MSIS 2602 – Information Systems Analysis and Design

Food Donation Management System

Jayalakahsmi Vaidyanathan

Ritika Mathur

Sarah Dihan Fernandes

Varuna Paul Jeeva

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1. Introduction

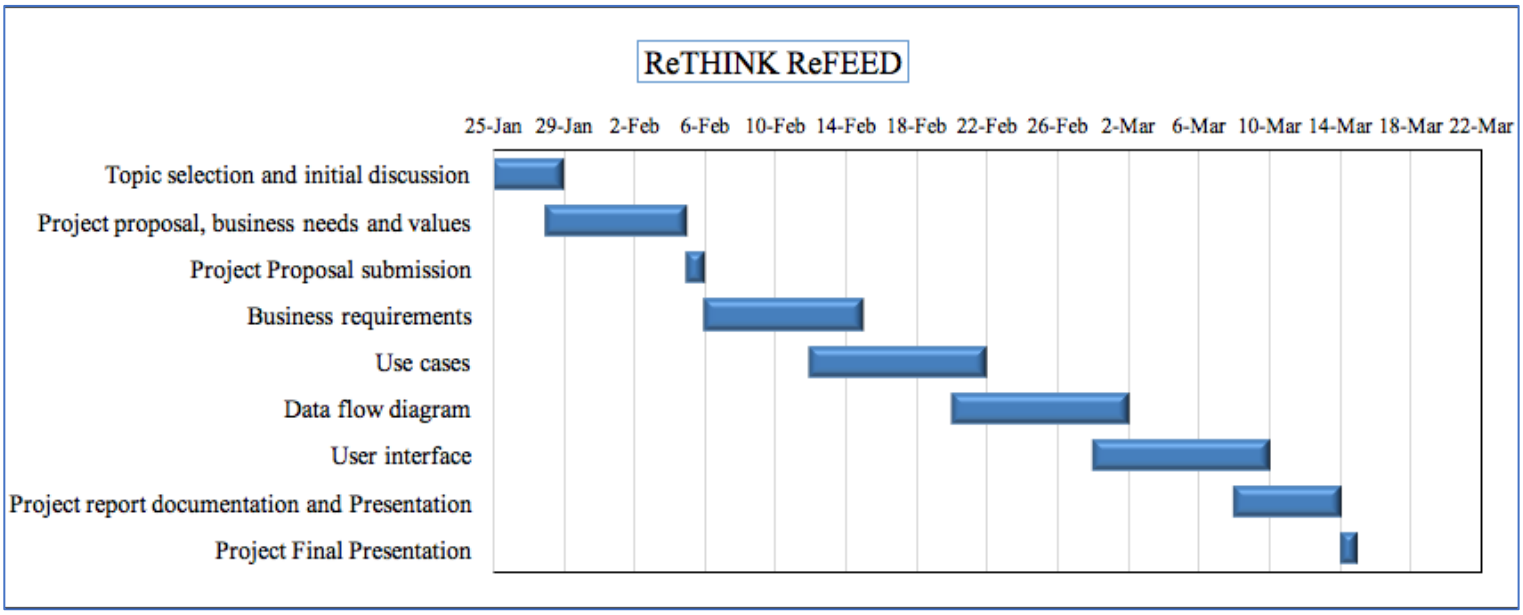
Food waste is one of the biggest problems in the world today. According to the U.N. Food and Agriculture Organization (FAO), at least 1.3 billion tons of food is lost or wasted every year globally—in fields, in storage, at restaurants, and in markets. The United States wastes about 62.5 million tons and spends $218 billion a year in "growing, processing, transporting, and disposal of food that is never eaten." On the other hand, 1 in 7 people are hungry in the US. According to the United Nations, if we recover all the food that is lost or wasted, we will have enough to feed all those who are hungry, four times over.

2. Business Description

'ReTHINK, ReFEED' is a web-based 'marketplace' that will connect the organizations and people who have excess food with nonprofits, NGOs, charities and others who need good quality food. The Food Donors such as restaurants, cafeterias, supermarkets, farms, etc. will be able to sign up with their details including their location. Aid group organizations like charities, food shelters and other nonprofits that have been carefully vetted for authenticity will also sign up with their details such as location and food preferences. Whenever the Donors have excess food, they can post the details online and the system will send alerts to all the charities and nonprofits in the system based on their location and food preferences. These charities will then be able to book the food. Once the match is made, the food rescue volunteers who work with the organization will recover the surplus food and deliver it to the charities in need. The organization will also accept financial donations to fund the various activities.

3. Gantt chart

Gantt chart showing the proposed work plan



4. Business Need

This application has been developed to reduce food waste and at the same time feed the hungry by diverting excess food to qualified NGOs, charities, nonprofits and food shelters. It will conserve the resources and improve the lives of thousands of people by providing an efficient and effortless way for both the Donors and the Charities to identify each other with just one click.

5.Business Requirements

The proposed Information System will support the following operations:

1. Account creation and management for all users including food donors (restaurants, supermarkets, farms, etc.), charities and other nonprofits and volunteers of the organization.

2. Networking services: The System will help to connect the charities and nonprofits with Food Donors based on food preferences and location.

3. Real time updates and alerts about availability of food.

4. Food Recovery and Delivery: Once the volunteer accepts a delivery, the application will provide all the necessary details including the address and navigation details.
5. Financial donation portal: The System will help the organization to receive and manage financial donations and validate them through a third-party gateway.
6. Reporting system: The System will generate monthly/weekly reports of the donations (both food and money) received and distributed.
7. Personnel management system: The System will help the organization manage its employees and volunteers.
8. User Feedback: After completion of delivery, the users can rate the organization and the volunteers and also give their feedback.

6.Business Values

We expect that the proposed system will create many tangible and intangible values for all the parties involved:
1. Reduces food wastage and ensures that all of the labor and natural resources that go into growing, processing, and marketing food doesn't go to waste.
2. Serves the hungry and needy with good quality food.
3. Helps the charities save money. This will allow them to reallocate their funds to other needs such as clothing, education, accommodation, etc.
4. Enhances inventory control for Donors: Donations can reduce overstocking problems and also help to move unsalables from grocery stores, supermarkets, farms, etc.
5. Improves the morale of the Donors and also provides tax benefits.
6. Helps the environment by reducing the amount of food that ends up in landfills.

7. Issues / Constraints

- There should be enough food donations every month to sustain the operations.
- There should be sufficient volunteers who are available to pick up food in the particular area where food donation is available.

8. Functional Requirements

8.1. Process oriented:

(i)Account creation

- The system will enable users (Food donors, Charities / NGOs and Volunteers) to create an account.
- The system will collect and store user details.
- The system will create and activate user account after validation.
- If the user is a Charity / NGO, the system will send a notice to the manager to verify it's authenticity.

(ii)Update user details

- The system should allow the user to update/change existing details.
- The system should allow the user to close the account as and when required.

(iii)Networking services

- The system should allow the donor to log in and donate food after providing all food details.
- The system will match donors with NGOs/charities based on food specifications and distance of locations.
- The system will send alerts to all charities matched.
- The system will allocate food to a charity/NGO on first come first serve basis.

(iv)Real time updates and alerts about availability of food

- The system will allow NGOs / Charities to claim food.
- The system sends an alert to all the other NGOs/charities informing them the food has been claimed now.
- The system sends alerts to all volunteers about the delivery of food from the donor to the NGO/charity.

(v)Food recovery and delivery

- The system should send alert message to nearby volunteers.
- The system should provide donor name, charity name and location of pickup and drop.
- Once the volunteer accepts the delivery, the system should record this transaction and send a confirmation message to the volunteer.

- The system should send details of volunteer, pickup time, estimated delivery time to the donor and NGO/Charity.

(vi)Financial donation

- The system will collect donation amount details from the Financial donor.
- The system will collect payment information from the donor.
- The system will validate the payment details via a third-party payment clearing house.
- The system will confirm the payment and send a receipt to the donor.

(vii)Report generation

- System must accept the duration as input from user and generate report.
- System must have the capabilities to generate weekly and monthly reports for both financial donation and food distribution.
- System must be able to generate reports in different formats (PDF, CSV, RTF, and HTML).
- System must email the reports to the email list if specified.

(viii)Personnel management system

- The system should maintain employee details.
- The system should track employee working hours.
- The system should maintain payroll details.

(ix)User feedback system

- System must send the feedback form to the NGO/ Charity center once food is delivered to them.
- System must store the user feedback into database once user submits the feedback form.

8.2. Information oriented:

- The system should store all food donor details (including name, contact details, address, etc.) in the Food Donor Datastore.
- The system should store all Charity / NGO details (including name, contact details, address, size of the charity, food preferences, etc.) in the Charity / NGO Datastore.

- The system should store all volunteer details (including name, contact details, address, vehicle size, pickup preferences) in the Volunteer Datastore.
- The system will generate unique Transaction ID for every food donation and store the donor details and the recipient charity/NGO details for each donation.
- The system will store the donated food details for every transaction.
- The system should store details of all financial donation transactions in the Financial Donation Datastore.
- The system should retain financial donation records for the current year and past 10 years.
- System must retain all the food transaction history for the current year and past 10 years.
- System must retain feedback from NGO/Charity for 10 years.

9. Non - Functional Requirements

9.1.Operational:

- The system should be accessible from wide range of devices.
- The system should work on different Web Browsers.
- The system should keep record of every transaction made.
- The system should do real time matching of volunteer, donor and NGO/Charity locations.

9.2.Performance:

- Any interaction between users and the system must not exceed 2 seconds.
- The system downloads any status parameter within 5 minutes of change.
- Any interaction between the user, volunteer, employee and the system must be real time.
- System must allow multiple users from different locations to access the application simultaneously.
- System must be available for 24 hours per day, 365 days per year.
- System must support at least 1000 users at a time.

9.3.Security:

- Only the manager will have access to all the Financial donor's information.
- The donors can see all details of the NGOs/Charities and the NGOs/charities can see all details of the donors.

- The system will not allow any changes by anyone except manager in Datastore records of donations made by financial and food donors.
- The system will have all safeguards from virus, trojan etc.

9.4.Cultural and Political:

- The system should allow only verified charities to accept the donated food.
- The system should protect the personal information of all users in compliance with the Data Protection Act.
- The system should ensure that the food donors are in compliance with applicable Food Safety Regulations and company enforced quality standards.

