



## **Delicious Donations**

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The Grove School of Engineering



The City College  
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## Table of Contents

<b>Background.....</b>	<b>2</b>
<b>Problem Statement .....</b>	<b>5</b>
<b>Rationale of Solutions .....</b>	<b>6</b>
<b>Design and Development of Systems .....</b>	<b>9</b>
<b>Evaluation with Users &amp; Partners .....</b>	<b>17</b>
<b>Discussion of Potential Markets &amp; Future Work .....</b>	<b>19</b>
<b>Branding .....</b>	<b>22</b>
<b>References.....</b>	<b>26</b>

## Background

New York City, known as the city that never sleeps, is bustling with a diverse population and a thriving food scene. However, behind this vibrant façade, the city grapples with a major food insecurity issue. According to the New York City Coalition Against Hunger, approximately 1.2 million residents, or 14.3% of the population, experience food insecurity [2]. The COVID-19 pandemic has further exacerbated this problem, with the Food Bank For New York City reporting a 150% increase in the need for food assistance since the beginning of the pandemic [3].

On the other side of the spectrum, the United States Department of Agriculture (USDA) estimates that nearly 30-40% of the food supply goes to waste. In New York City alone, it is estimated that approximately 3.9 million tons of food is wasted annually, which could potentially feed millions of people in need [4]. This wastage occurs at various stages of the supply chain, including retailers, restaurants, bakeries, and local stores.

To address this dichotomy of food surplus and food insecurity, we designed 'Delicious Donations'. This web app acts as a bridge between food donors (such as restaurants, bakeries, and local stores with surplus food) and charity organizations (including churches, mosques, and food pantries) that distribute food to those in need.

By connecting donors with recipient organizations, Delicious Donations aims to reduce food waste while simultaneously alleviating food insecurity in the city. The web app allows donors to post their available surplus food, and the app's intelligent algorithm matches the donation with a nearby charity organization. This not only ensures that food reaches those in need promptly but also reduces transportation costs and carbon emissions.

In conclusion, Delicious Donations is an innovative and timely solution to the growing problem of food insecurity and food waste in New York City. By creating a platform that connects

food donors with recipient organizations, the web app is making a significant impact on reducing food waste and helping New Yorkers in need. With continued support and expansion, Delicious Donations has the potential to transform the landscape of food distribution in the city, making it more sustainable and equitable for all.



Commercial Food Waste Recovery In New York City

## Problem Statement

Food insecurity is a critical issue in New York City, affecting nearly 1.1 million residents or 12.5 percent of the population [1]. In fact, half of all food-insecure individuals in New York State live in the city [1]. This problem has a significant impact on individuals, families, communities, and the entire city.

A major factor contributing to this challenge is the enormous amount of food waste generated by restaurants in the city. New York City's eateries are responsible for producing almost 500,000 tons of food waste annually, which is enough to fill more than a hundred subway cars every day [2]. This waste has severe environmental consequences and also represents a missed opportunity to use these resources to address food insecurity.

Lack of awareness about the extent of food waste is a primary reason behind this issue. Many restaurant owners and city dwellers are not aware of the large volume of food they waste daily, including spoiled vegetables and untouched leftovers. Shockingly, 95% of the food we consume ends up in landfills or incineration facilities [3]. In 2013, over 35 million tons of food waste were discarded this way [3].

To tackle this problem, there is a growing interest in developing innovative solutions to connect excess food with those who need it most. One potential solution is creating a mobile app that enables users to donate food items based on their ability, while also allowing charitable organizations and other groups to request the items they need. Given the widespread use of smartphones and internet connectivity, this platform could help redistribute food resources more efficiently and effectively, making a difference in the fight against food insecurity in New York City.

## Rationale of Solutions

The issue of food insecurity in New York City is a multifaceted problem that requires innovative and comprehensive solutions. Delicious Donations is one such solution, designed to address the challenge of redistributing surplus food to those in need while also offering educational features to raise awareness about food insecurity in NYC. In this section, we will outline the rationale behind the various aspects of the Delicious Donations web app, and discuss how it contributes to combating food insecurity and reducing food waste in NYC.

### 1. Facilitating Surplus Food Redistribution:

1. One of the primary functions of Delicious Donations is to facilitate the redistribution of surplus food from donors to recipient organizations. The web app addresses the logistical challenges associated with food redistribution by providing a user-friendly platform for donors to list their surplus food, and for recipient organizations to claim it. By simplifying this process, the app ensures that surplus food is redistributed efficiently, reducing waste and providing more meals to those in need[1].

