fig 3.6. Firebase indexes for collection

In fig 3.3 The firebase indexes for collection are shown, the collection has the following indexes:

- Created at: timestamp – Descending order
- userId (unique for every user) – Ascending order

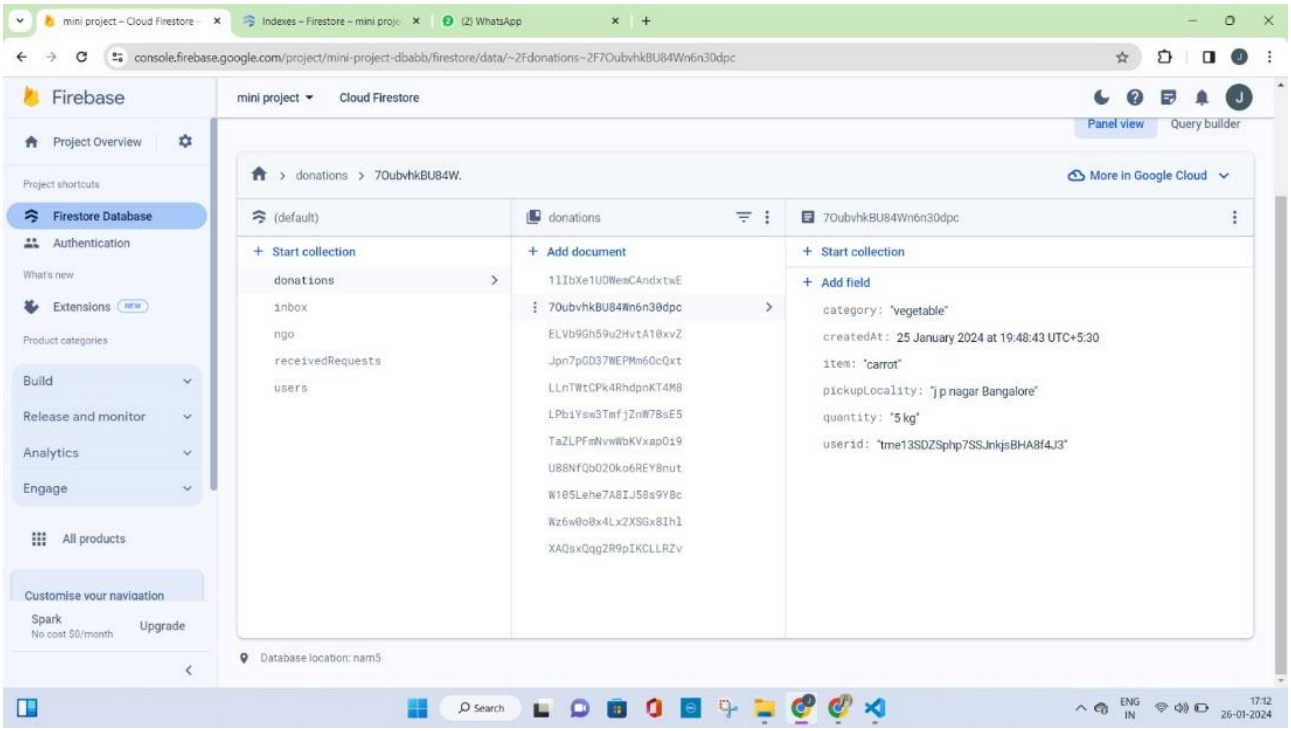

Fig 3.7. Firebase 'donations' Collection

In fig 3.7 The firebase donations collection is shown; the collection has the following fields:

- Created at: timestamp
- category: food category. E.g.: Fruits
- item: food item. E.g.: Apples
- quantity: item description. E.g.: 5 kg
- userId (unique for every user)
- pickupLocality: the address of the donor