10. Use Cases

Use Case 1: Account Creation for Food Donors

Use Case Name: Account Creation for Food Donors	**ID:** UC-1	**Priority:** High
Brief Description: This use case describes how the system enables Food Donors to create an account.		
Actor: Food Donor		
Trigger: Food Donor wants to create an account so that he can donate food **Type** ☐ **External** ☐ Temporal		
Preconditions:		

Normal Course	**Information for Steps**
1.0 Donor wants to create an account	
1.1 The Donor provides his details	← Name, Email ID, Phone number, Address
1.2 System generates a unique User ID	→ User ID
1.3 System sends a validation link to the Donor for account activation	→ User Email ID
1.4 Donor validates the account	← User validation
1.5 System activates account	← Validated User Information

Alternative Course(s):
Post conditions: 1. The Food Donor datastore is updated.
Exceptions:

Summary:

Inputs	**Source**	**Outputs**	**Destination**
Name, Email ID, Phone number, Address	User	New User Information	Food Donor datastore
User Email ID	User		
User validation	User	Validated Account	
Validated User Information		New Donor Information	Food Donor datastore

Use Case 2: Account Creation for Charities / NGOs

Use Case Name: Account Creation for Charities / NGOs	**ID:** UC-2	**Priority:** High
Brief Description: This use case describes how the system enables Charities / NGOs to create an account.		
Actor: Charity / NGO		
Trigger: Charity / NGO wants to create an account so that they can accept the donated food **Type** ☐ **External** ☐ Temporal		
Preconditions:		

Normal Course	**Information for Steps**
1.0 Charity / NGO wants to create an account	
1.1 The Charity provides details	← Name, Email ID, Phone number, Address
1.2 System generates a unique User ID	→ User ID
1.3 The System asks the Charity to provide size of the charity and food preferences	← Charity size and Food preferences
1.4 System sends a validation link to the Charity / NGO for account activation	→ User Email ID
1.5 Charity validates the account	← User validation
1.6 System activates account	← Validated User Information
1.7 System sends notification to the Manager to check the authenticity of the Charity	→ New Charity Information

Alternative Course(s):

Post conditions:
1. The Charity / NGO datastore is updated

Exceptions:

Summary:

Inputs	**Source**	**Outputs**	**Destination**
Name, Email ID, Phone number, Address	Charity	Charity details	Charity / NGO datastore
Charity size and Food preferences	Charity	Charity Food details	Charity / NGO datastore
User Email ID	Charity		
User validation	Charity	Validated Account	
Validated User Information		Verified Account	Manager Charity / NGO Datastore

New Charity Information			

Use Case 3: Account Creation for Volunteers

Use Case Name: Account Creation for Volunteers	**ID:** UC-3	**Priority:** High
Brief Description: This use case describes how the system enables Volunteers to create an account.		
Actor: Volunteer		
Trigger: A volunteer wants to create an account so that he can deliver food. **Type** ☐ **External** ☐ Temporal		
Preconditions:		

Normal Course		**Information for Steps**
1.1 Volunteer wants to create an account		
1.1 The Volunteer provides details	←	Name, Email ID, Phone number, Address
1.2 System generates a unique User ID	→	User ID
1.3 The System asks the Volunteer to specify the size of the delivery vehicle and Volunteer's preferred timings	←	Vehicle size and Availability
1.4 System sends a validation link to the Volunteer for account activation	→	User Email ID
1.5 Volunteer validates account	←	User validation
1.6 System activates account	←	Validated User Information

Alternative Course(s):
Post conditions: 1. Volunteer Datastore is updated.
Exceptions:

Summary:

Inputs	**Source**	**Outputs**	**Destination**
Name, Email ID, Phone number, Address	Volunteer	Volunteer details	Volunteer Datastore
Vehicle size and Volunteer Availability	Volunteer	Vehicle detail and Volunteer Availabilit	Volunteer Datastore
User Email ID	Volunteer		
User validation	Volunteer	Validated Account	
Validated User Information		New Volunteer Information	Volunteer Datastore

Use case 4: Validate/update

Use Case Name: Validate/update	**ID:** UC-4	**Priority:** High
Brief Description: This describes how system will help manage its user updates.		
Actor: Volunteer or donor or NGO/Charity		
Trigger: when User returns interacts to log in or update information. **Type ☐ External ☐ Temporal**		
Preconditions: 1.Application is online. 2.Volunteer database or donor database or NGO/Charity database is online.		
Normal Course 1. User provides username and password to log in → 2. System validates the user provided password with the existing password saved on the record. ← 3. User will provide new information if they want to update existing profile. →	**Information for Steps** Username, Password User Credentials Account User information(Contact details, Email address)	
Alternative Course(s): 1.1 If the username and password doesn't match. 1.2 Password recovery options via e-mail/text method.		
Post conditions: 1. Volunteer datastore or Donor datastore or NGO/Charity datastore is updated.		

Summary:

Inputs	**Source**	**Outputs**	**Destination**
Username Password Information to update	User User User	Updated user information	Volunteer Datastore or Donor Datastore or NGO/Charity Datastore

Use Case 5: Networking services

Use Case Name: Networking services	**ID:** UC-5	**Priority:** High
Brief Description: The System will help to connect the charities and nonprofits with Food Donors based on food preferences and location.		
Actor: Donor		
Trigger: Food Donor clicks on donate **Type** ☐ **External** ☐ **Temporal**		
Preconditions: 1. Food Donor Datastore is updated. 2. Charity/NGO Datastore is updated. 3. Food Donor is authenticated.		

Normal Course	**Information for Steps**
1. Food Donor logs in and clicks on donate.	← Donor ID, Food details
2. System fetches all details for the donor.	← Donor details
3. System generates Transaction ID for the donation.	→ Transaction ID,Date,Food Donor details, Food details
4. Food Donor fills details of available food.	← Food details
5. System matches registered NGOs & charities with similar food requirements located within 10 miles of the donor.	← Charity/NGO details, Food preferences
6. Matched charities & NGOs get real time alerts by the system.	→ Donor details, Food details
7. Charities & NGOs accept food.	← Charity/NGO details
8. System accepts request on first come first serve basis.	→ Transaction ID, Charity/NGO details, Acceptance Time, Acceptance status.

Alternative Course(s):
Post conditions: 2. Food Transaction Datastore is updated.
Exceptions:
Summary: **Inputs** **Source** **Outputs** **Destination**

Donor ID, Food details Donor details Food details Charity/NGO details, Food preferences Charity/NGO details	Food Donor Food Donor Datastore Food Donor Charity/NGO Datastore NGO/Charity	Transaction ID, Donor details, Food details Donor details, Food details Transaction ID, Charity/NGO details, Acceptance Time, Acceptance status.	Food Transaction Datastore NGOs/Charities Food Transaction Datastore

Use Case 6: Real time updates

Use Case Name: Real time updates and alerts about availability of food.	**ID:** UC-6	**Priority:** High
Brief Description: When food up for donation is accepted by an NGO or charity, the donor, other NGOs/charities and volunteers receive relevant updates by the system.		
Actor:		
Trigger: Acceptance status flag changes to "Accepted". **Type ☐ External ☐ Temporal**		
Preconditions: 1. Food Transaction datastore is updated. 2. Volunteer datastore is updated.		
Normal Course 1. System fetches Acceptance status and Transaction ID 2. Food Donors are notified their food has been claimed. 3. Food donors receive Information about charity/NGO that accepted their donation. 4. System selects all matched NGOs/Charities 5. Other NGOs/charities will be notified the food has been claimed.		**Information for Steps** Acceptance Status, Transaction ID Food Donor ID, Recipient Charity/ NGO name, Transaction ID Recipient NGO/Charity name Food Donor name, Recipient Charity/NGOs details, Transaction ID. Food Donor name, Recipient Charity/NGO name

6. System finds relevant registered volunteers ←	Volunteer IDs, Food Donor name, Recipient NGO/Charity ID, Recipient NGO/Charity name, Transaction ID
7. Volunteers get alerts about new delivery request. →	Food Donor name, Recipient NGOs/Charity details

Alternative Course(s):

Post conditions:

Exceptions:

Summary:

Inputs	Source	Outputs	Destination
Acceptance Status, Transaction ID	Food Transaction Datastore.	Recipient NGO/Charity name	Food Donor
Food Donor ID, Recipient Charity/ NGO name, Transaction ID	Food Transaction Datastore.	Food Donor name, Recipient Charity/NGO name	Other Charities
Food Donor name, Recipient Charity/NGOs details, Transaction ID.	Food Transaction Datastore. Employee/Volunteer Datastore.	Food Donor name, Recipient NGOs/Charity details	Volunteer
Volunteer IDs, Donor name, Recipient NGO/Charity ID, Recipient NGO/Charity name, Transaction ID	Food Transaction Datastore		

Use case 7: Food Delivery

Use Case Name: Food Recovery and Delivery	**ID:** UC-7	**Priority:** High
Brief Description: Volunteer accepts a delivery, the application will provide all necessary details.		
Actor: Volunteer		
Trigger: Volunteer gets an alert message on the phone app **Type** ☐ **External** ☐ **Temporal**		
Preconditions: 1.Volunteer active. 2.Volunteer receives an alert.		

Normal Course	**Information for Steps**
1. Volunteer receives food delivery alert on the mobile app. ←	Volunteer ID ,Alert message
2. Volunteer clicks on the alert. The app displays the pick up and drop location and navigation details. ←	Donor Name, NGO/Charity name, Donor location, NGO/Charity location, Preferred pick up time.
3. Volunteer accepts the request sets the time for pick up. →	Volunteer ID, Donor ID, NGO/Charity ID, Pickup time.
4. System sends confirmation to the volunteer. →	Confirmation ID, Donor name, NGO/Charity name, Donor location, NGO/Charity location, Pickup time.
5. System sends confirmation to the food donor and recipient with volunteer details and pick up and estimated delivery time. →	Volunteer name, Pickup time, Estimated delivery time.
6. Once the food is delivered, Volunteer clicks on delivery completed →	Update delivery complete status

Alternative Course(s):
Post conditions: 3. Delivery datastore is updated. 4. Volunteer and Donor get details of pickup and delivery.

Exceptions: E1: Volunteer doesn't accept the delivery alert. 1.System will resent the alert message to other nearby volunteers.			
Summary: **Inputs**	**Source**	**Outputs**	**Destination**
pick up time	Volunteer	Volunteer ID, Alert message Volunteer ID, Donor ID, NGO/Charity ID, Pickup time. Volunteer name, Pickup time, Estimated delivery time. Confirmation ID, Donor name, NGO/Charity name, Donor location, NGO/Charity location, Pickup time	Food Transaction Data Store Delivery datastore Donor and NGO/Charity Volunteer

Use Case 8: Financial Donation

Use Case Name: Financial Donation	**ID:** UC-8	**Priority:** High
Brief Description: This use case describes how the Financial Donor donates money to the organization.		
Actor: Financial Donor		
Trigger: Financial Donor wants to donate money **Type** ☐ **External** ☐ Temporal		
Preconditions: 1. Third party payment gateway is set up.		