### 2. Utilizing Advanced Algorithms to Optimize Matches:

1. Delicious Donations employs advanced algorithms to intelligently match available surplus food with nearby recipient organizations. This not only guarantees that food reaches those in need quickly but also minimizes transportation costs and associated carbon emissions[2]. By prioritizing local matches, the app promotes a sustainable and environmentally-friendly approach to food redistribution.

### 3. Encouraging Donor Incentives:

1. To motivate potential donors, Delicious Donations offers various incentives such as tax benefits and public recognition for their contributions[4]. By creating a culture of recognition and reward, the app encourages more businesses to participate in the program and donate their surplus food. This, in turn, increases the overall impact of the platform and helps address food insecurity on a larger scale[5].
4. Empowering Recipient Organizations:
  1. Delicious Donations empowers recipient organizations by giving them access to a broader range of food sources, enabling them to provide more diverse and nutritious meals to their beneficiaries[6]. In addition, the app's interface allows these organizations to specify their needs and preferences, ensuring that the surplus food they receive aligns with their requirements.
5. Building Community Connections:
  1. By connecting donors and recipient organizations within the same community, Delicious Donations fosters a sense of local collaboration and support. This not only strengthens community ties but also raises awareness about food insecurity and waste at the local level, promoting a more cohesive approach to tackling these issues.
6. Educational Features:
  1. Delicious Donations also incorporate educational features to inform users about the food insecurity issue in NYC. The platform shares relevant statistics, facts, and stories that highlight the magnitude of the problem and the importance of

addressing it. By raising awareness, the app encourages more people to get involved and contribute to the fight against food insecurity.

#### 7. Continuous Improvement and Scalability:

1. The Delicious Donations team is committed to continuously improving the web app based on user feedback and performance data. This iterative approach ensures that the platform remains user-friendly, efficient, and relevant to the needs of both donors and recipient organizations. Furthermore, the app's scalable design allows for expansion into other cities and regions, potentially multiplying its impact in addressing food insecurity and waste across the nation[3].

In summary, Delicious Donations offers a comprehensive and innovative solution to the growing problem of food insecurity and food waste in New York City. By leveraging technology, fostering community connections, and providing educational resources, the web app addresses the logistical challenges associated with surplus food redistribution and empowers donors and recipient organizations alike. As the platform continues to grow and evolve, it has the potential to revolutionize the way surplus food is managed and distributed, paving the way for a more sustainable and equitable food system in New York City and beyond.



## Design and Development of Systems

We started off by creating our logo using logo-maker and Figma as shown below:



We wanted to include a giving hand since this will be a donation app as well as steaming rice to symbolize the food we will be donating. As for our name and slogan, we all collectively came together and agreed on it since our whole mission statement is to not waste any food.