4.Requirements

4.1 Software Requirements

4.1.1 **Technologies and Tools Used:**

- Figma
- Flutter
- Firebase
- Android Studio

4.2 Hardware Requirements

- Processor :11th Gen Intel(R) Core (TM) i5-1155G7 @ 2.50GHz
- Installed RAM :8.0 GB
- System type 64-bit operating system, x64-based processor
- Stable internet connection
- Android or ios mobile phone

4.3 Functional Requirements

- **User Registration and Authentication:** Users should be able to register and log in securely. User authentication should include email verification.
- **Food Donation Listings:** Users can create, edit, and delete food donation listings. Each listing should include details such as food type, quantity, expiration date, and pickup location.
- **Search and Filtering:** Users can search for available food donations based on location, food type, and availability. The app should provide filters to refine search results.
- **Donation Request:** Organizations or individuals in need can request specific food donations from the available listings. Donors receive notifications and can accept or reject requests.
- **Pickup Scheduling:** Users should be able to schedule and confirm pickup times for donated food. Automated reminders for scheduled pickups.
- **Feedback and Ratings:** Recipients can provide feedback and ratings for donors based on their experience. Donors can also rate the reliability and responsiveness of recipients.

4.4 Non-Functional Requirements

- **Performance:** The app should respond to user interactions within 3 seconds. It should handle concurrent users and transactions efficiently.
- **Security:** User data, including personal information and communication, should be encrypted.
- The app should implement secure authentication practices.
- **Scalability:** The system should handle a growing number of users, donations, and requests. The database should be scalable to accommodate increased data.
- **Availability:** The app should have at least 99% uptime. Scheduled maintenance windows should be communicated in advance.
- **Usability:** The user interface should be intuitive for both donors and recipients. Accessibility features should be incorporated for users with disabilities.
- **Compatibility:** The app should be compatible with popular mobile platforms (iOS, Android).
- **Data Privacy:** Compliance with data protection regulations. Users should have control over their privacy settings.

5. Learnings from the Project

- **Understanding Stakeholder Needs:** Learnt how to identify and prioritize the needs of diverse stakeholders, including donors, recipients, and organizations facilitating food distribution.
- **User-Centric Design:** Understood the importance of user experience (UX) and designed a user-friendly interface that caters to the needs of both donors and recipients.
- **Logistics Coordination:** Gained insights into the logistics involved in coordinating food donations, including scheduling pickups, ensuring timely deliveries, and managing communication between donors and recipients.
- **Communication and Collaboration:** Developed effective communication strategies to foster collaboration between different parties involved in the food donation process, including donors and recipients.
- **Technology Integration:** Learnt how to integrate various technologies such as real-time communication and secure data storage to enhance the functionality and efficiency of the app.
- **Team coordination:** Worked in team and collaborated to build a functional food donation app.

6. Conclusion and Future Enhancements

In conclusion, "ResQfood" app food donation stands as a beacon of hope and a catalyst for positive change, addressing critical issues on multiple fronts. By alleviating hunger and food insecurity, it directly impacts the lives of individuals and families in need, ensuring that no one goes to bed hungry. Simultaneously, food donation plays a pivotal role in the broader societal context by reducing food waste, fostering community bonds, and supporting local economies. Looking ahead, future enhancements could focus on feature expansion by incorporating user-requested functionalities, optimizing usability to ensure a seamless user experience, and addressing performance concerns. Exploring integration with emerging technologies, fortifying security measures, and broadening cross-platform compatibility are key areas for improvement. Additionally, prioritizing localization, accessibility features, and regular updates will contribute to the app's sustained relevance and appeal. Marketing efforts and outreach strategies can further enhance the app's visibility and user base, ensuring its continued positive trajectory in the dynamic app landscape.

7. References

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- **https://firebase.google.com/docs**
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- **https://www.dhiwise.com/**
- **https://en.m.wikipedia.org/wiki/Food_loss_and_waste**
- **https://olioapp.com/en/**
- **https://sharethemeal.org/**