Normal Course	**Information for Steps**
1.0 Donor wants to donate money	
1.1 Donor clicks on 'Donate'	← Donor Name, Contact details
1.2 The System requests the Donor to specify the amount he wants to donate	← Donation amount
1.3 System collects Donor's Payment information	← Payment details, Billing address
1.4 Donor confirms Payment transaction	← Payment confirmation
1.5 System obtains Payment Authorization from Payment clearing house	← Payment Authorization
1.6 System processes donation	← Payment details
1.7 System sends confirmation and receipt to Donor	→ Payment Receipt

Alternative Course(s):

Post conditions:
1. The Financial Donation datastore is updated.

Exceptions:

E1: Payment is not authorized (occurs at step 1.5)

1. System displays message that payment is not accepted
2. System asks Donor to enter new payment information or exit
3. System terminates use case if Donor specifies exit; otherwise returns to Normal Course (step 1.5)

E2: Donor cancels payment (occurs at step 1.4)

1. Donor cancels payment transaction
2. System terminates use case

Summary:

Inputs	**Source**	**Outputs**	**Destination**
Donor Name, Contact details	Donor	Donor details	Financial Donation datastore
Donation amount	Donor	Donation details	Financial Donation datastore
Payment details, Billing address	Donor	Payment details	Financial Donation datastore
Payment confirmation	Payment clearing house		
Payment Authorization			

Payment Acceptance		Payment Receipt	Donor

Use Case 9: Reporting System

Use Case Name: Reporting System	**ID: 9**	**Priority: High**
Brief Description: The system generates report about the quantity of food distributed or amount of financial donations collected weekly/monthly. Weekly report – end of a week, Monthly Report – End of month		
Actor: Manager		
Trigger: Manager wants to generate a report. **Type** ☐ **External** ☐ **Temporal**		
Preconditions: 1. The Manager is authenticated to access the system 2. The food distribution and financial donation details are available up to date in the system 3. The report type includes: PDF, CSV, RTF, and HTML.		
Normal Course **1.0 Manager accesses the Reporting from the application** 1. System presents report type list – Monthly/ Weekly 2. Manager selects the report duration (Weekly/Monthly) 3. Upon success, system prompts the user to select a file type to render the report in 4. Manager selects a rendering type 5. System generates report as defined by the selected report type 5.1 System displays the report if display the result is selected 5.2 System emails the report to the distribution list if specified		**Information for Steps** → Report type list ← Chosen Duration ← File type Chosen File type → Generated report → Report Displayed → Email
Alternative Course(s):		
Post conditions: 1. Reports are generated which can be published on the website		

Exceptions:			
Summary: **Inputs**	**Source**	**Outputs**	**Destination**
Report type list Chosen Duration File type Chosen File type Generated report Report Displayed Email	Manager Manager Financial Donation, Food transaction Datastores	Report type list Report generation File type Report generation Report Online Report Report Attachment	Manager Manager Manager/email recipient Manager Manager/Email Distribution List

Use case 10: Personnel Management

Use Case Name: Personnel Management system	**ID:** UC-10	**Priority:** High
Brief Description: This describes how system will help the organization manage its employees		
Actor: Manager		
Trigger: Manager updates employee details into the system. **Type** ☐ **External** ☐ **Temporal**		
Preconditions: 1.Manager is authenticated. 2.Employee Database is available.		

Normal Course	**Information for Steps**
1. Manager enters employee details →	Employee name, Contact info, Work details.
2. Manager accepts the timesheet submitted by employee. ←	Timesheet details. Pay grade.
3. Manager enters employee pay grade. →	Timesheet details, Pay grade.
4. The system calculates the salary for the employee. ←	Pay check details.

5. The system issues pay check to the employee. →	Salary record updates.
6. The system generates salary record. →	
Alternative Course(s):	
Post conditions: 1. Employee Database is updated.	

Summary:

Inputs	Source	Outputs	Destination
Employee name, Contact info, Work details.	Manager	Pay check details.	Employee
Timesheet details.	Employee	Salary record updates.	Employee datastore
Pay grade	Manager		
Timesheet details, Pay grade	Employee datastore		

Use Case 11: Feedback system

Use Case Name: Feedback system	**ID:** UC-11	**Priority: High**
Brief Description: The system requests and receives feedback from the NGO/ Charity center regarding the food service		
Actor: NGO/ Charity Center		
Trigger: Food has been delivered and delivery_status has changed to "Delivered" status in Delivery Datastore **Type ☐ External ☐ Temporal**		
Preconditions: 1. The food is delivered and recorded in the database 2. The details of the NGO/ Charity center is already available in the database 3. Automatic feedback link sent to the NGO/ Charity Centers upon delivery status change		
Normal Course **1.0** The food is delivered and recorded in the database	**Information for Steps**	

1. Feedback form as a link is sent to the NGO/ Charity center →	User Feedback Form
2. NGO/ Charity Centre fills in feedback form and submits, which is stored in database ←	Filled feedback form
3. Manager views the feedback report from database →	User Feedback report

Alternative Course(s):

Post conditions:

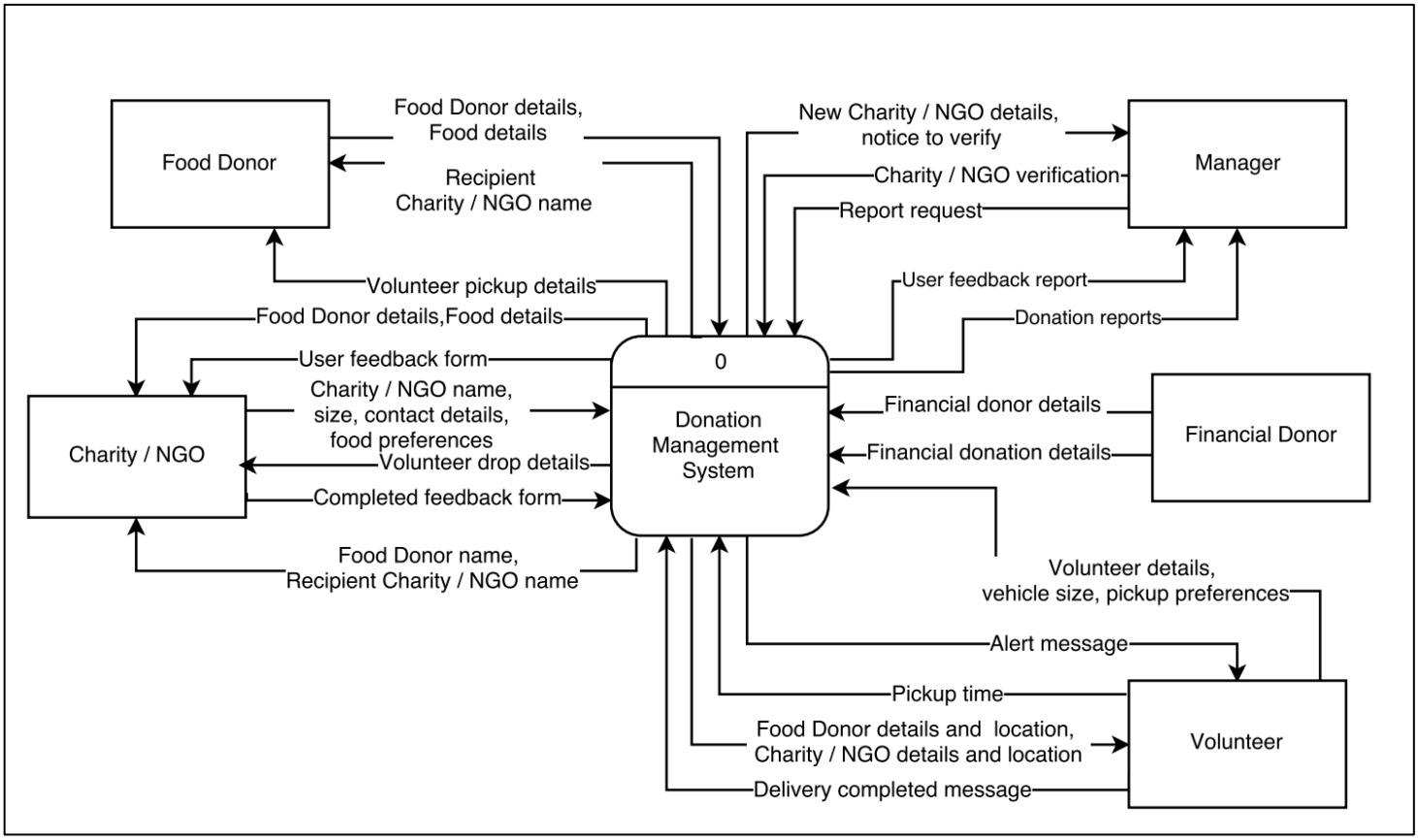
Exceptions:

Summary:

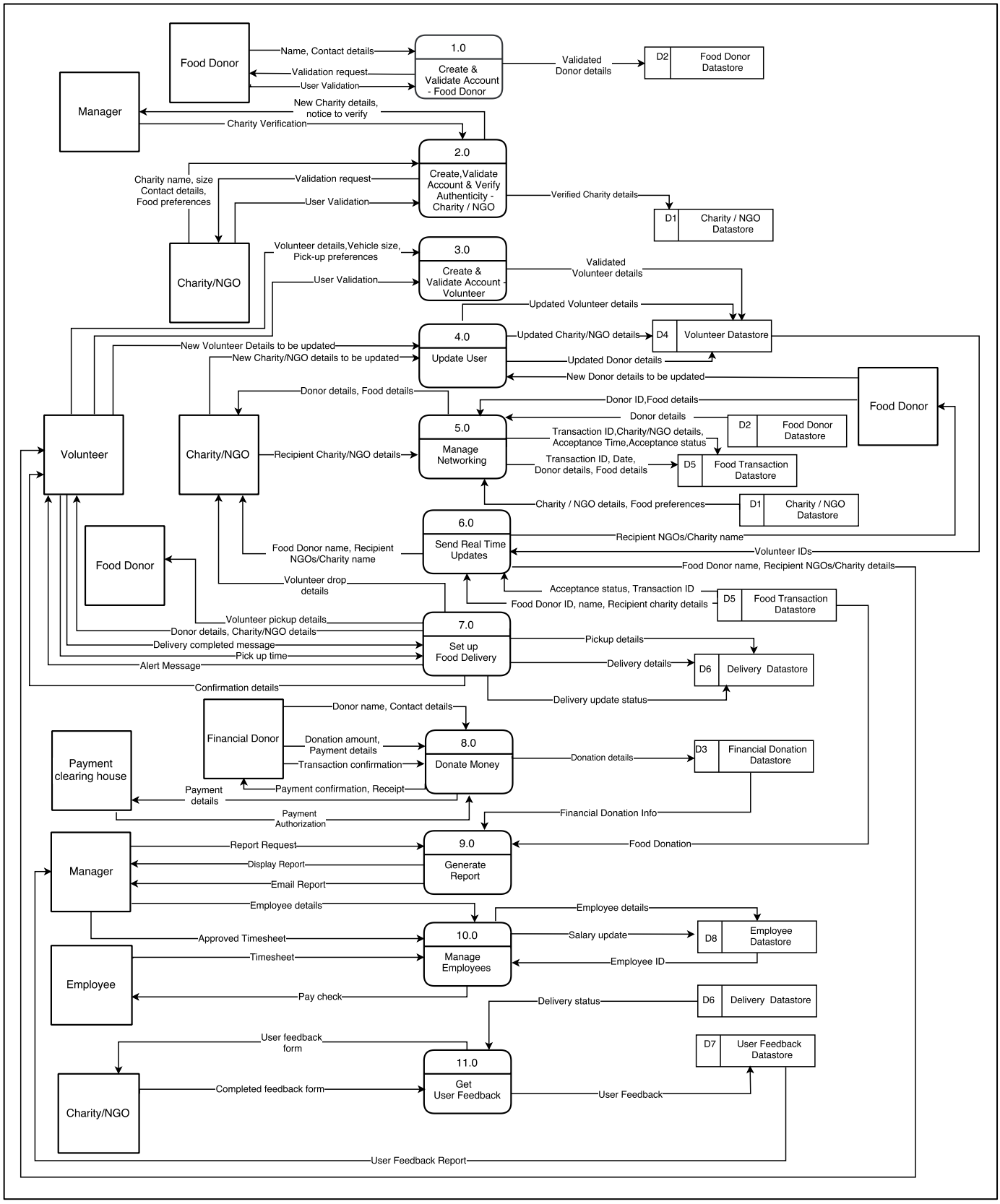
Inputs	**Source**	**Outputs**	**Destination**
User Feedback Link Filled feedback form User Feedback report	Delivery_status in Delivery datastore NGO/ Charity Centre User Feedback Details	Feedback Link Completed Feedback form Feedback Report	NGO/ Charity Centre User Feedback Datastore Manager