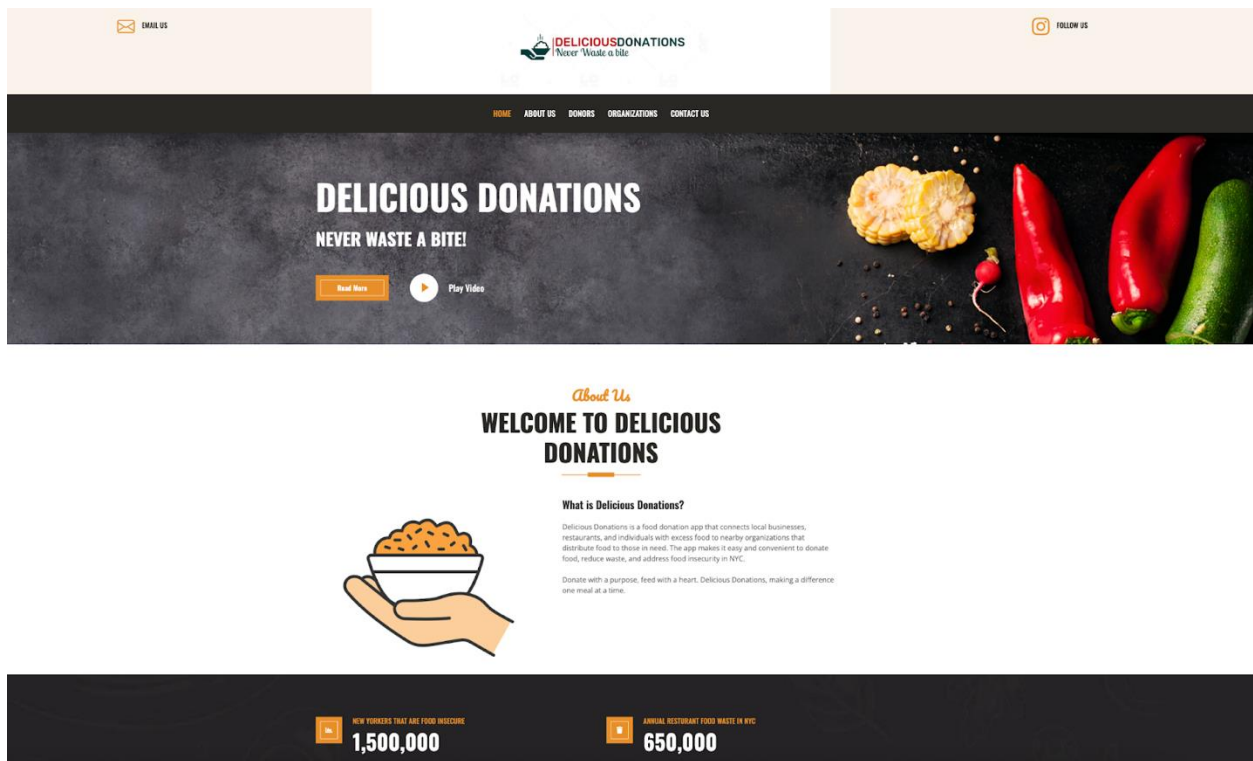
### **Website Design**

The homepage of Delicious Donations proudly displays our name and slogan, alongside a brief yet engaging introduction about our organization and the motivation behind our mission. As visitors explore the website, they are greeted with a visually appealing and informative layout that details our commitment to combating food insecurity and reducing food waste in New York City.

As users scroll towards the bottom of the homepage, they encounter our innovative educational feature, which is powered by the 'Feeding America' API. This dynamic component provides a real-time visualization of the number of food-insecure individuals in NYC, as well as the staggering amount of food being wasted. By presenting these statistics in a live and interactive format, we aim to raise awareness about the pressing issue of food insecurity and the need for immediate action.

The integration of the 'Feeding America' API not only adds an informative dimension to our website but also serves as a constant reminder of the significance of our mission. This live data helps to emphasize the urgency of addressing food insecurity and waste in New York City, inspiring visitors to join our cause and contribute to creating a more sustainable and equitable food system.

In essence, our homepage has been thoughtfully designed to reflect our organization's core values and goals. By combining visually appealing elements with engaging and educational content, we strive to create a user-friendly experience that resonates with our audience, raises awareness, and encourages participation in our efforts to bridge the gap between surplus food and those in need.



Homepage

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*About Us*

## WELCOME TO DELICIOUS DONATIONS



### What is Delicious Donations?

We are a food donation web app dedicated to reducing food waste and ending hunger in New York City. Our user-friendly platform connects donors with local organizations in need, allowing excess food to be redirected to those who need it most. We believe that food should never go to waste, and we are committed to building a more sustainable, equitable future for our community. Join us in our mission to make a difference, one meal at a time.

At Delicious Donations, we are driven by the belief that no one should go hungry while perfectly good food goes to waste. We understand that food waste is a major problem in New York City, with tons of edible food ending up in landfills each year. Our goal is to help reduce this waste and address food insecurity in our community by providing a convenient platform for food donation.

We are constantly striving to improve and expand our services, and we welcome feedback and suggestions from our users.

### Team Members



### About Us Page

As you scroll to the 'Donor' tab there's a quick form for them to fill out as restaurant owners. This includes their name, email, and a description of the food they offer so that the organization is aware of their menus.

## DONORS

*Welcome*  
**MAKING A DIFFERENCE  
ONE MEAL AT A TIME**

First Name	Last Name
Business Name	
Email	
Food Description	
<a href="#">Sign Up Now!</a>	

### Donor Tab

For the Organizations tab we implemented the google maps API so they're able to see their exact location and locate nearby restaurants. Once they press on a restaurant it shows them how far they are from them and their reviews.

# CUSTOMERS

## Restaurants Near You



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## Organizations Tab

Lastly our 'Contact Us' tab has a quick form where it will be submitted directly to our email. This is just in case our users have any questions, comments, or concerns and need to reach out to us.