11. Data Flow Diagrams

11.1.Context Diagram

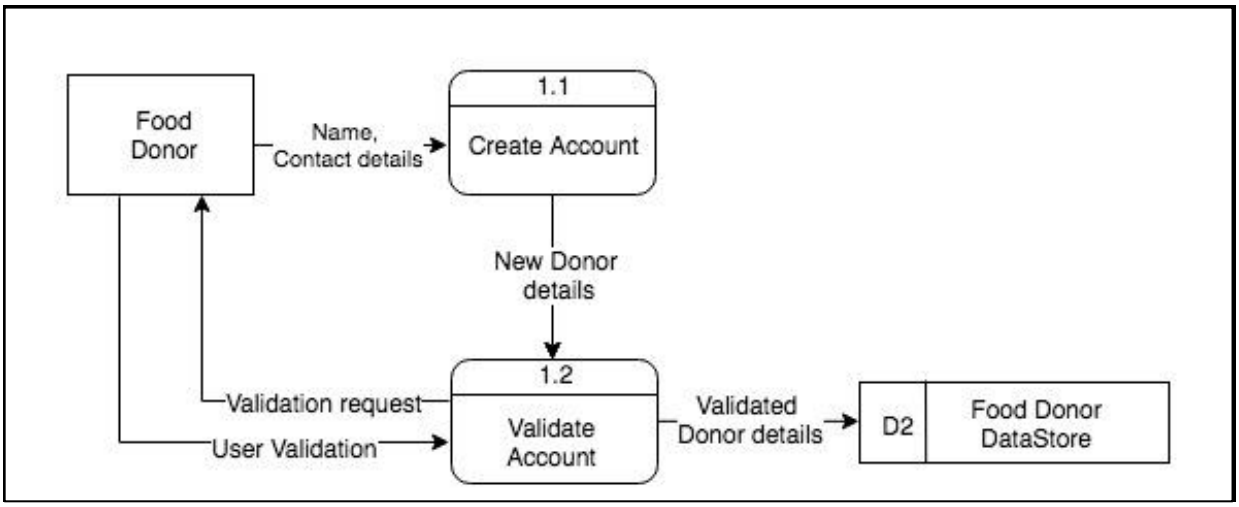


11.2. Level 0 DFD

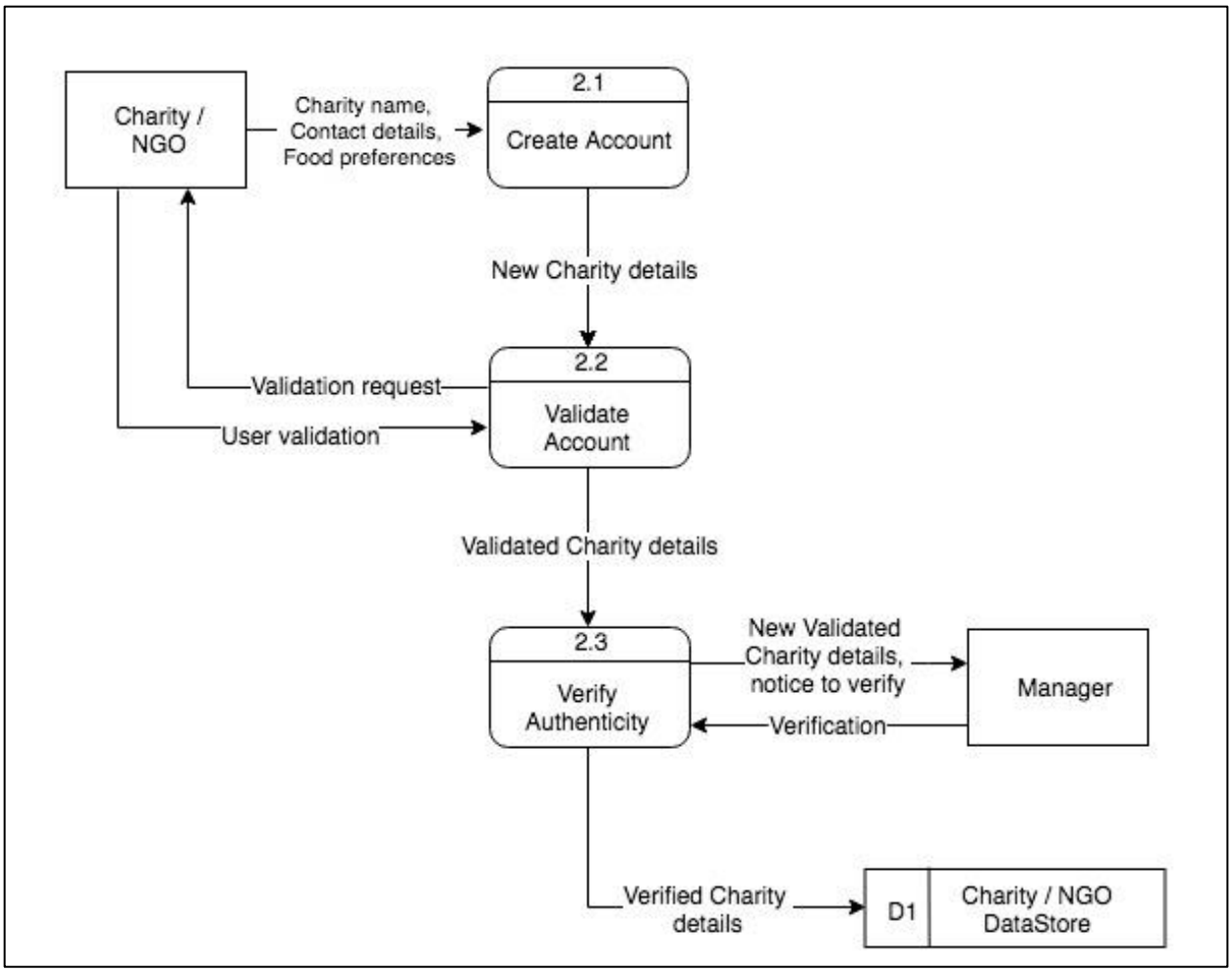


11.3.Level 1 DFD

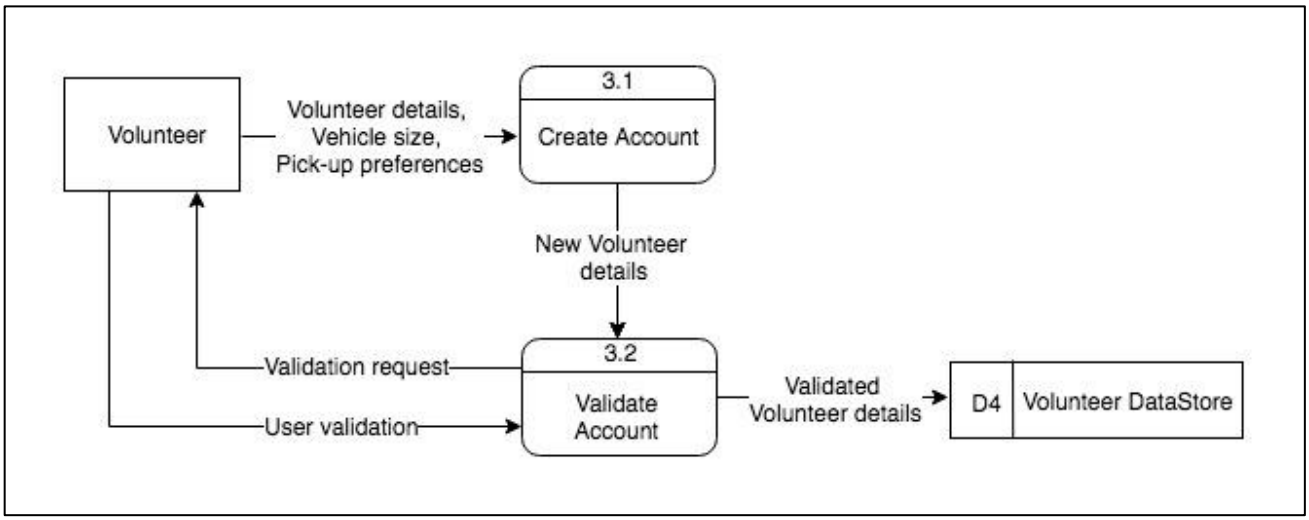
Process 1: Create and Validate account – Food Donor