Your Name

Your Email

Subject

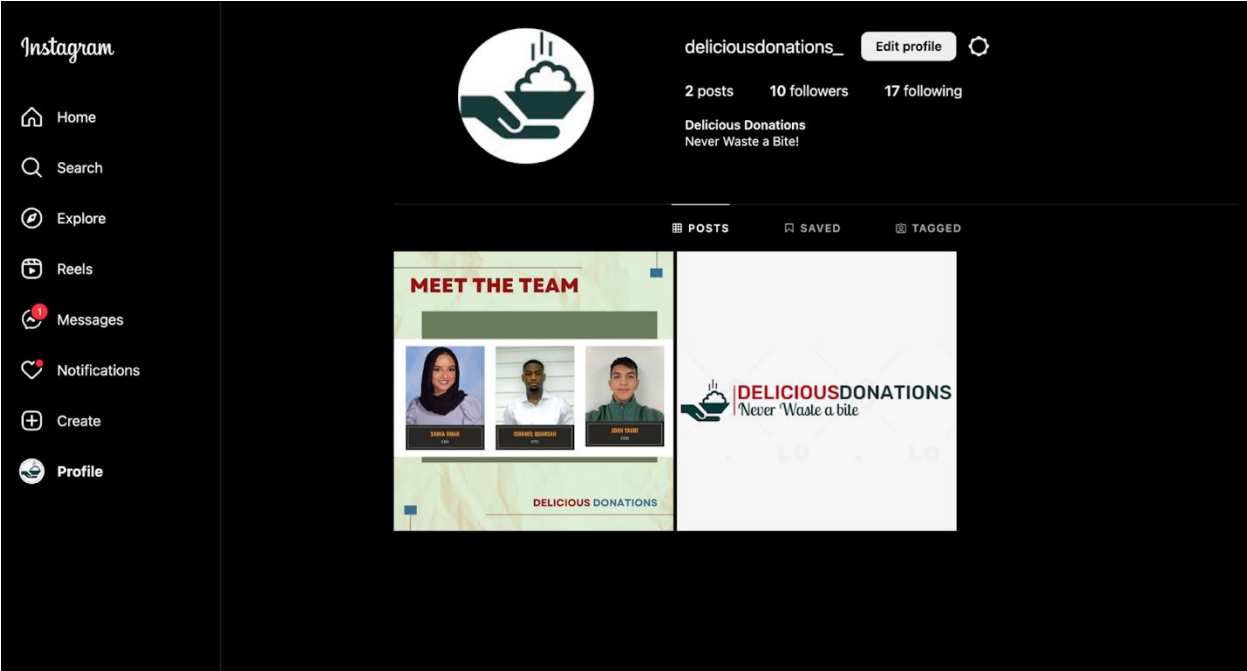
Message

Send Message

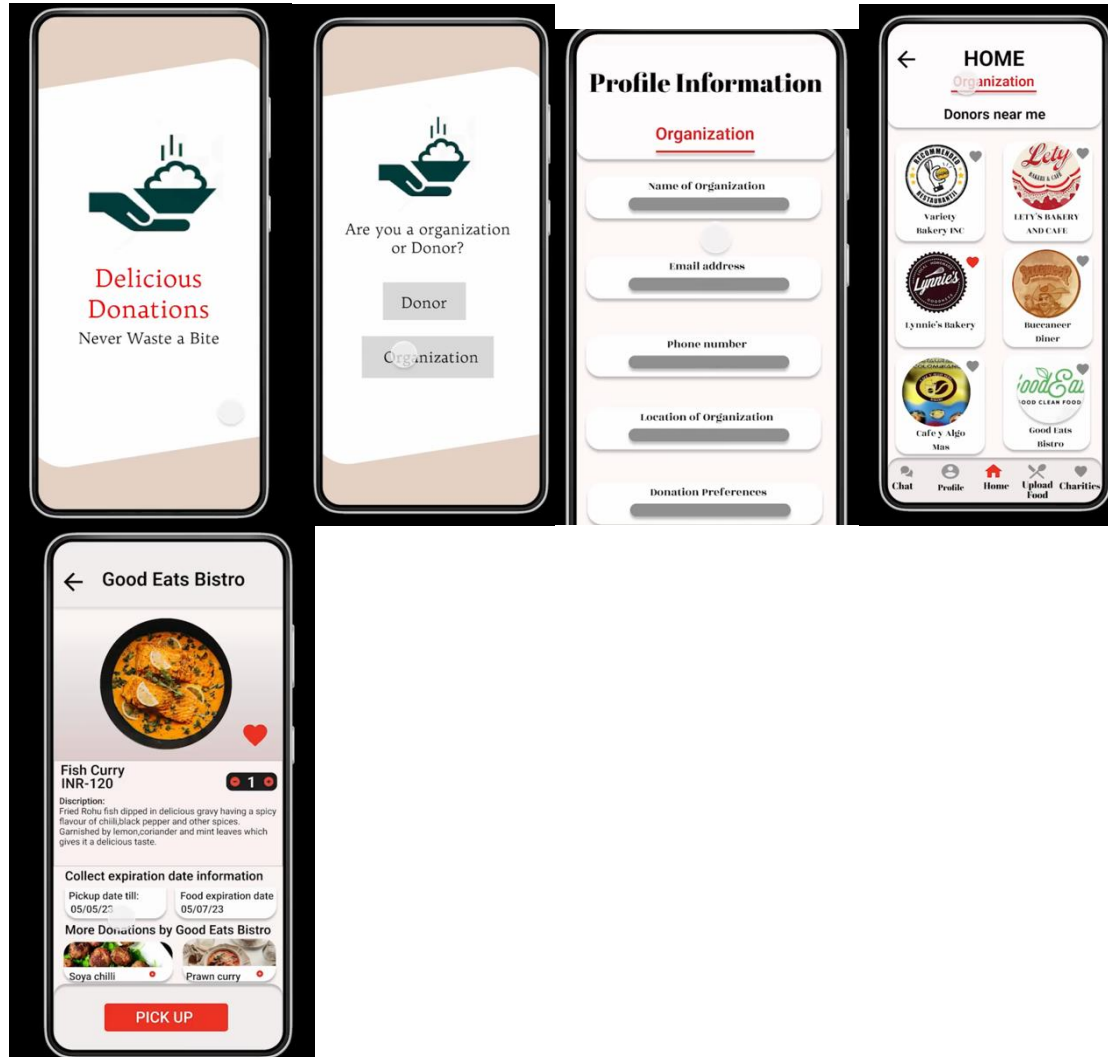
Contact Us Page

We also created our own Instagram for outreach:

[@deliciousdonations\\_](https://www.instagram.com/deliciousdonations_)



## App Design



We would work with both individuals who are part of charity events/organizations, as well as restaurants that have food to spare instead of wasting it.

### **Restaurant / Donor Aspect:**

*Step 1:* Registering for our app using personal information.

*Step 2:* The user can access their personal account by entering their ID and password.

*Step 3:* Specify a new food item with the quantity, location, and contact information.

*Step 4:* Upload photos of their food products.

*Step 5:* Include multiple food items in your cart before checking out.

*Step 6:* After adding food-related information, the user can log out of the system and wait to be matched with a volunteer.

**Organization Aspect:**

*Step 1:* The user can register using their personal information on the admin side.

*Step 2:* Using their ID and password, the user can access their personal account.

*Step 3:* Conduct a location-based search and reserve the food items in advance.

*Step 4:* Following approval of the request from the donor side

*Step 5:* They will be able to successfully pick up the food



## Evaluation with Users & Partners

Our target users encompass a diverse range of stakeholders within New York City, aiming to address the pressing issue of food insecurity and waste through collaborative efforts. With over 27,000 restaurants in the city[1], these establishments form a significant part of our user base. Additionally, we actively engage with organizations that support local communities, focusing on the 12.5% of NYC residents who face food insecurity[5].

Our partnerships play a crucial role in the success of our mission. We have already established connections with several reputable restaurants and eateries, including Variety Bakery Inc., Buccaneer Diner, Lety's Bakery and Cafe, Napoli's, Cake Chef, and Dove Diner. These establishments have shown a keen interest in contributing their surplus food to help address the issue of food insecurity in the city, in line with the alarming statistic that approximately 85% of food waste generated in restaurants ends up in landfills[1].

In addition to our donor partners, we collaborate with various organizations that share our vision of a hunger-free New York City. These organizations are instrumental in distributing the surplus food to those in need. Our current partner organizations include Mas Ibn Sina Center (Mosque), The Church of Pentecost USA Inc. Staten Island Assembly, Food Stamp Office - Jamaica, Council of Jewish Organizations, El Centro del Inmigrante, and Astoria Food Pantry. These community-focused organizations have a deep understanding of the needs of their respective communities and work tirelessly to provide support and resources to their members.

By fostering strong relationships with our diverse partners, Delicious Donations aims to create a robust network of donors and recipient organizations that can collaboratively tackle the challenges of food insecurity and waste in New York City. Our platform enables these stakeholders to work together seamlessly, ensuring that surplus food is effectively redirected to

those who need it most while simultaneously reducing the environmental impact of food waste[2][3][6].