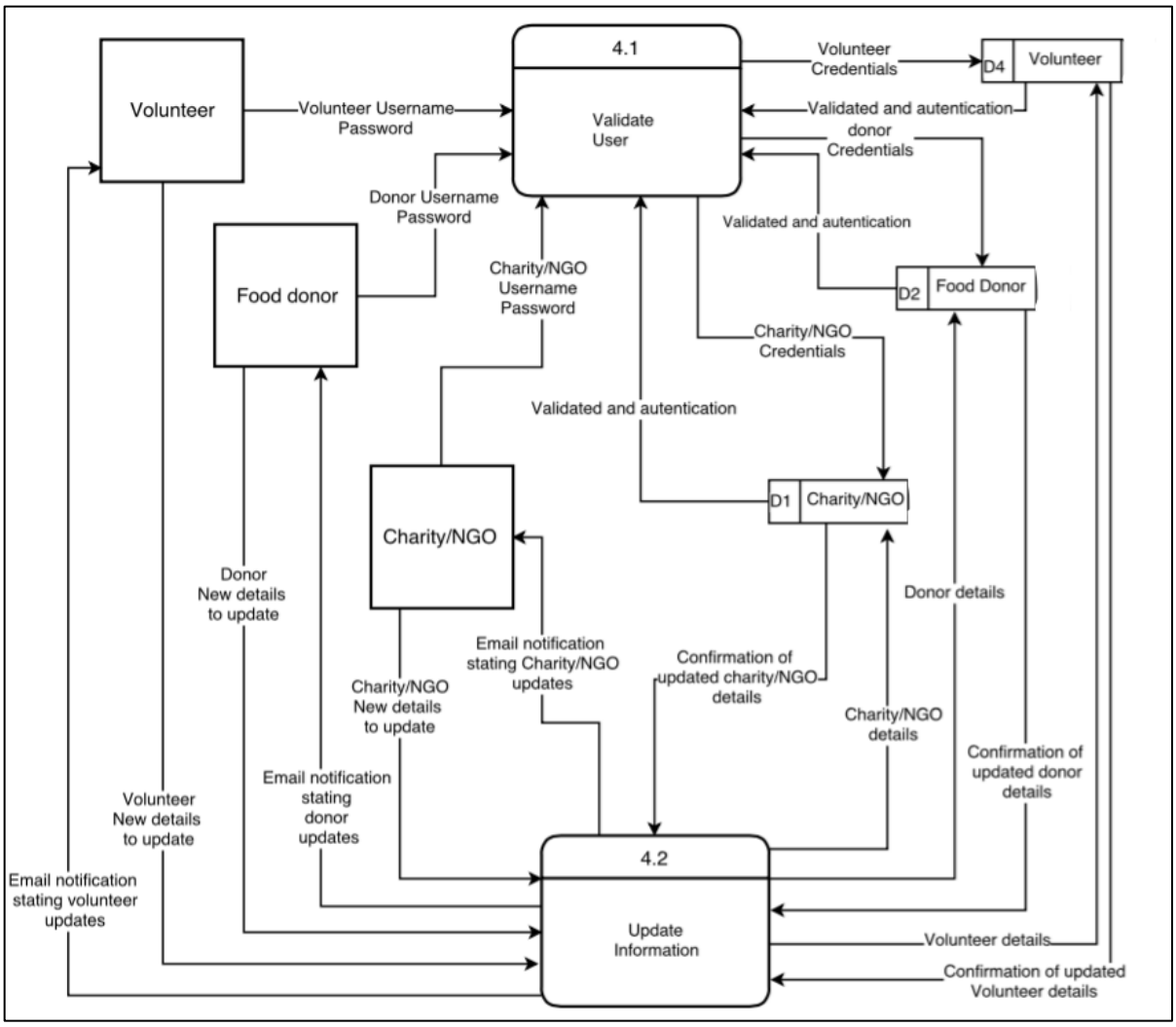
Process 2: Create, Validate account and verify Authenticity – Charity / NGO



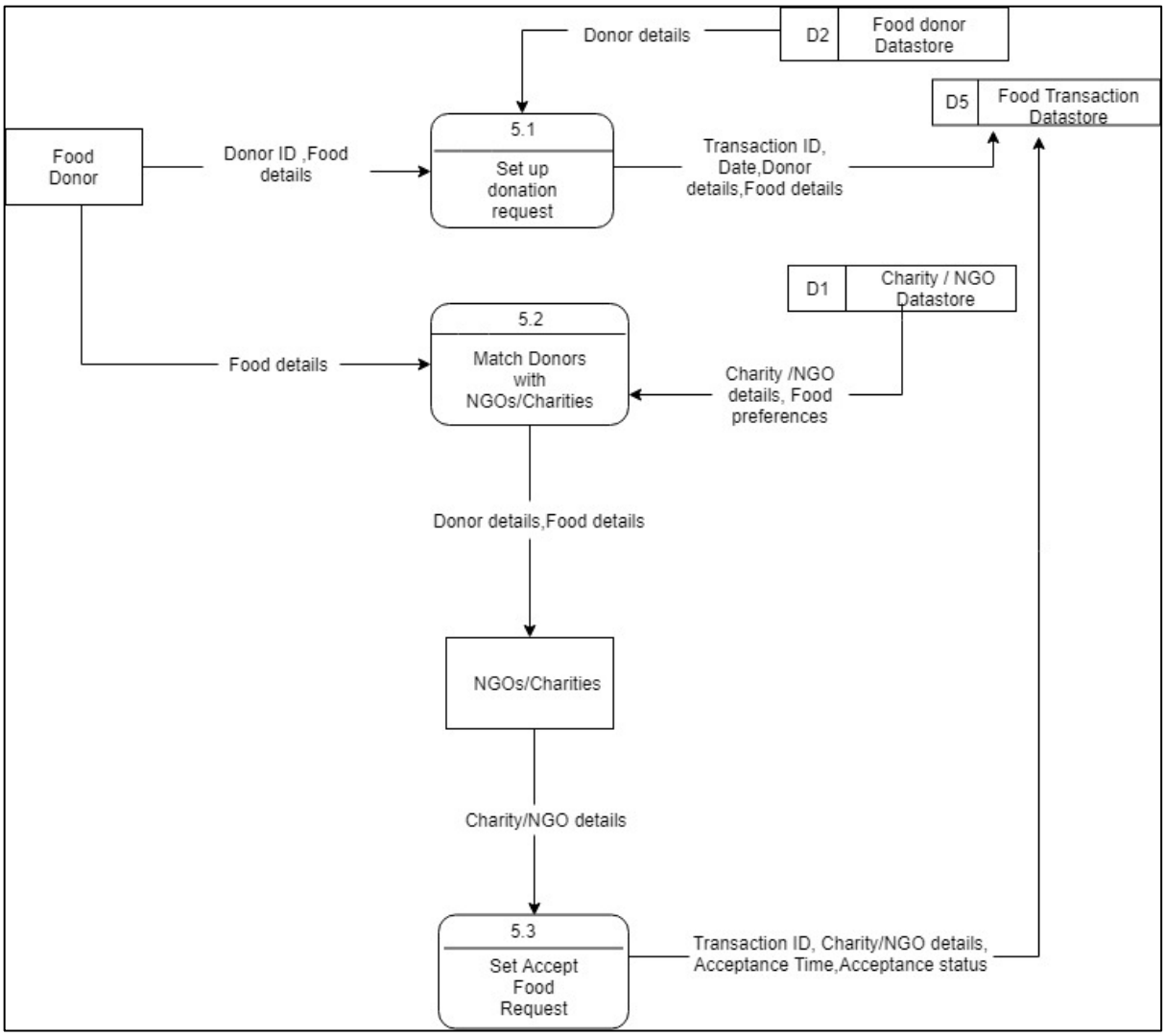
Process 3: Create and Validate account - Volunteer



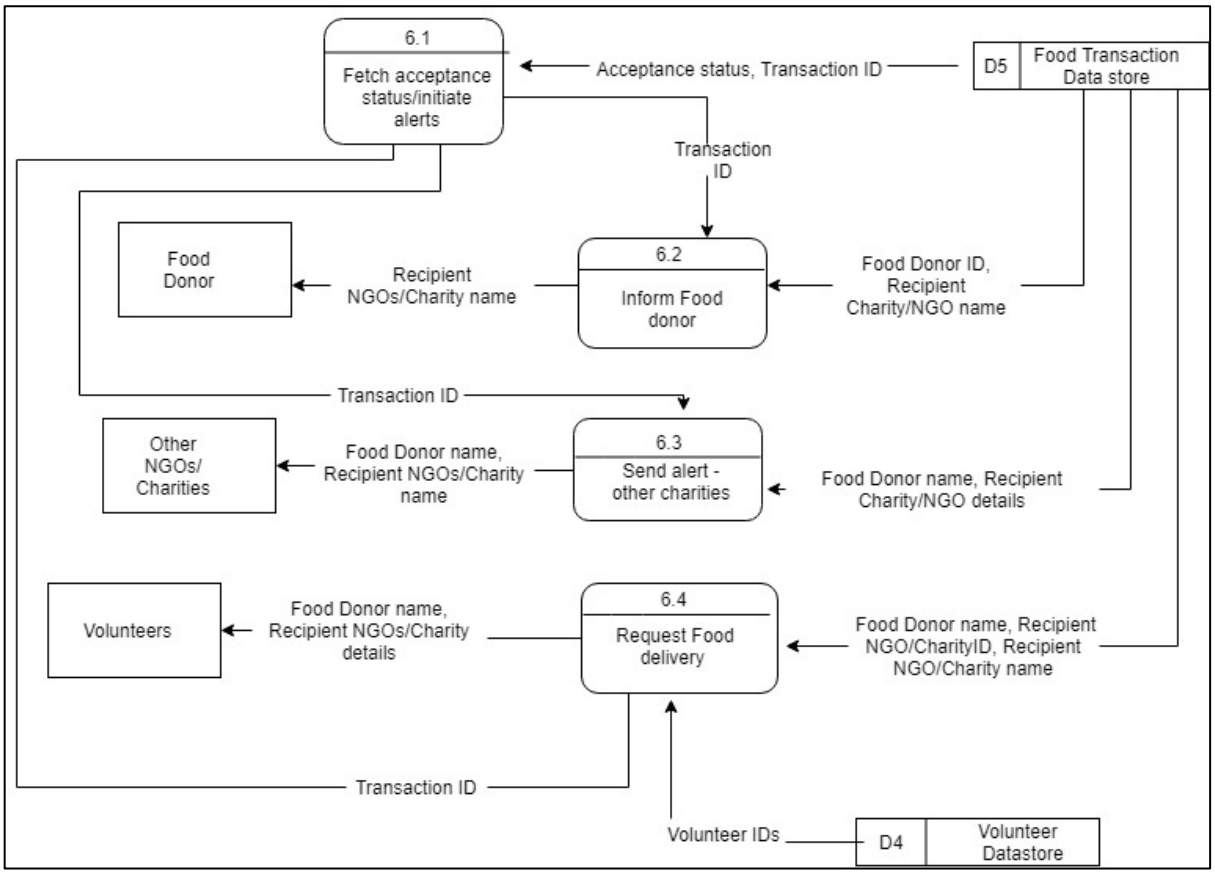
Process 4: Validate user



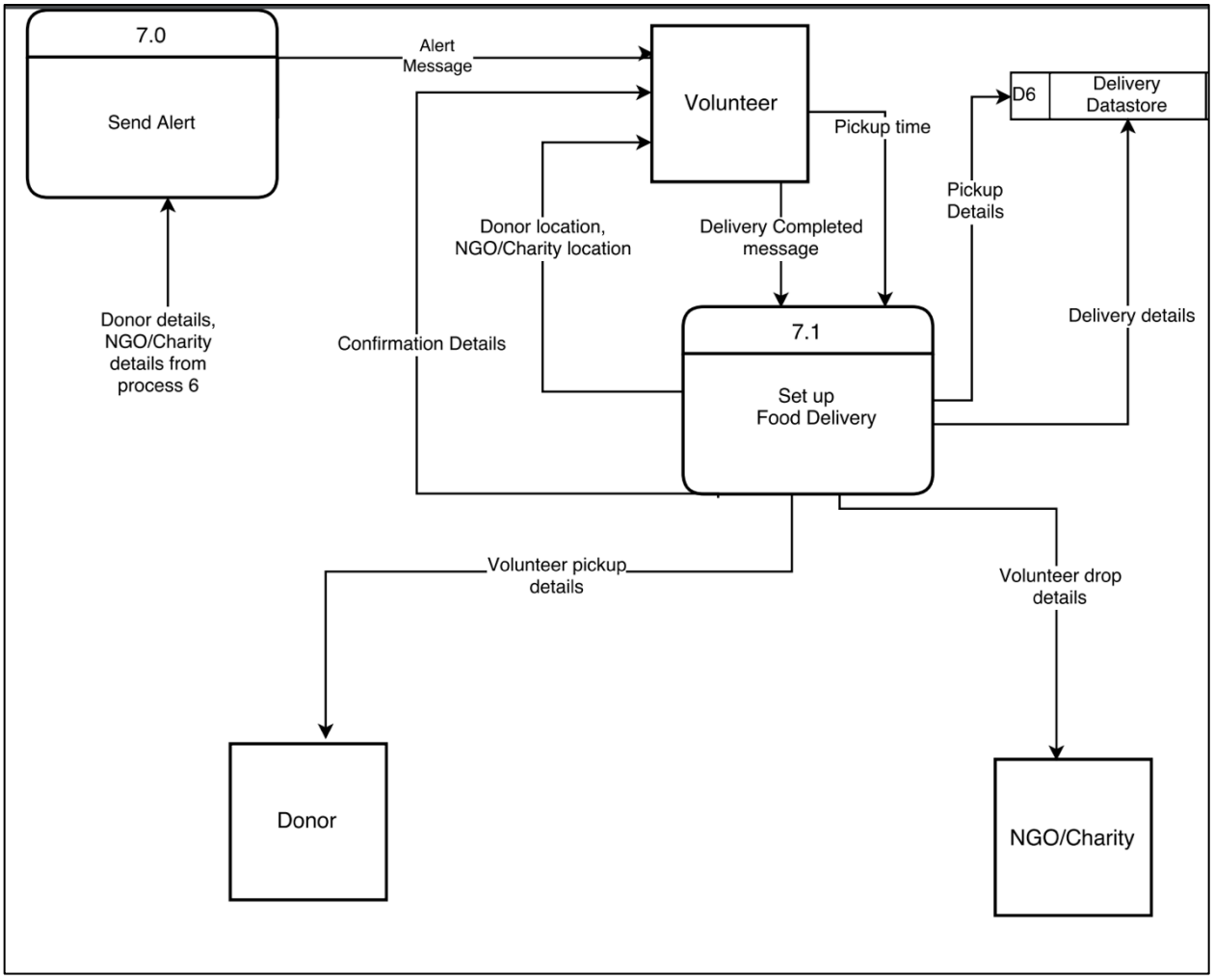
Process 5: Networking services


Donor details
D2
Food donor Datastore
D5
Food Transaction Datastore
Food Donor
Donor ID ,Food details
5.1
Set up donation request
Transaction ID, Date,Donor details,Food details
D1
Charity / NGO Datastore
5.2
Match Donors with NGOs/Charities
Food details
Charity /NGO details, Food preferences
Donor details,Food details
NGOs/Charities
Charity/NGO details
5.3
Set Accept Food Request
Transaction ID, Charity/NGO details, Acceptance Time,Acceptance status

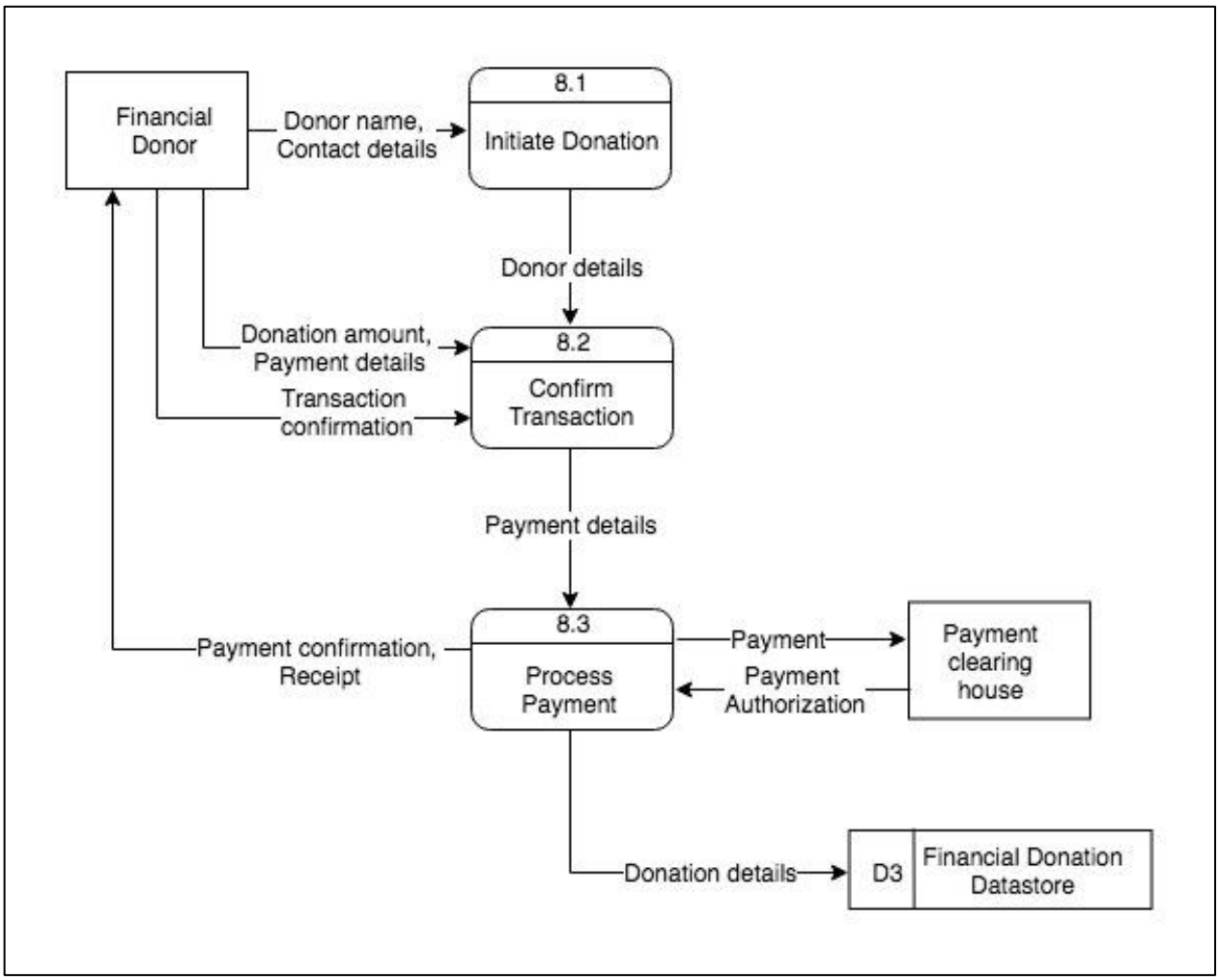
Process 6: Real time updates and alerts about availability of food