As we continue to grow and expand our partnerships, we remain committed to our mission of creating a more sustainable and equitable food system for all New Yorkers, in line with the goals set forth by the Mayor's Food Waste Challenge to Restaurants[4].

### Donors & Organizations

- DONORS
- ORGANIZATIONS

**VARIETY BAKERY INC**  
8028 Northern Blvd, Queens, NY 11372  
**Approved**

**LETY'S BAKERY AND CAFE**  
7707 37th Ave, Queens, NY 11372  
**Approved**

**CAKE CHEF**  
957 Jewett Ave, Staten Island, NY 10314  
**Approved**

**BUCCANEER DINER**  
93-01 Astoria Blvd, Queens, NY 11369  
**Pending**

**NAPOLI'S**  
28-51 42nd St, Queens, NY 11103  
**Pending**

**DOVE DINER**  
3281 Richmond Ave, Staten Island, NY 10312  
**Pending**

### Donors & Organizations

- DONORS
- ORGANIZATIONS

**MAS IBN SINA CENTER (MOSQUE)**  
46-01 20th Ave, Queens, NY 11105  
**Approved**

**FOOD STAMP OFFICE- JAMAICA**  
165-08 88th Ave, Queens, NY 11432  
**Approved**

**EL CENTRO DEL INMIGRANTE**  
260 Port Richmond Ave, Staten Island, NY 10302  
**Pending**

**THE CHURCH OF PENTECOST USA INC. STATEN ISLAND ASSEMBLY**  
107 Water St, Staten Island, NY 10304  
**Approved**

**COUNCIL OF JEWISH ORGANIZATIONS**  
984 Post Avenue Staten Island, NY - 10302  
**Pending**

**ASTORIA FOOD PANTRY**  
25-82 Steinway St, Queens, NY 11103  
**Approved**

## Discussion of Potential Markets & Future Work

As Delicious Donations continues to grow and make a positive impact in New York City, there are numerous opportunities for expanding our reach into new markets and further enhancing our platform. In this section, we discuss potential markets and future work that can help us broaden our scope and solidify our position as a leading food donation platform.

### 1. Expansion to Other Cities and Regions:

1. New York City serves as an ideal starting point for Delicious Donations, but food insecurity and waste are not isolated issues. By expanding our platform to other cities and regions, we can replicate our success and help address the challenges of food insecurity and waste on a national scale. Potential target markets include densely populated urban areas and communities with high levels of food insecurity, such as Los Angeles, Chicago, Houston, and Miami. Engaging

### 2. Additional Donor Categories:

1. While our current focus is on restaurants, bakeries, and local stores, there are numerous other potential donor categories to explore. For instance, partnering with grocery stores, catering services, corporate cafeterias, and event venues could significantly increase the volume of surplus food available for redistribution. By expanding our donor base, we can create a more comprehensive network of food sources for recipient organizations.

### 3. Strengthening Collaborations with Non-profit Organizations:

1. To maximize our impact, it is crucial to strengthen our collaborations with non-profit organizations working to combat food insecurity and waste. By joining

forces with established organizations like Feeding America and City Harvest, we can leverage their experience, resources, and networks to reach more people in need and reduce food waste more effectively.

4. Technological Enhancements:

1. Continued investment in the technological development of our platform will ensure that we maintain a cutting-edge and user-friendly experience for our users. Future work may include incorporating artificial intelligence and machine learning algorithms to further optimize food redistribution processes, improve the mobile app experience, and enhancing security features to protect user data.

5. Educational Initiatives:

1. As part of our commitment to raising awareness about food insecurity and waste, we plan to expand our educational initiatives by creating interactive learning materials, organizing workshops and webinars, and collaborating with schools and universities. These efforts will help engage the broader community in our mission and foster a culture of responsible food consumption and waste reduction.

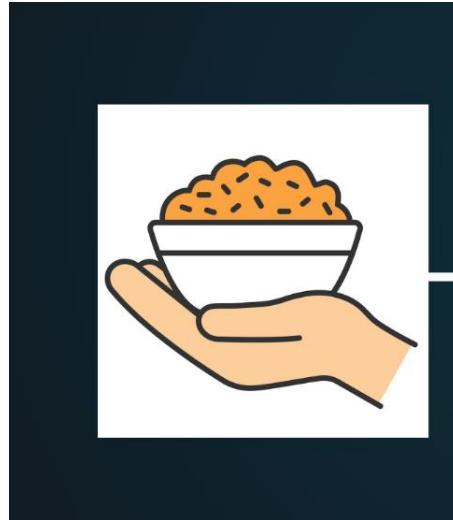
6. Advocacy and Policy Work:

1. To create long-lasting change, it is essential to advocate for policies that support our mission to reduce food waste and address food insecurity. Delicious Donations can play an active role in promoting policy changes at the local, state, and national levels, such as implementing tax incentives for food donors, encouraging stricter regulations on food waste, and supporting initiatives that increase access to nutritious food for underserved communities.