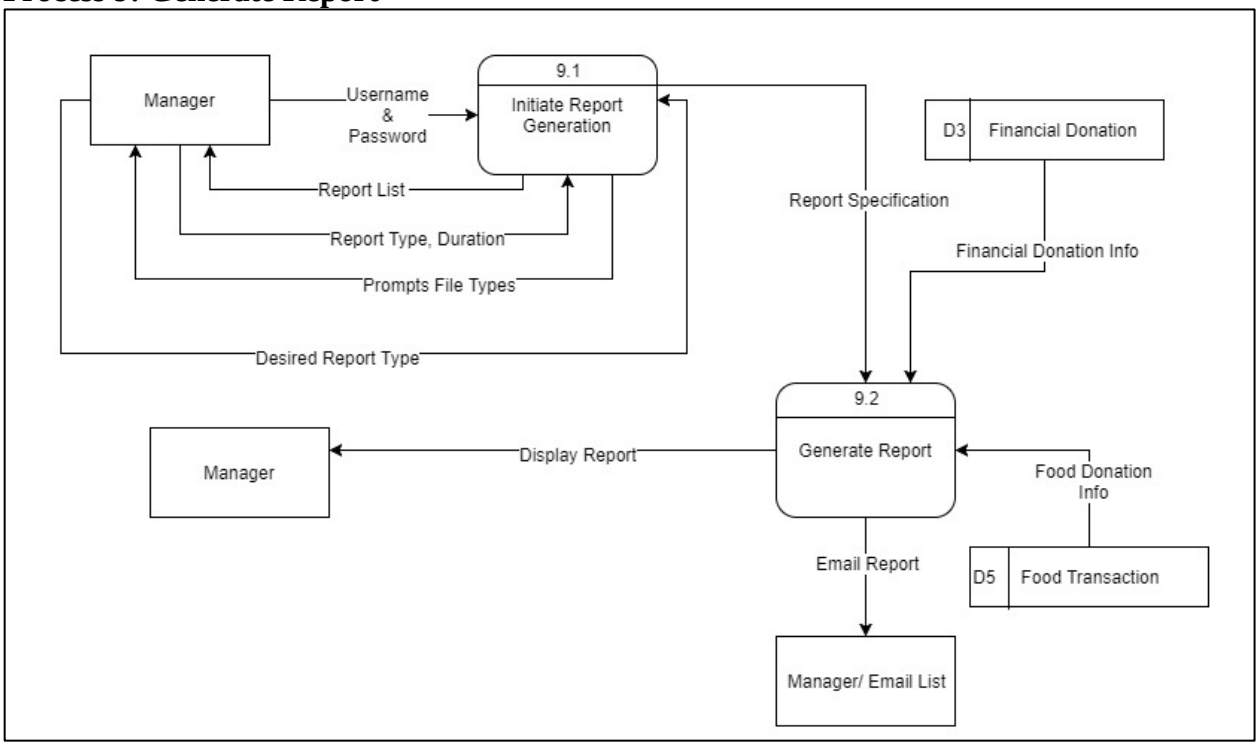
Process 7: Food Delivery



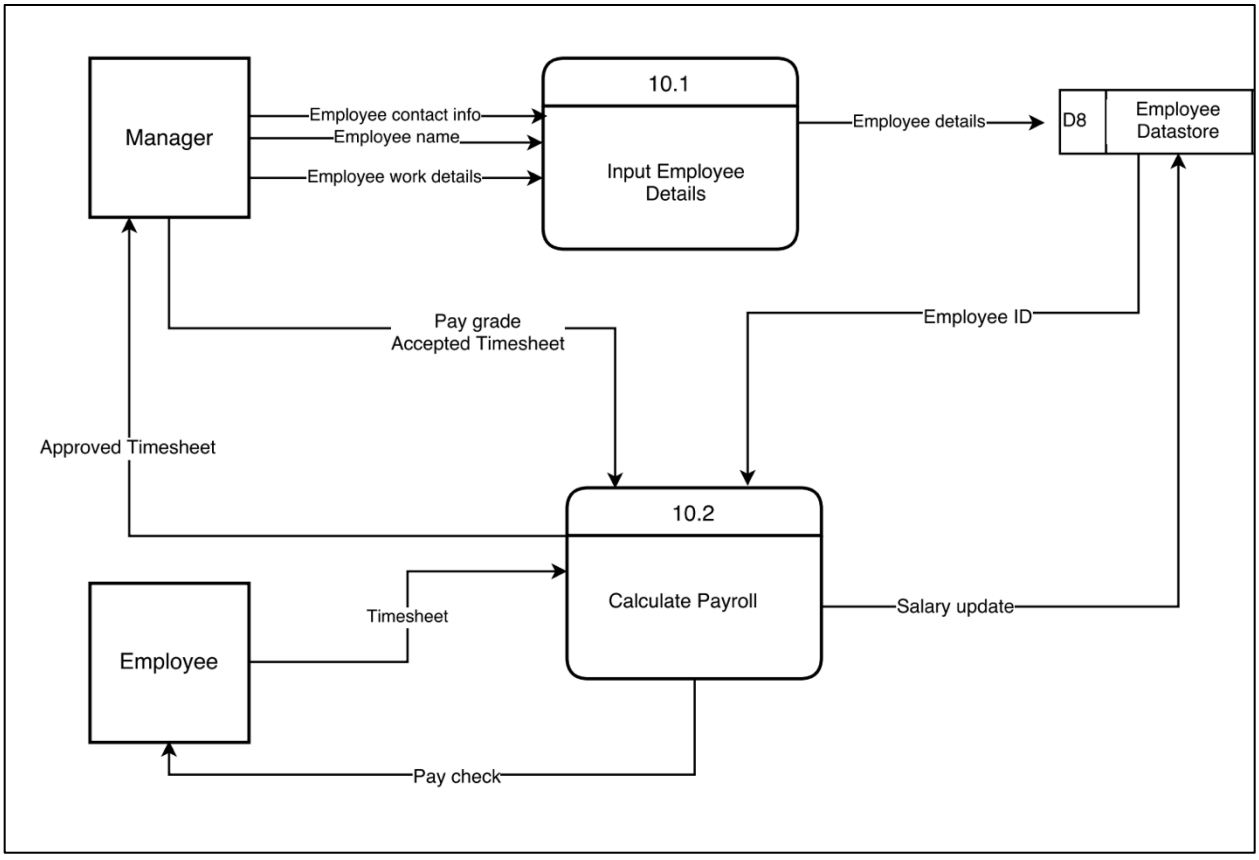
Process 8: Donate Money



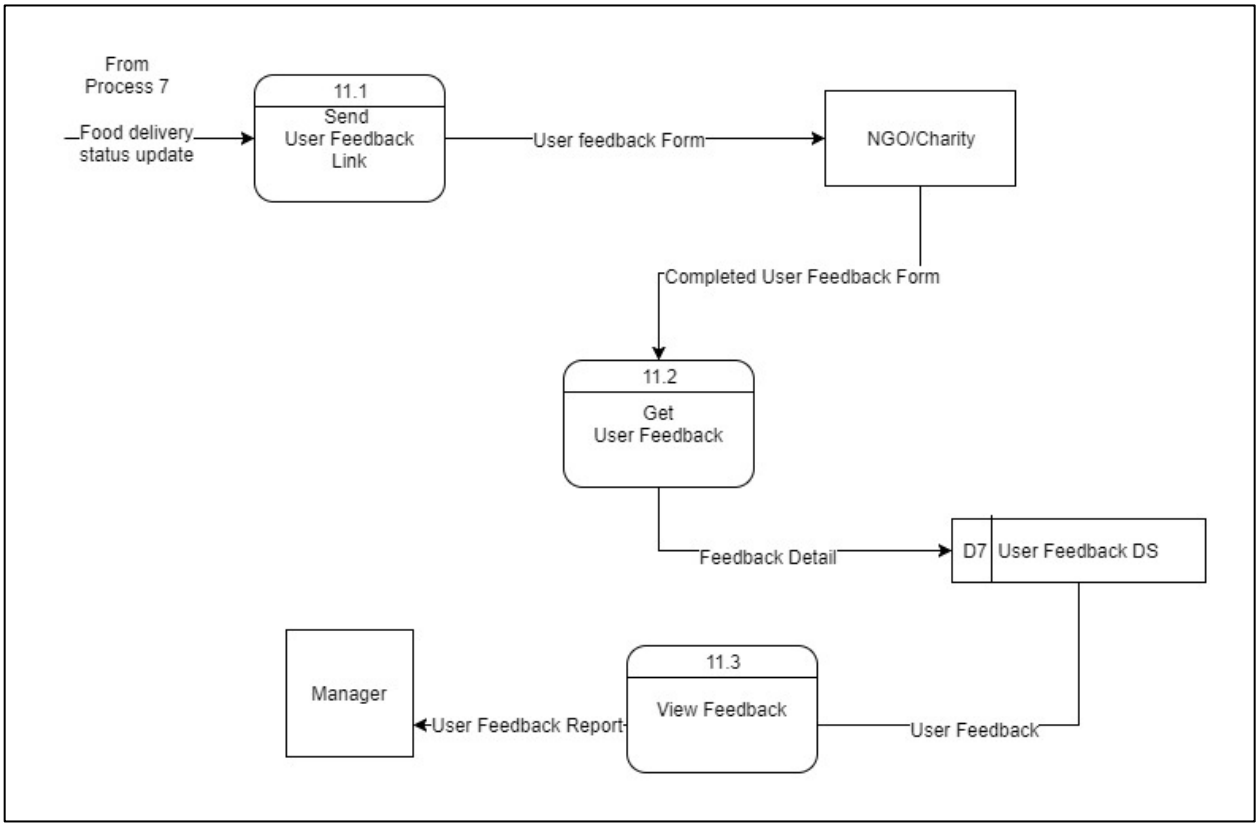
Process 9: Generate Report



Process 10: Personnel management



Process 11: Get User Feedback



12.Data Dictionary

Charity / NGO Datastore

charity_id	charity_ name	address	email_id	contact_nr	size	food_preference
Primary Key	Not Null	Not Null	Not Null	Not Null	Not Null	
1001	Feeding SF	1042, Kearny Street, CA 94133	feedingsf@gmail.com	650-124-5699	100	Vegetarian

Data Dictionary for Charity / NGO Datastore

Column Name	Column Description	Data Type
charity_id	Unique identifier generated by system for every Registered Charity/NGO	INT
charity_name	Name of the Charity/NGO	VARCHAR
address	Address of the Charity/NGO	VARCHAR
email_id	Email address of the Charity/NGO	VARCHAR
contact_nr	Contact Phone number of the Charity/NGO	VARCHAR
size	Number of beneficiaries in the Charity/NGO	INT
food_preference	Preference of the food desired by the Charity/NGO	VARCHAR

Food Donor Datastore

food_donor_id	donor_name	address	email_id	contact_nr
Primary Key	Not Null	Not Null		Not Null
2001	ABC Corporation	1256, Mission Street, CA 94146	mike@abc.com	650-999-0101

Data Dictionary for Food Donor Datastore

Column Name	Column Description	Data Type
food_donor_id	Unique identifier generated by system for every Food donor	INT
donor_name	Name of the Donor	VARCHAR
address	Address of the Donor	VARCHAR
email_id	Email address of the Donor	VARCHAR
contact_nr	Contact Phone number of the Donor	VARCHAR

Volunteer Datastore

vol_id	vol_f_nm	vol_l_nm	vol_address	vol_contact	vol_email	vol_veh_type	vol_veh_type_desc	vol_desc_info
Primary Key	Not Null	Not Null	Not Null	Not Null	Not Null	Not Null	Not Null	Null
50001	Charles	Kenny	1033, XYZ Avenue, CA 94133	650-456-5689	CKenny@gmail.com	1	Car	I am intereste d in Social Service

Data Dictionary for Volunteer Datastore

Column Name	Column Description	Data Type
vol_id	Unique identifier generated by system for every Volunteer	INT
vol_f_nm	First Name of the Volunteer	VARCHAR
vol_l_nm	Last Name of the Volunteer	VARCHAR
vol_address	Address of the Employee	VARCHAR
vol_contact	Contact Phone number of the Employee	VARCHAR
vol_email	Email ID of the Employee	VARCHAR
vol_veh_type	Vehicle type based on size	INT
vol_veh_type_desc	Vehicle type description	VARCHAR
vol_desc_info	About the Volunteer	VARCHAR

Employee Datastore

emp_id	emp_name	emp_address	emp_contact	emp_email	emp_dsigntn	emp_paygrade	emp_timesheet	emp_salary
Primary Key	Not Null	Not Null	Not Null	Not Null	Not Null	Not Null	Not Null	Not Null
30001	John Smith	1035, Walsh Avenue, CA 94133	650-124-5699	Jsmith@gmail.com	Manager	B	160	60,000

Data Dictionary for Employee Datastore

Column Name	Column Description	Data Type
emp_id	Unique identifier generated by system for every Employee	INT
emp_name	Name of the Employee	VARCHAR
emp_address	Address of the Employee	VARCHAR
emp_contact	Contact Phone number of the Employee	VARCHAR
emp_email	Email ID of the Employee	VARCHAR
emp_dsigntn	Designation of the employee	VARCHAR
emp_paygrade	Pay grade of the employee	VARCHAR
emp_timesheet	Number of hours clocked by the employee on timesheet	VARCHAR
emp_salary	Salary of the employee	DOUBLE