In conclusion, Delicious Donations has tremendous potential to expand its reach and impact by exploring new markets, engaging with additional donor categories, and investing in future work. As we continue to grow, our commitment to creating a more sustainable and equitable food system remains at the core of our mission. Through strategic partnerships, technological advancements, and advocacy work, we aim to make a lasting difference in the lives of those affected by food insecurity and waste across the nation.

## Branding

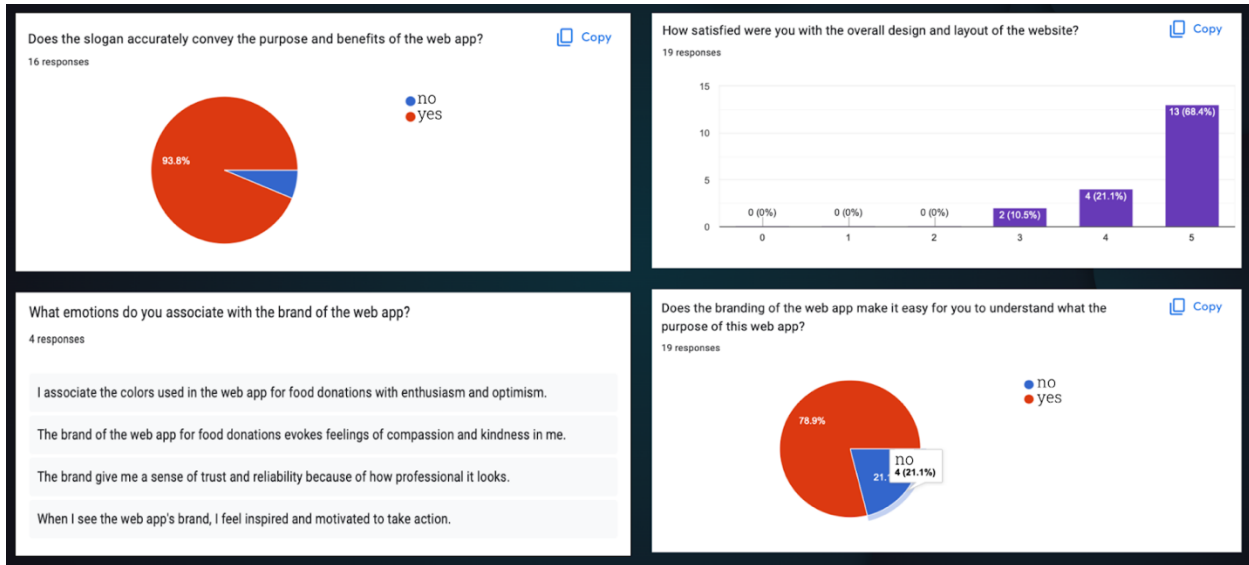
When we first started we had our logo as shown below:



However, after interviewing our potential users they all agreed that the orange and the color choices was a bit bold and expressed that they rather something more subtle to include our name and slogan as well. Therefore, we altered it to the below:



We wanted to include a giving hand since this will be a donation app as well as steaming rice to symbolize the food we will be donating. As for our name and slogan, we all collectively came together and agreed on it since our whole mission statement is to not waste any food.



The feedback we have received throughout the development of the Delicious Donations app is a testament to the meticulous planning and execution of our project. As we analyzed the statistics and user responses, we identified several key takeaways that highlight the strengths of our platform and suggest areas for further improvement.

Users expressed appreciation for our platform's seamless UX/UI, noting that the intuitive design made it easy to navigate and engage with the app's features. The positive reception of our user interface indicates that we have successfully created an accessible and user-friendly experience, which is crucial for promoting widespread adoption and usage.

Additionally, our slogan resonated with users and helped convey our mission to reduce food waste and address food insecurity. The positive feedback on our slogan suggests that our messaging effectively communicates our goals and values, making it easier for users to connect with our cause and feel inspired to participate.

Our successful outreach plan also garnered praise, as it demonstrated our commitment to connecting with potential donors and recipient organizations to create a strong network of stakeholders. This proactive approach to building relationships and fostering partnerships is

essential for facilitating the redistribution of surplus food and maximizing our impact on food insecurity.

Despite the positive feedback, users also provided valuable suggestions for improvement and growth. One such suggestion was to create a volunteer team that could assist with food collection, transportation, and distribution. This would not only strengthen our operational capacity but also provide opportunities for community members to get involved and contribute to our cause.

Another recommendation was to deepen our connections with religious institutions, such as churches, mosques, and synagogues. These organizations often play a vital role in supporting local communities and can serve as valuable partners in our mission to combat food insecurity and waste.

Lastly, users suggested exploring the possibility of accepting monetary donations to supplement our food donation efforts. By securing additional funding, we can further invest in the development of our platform, expand our reach, and support a wider range of initiatives to address food insecurity and waste.

### **Video**

We also created a demo video for our project that can be found [here](#).

## **Team Contribution:**

### **Samia Omar:**

- Overall Idea
  - o Brainstorming, developing idea, features, business model



- Setting up the project including things like Github and Firebase.
  - Set up everything related to firebase such as secret keys, so that the team can use firebase without any trouble.
- Worked on the Maps feature.
  - Setting up Google Cloud Platform to work with the application
  - Set up users map, added button to navigate the user home
  - Users can locate location of donors
- Logo Design
- Worked on figma design
- Worked on the final modification for the app
  - Final UI update and bug fix to make it look good on the app demo
- Upload all the proposals, slide , report and video to the wiki page.
- Weekly Wiki Logs
- Worked on the final report
  - Background, Abstract, Design, Market

### **Ishmael Quansah:**

- Overall Idea
  - Brainstorming, developing idea, features, business model
- Worked on figma design
  - Donors and Organizations' side
- Conducted interviews with users for feedback on the web – app and tailored the app according to feedback
- Worked on the final modification for the app
  - Final UI update and bug fix to make it look good on the app demo
- Weekly Logs
- Setting project including things like Firebase

- Worked on app demos to demonstrate functionalities of it
- Worked on promo and final video uploaded on yt
- Worked on the final paper

### **John Yauri:**

- Overall Idea
  - o Brainstorming, developing idea, features, business model
- Conducted surveys to determine efficiency and usability of app
- Logo Feedback
- Worked on the Business Model
- Setting up the project including things like Firebase
- Helped with figma design
- Research and applied for different fundings to support the app
- Worked on the final paper

**Each member used their innate skills and knowledge to work hard on this project!**

## References

[1] *The reality of food waste at restaurants: Move for hunger*. The Reality of Food Waste at Restaurants | Move For Hunger. (n.d.). Retrieved May 13, 2023, from <https://moveforhunger.org/startling-reality-food-waste-restaurants#:~:text=Approximately%2085%25%20of%20the%20food,percentage%20is%20recycled%20or%20donated>

[2] Hall, K. D., Guo, J., Dore, M., & Chow, C. C. (n.d.). *The progressive increase of food waste in America and its environmental impact*. PLOS ONE. Retrieved May 13, 2023, from <https://journals.plos.org/plosone/article?id=10.1371%2Fjournal.pone.0007940>

[3] *The problem of food waste*. FoodPrint. (2022, March 15). Retrieved May 13, 2023, from <https://foodprint.org/issues/the-problem-of-food-waste/>

[4] *Mayor's Food Waste Challenge to restaurants - nyc.gov*. (n.d.). Retrieved May 13, 2023, from [https://www.nyc.gov/html/sbs/downloads/pdf/neighborhood\\_development/nddblog/FWC\\_overview.pdf](https://www.nyc.gov/html/sbs/downloads/pdf/neighborhood_development/nddblog/FWC_overview.pdf)

[5] *NY/FL Food Pantry*. Expecting Relief. (n.d.). Retrieved May 13, 2023, from <https://www.expectingrelief.org/food-pantry#:~:text=Nearly%202.1%20million%20New%20York,living%20in%20New%20York%20State.>

[6] Admin. (2016, March 31). *35 million tons of food waste and what you can do about it*. Urban Composter USA. Retrieved May 13, 2023, from <https://www.urbancomposterusa.com/35-million-tons-food-waste-can/#:~:text=A%20recent%20report%20from%20the,million%20tons%20of%20food%20waste.>

[7] HTML5 Templates, "Free HTML5 templates for download," HTML5 Templates. Available: <https://www.example.com/html5-templates>. Accessed on: May 13, 2023.

The work in this project is our own. Any outside sources have been properly cited. The project is supported by the CCNY CEN Course Innovation Grant.