Food Transaction Datastore

transaction_id	donor_id	charity_id	date	food_item	donor_food_type	charity-food_type	people_count	accept_time	acceptance_status
Primary Key	Foreign key	Foreign key	Not Null	Not Null			Not null	Not Null	Not Null
1001	2001	3001	02/03/2018	Lentil Soup, Bread Loaf	Vegetarian	Vegetarian	30	20:30	Accepted

Delivery Datastore

delivery_id	transaction_id	volunteer_id	pick_time	est_del_time	delivery_status
Primary Key	Forign key	Foreign key	Not null	Not null	Not null
9002	1001	6001	19:00	21:00	Delivered

Data Dictionary for Food Transaction Datastore and Delivery Datastore

Column Name	Column Description	Data Type
transaction_id	Unique identifier generated by system for every food donation transaction	INT
donor_id	Unique identifier assigned to food donors on account creation	VARCHAR
charity_id	Unique identifier assigned to food donors on account creation	VARCHAR
date	Date of food donation	DATE
food_item	Name of the food items being donated	VARCHAR
donor_food_type	The specific type of food being donated	VARCHAR
charity_food_type	The specific type of food preferred by the Charity	VARCHAR
people_count	Number of people the donated food is expected to serve	INT
accept_time	Time the donation is accepted by Charity/NGO	TIME
delivery_id	Unique identifier assigned to the deliver	INT
volunteer_id	Unique identifier assigned to volunteers on account creation	VARCHAR
pick_time	Time given by volunteer for food pick up from donor	TIME
est_del_time	Estimated pick up time of donated food by volunteer	TIME
delivery_status	Confirmation flag that food has been delivered to Charity/NGO	INT

Financial Donation Datastore

financial_donation_id	donor_name	billing_address	email_id	contact_nr	donation_amount	donation_date
Primary Key	Not Null	Not Null	Not Null	Not Null	Not Null	Not Null
8001	Ashton Paul	2042, Millard drive, CA 95123	apaul@gmail.com	408-124-8800	70	2018-01-10

Data Dictionary for Financial Donation Datastore

Column Name	Column Description	Data Type
financial_donation_id	Unique identifier generated by system for every Financial Donation made	INT
donor_name	Name of the Financial donor	VARCHAR
billing_address	Billing Address of the Financial donor	VARCHAR
email_id	Email address of the Financial donor	VARCHAR
contact_nr	Contact Phone number of the Financial donor	VARCHAR
donation_amount	Amount donated in Dollars	FLOAT
donation_date	Date of the financial donation	DATE

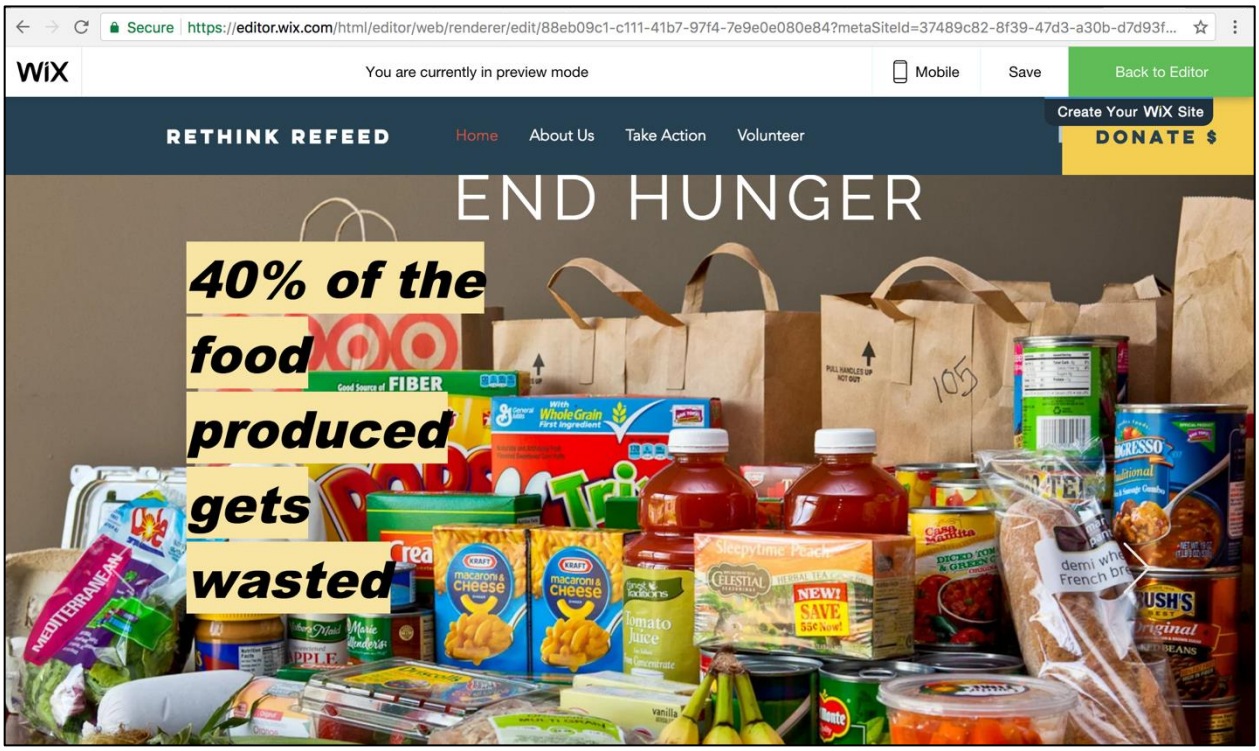
User Feedback Datastore

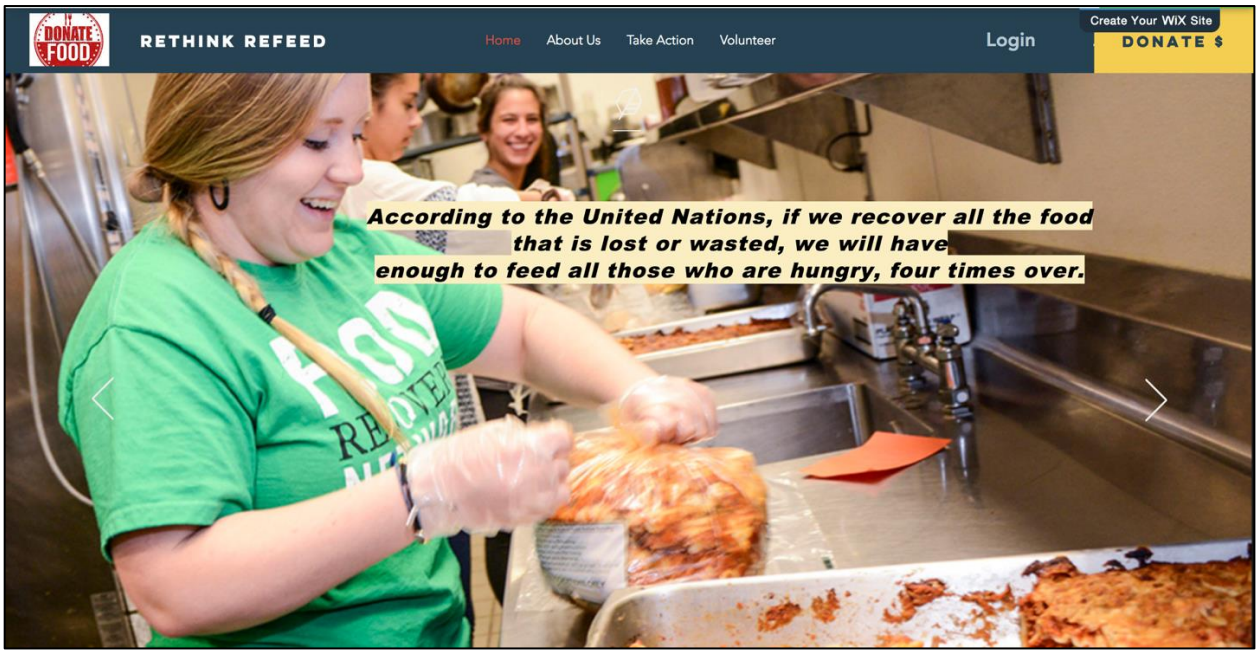
fb_id	transaction_id	fb_date	qn_1	qn_2	qn_3	qn_4	overall_rate	other_comnts
Primary Key	Foreign Key	Not Null	Not Null	Not Null	Not Null	Not Null	Not Null	Null
9001	1001	03/07/2018	3	4	5	3	4.5	Overall a good Service

Data Dictionary for User Feedback Datastore

Column Name	Column Description	Data Type
fb_id	Unique identifier generated by system for every Feedback	INT
transaction_id	Food Donation Transaction ID	VARCHAR
fb_date	Date when Feedback form is submitted by NGO/Charity	DATE
qn_1	Rating given for Feedback question 1	INT
qn_2	Rating given for Feedback question 2	INT
qn_3	Rating given for Feedback question 3	INT
qn_4	Rating given for Feedback question 4	INT
overall_rate	Overall Rating given for the service	INT
other_comnts	Other Feedback Given by NGO/Charity	VARCHAR

14.User Interface





RETHINK REFEED

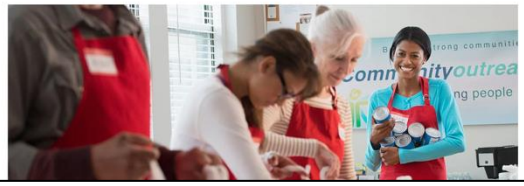
Home About Us Take Action Volunteer Login

Create Your WiX Site

DONATE $

ABOUT US

'ReTHINK, ReFEED' is a web-based 'marketplace' that will connect the organizations and people who have excess food with nonprofits, NGOs, charities and others who need good food. The Food Donors such as restaurants, cafeterias, supermarkets, farms, etc. will be able to sign up with their details including their location. Aid group organizations like charities, food shelters and other nonprofits that have been carefully vetted for authenticity will also sign up with their details such as location and food preferences. Whenever the Donors have excess food, they can post the details online and the system will send alerts to all the charities and nonprofits in the system based on their location and food preferences. These charities will then be able to book the food. Once the match is made, the food rescue volunteers who work with the organization will recover the surplus food and deliver it to the charities in need. The organization will also accept financial donations to fund the various activities.



RETHINK REFEED

Home About Us Take Action Volunteer Login/Sign up

Create Your WiX Site

DONATE $

TAKE ACTION

DONATE FOOD

Our donor partners range from large food distributors to small mom-and-pop stores, restaurant chains, urban farms and even other nonprofits! No matter how big or small the donor or donation, every partner has a significant impact.

RECEIVE FOOD

We partner with nonprofits that serve populations in need–from pantries, to homeless shelters, to backpack projects, subsidized day care centers and church programs. We want to be where people are.

WAYS YOU CAN DONATE

In Person/Mail

500 ABC Street
San Francisco, CA xxxxx

Online

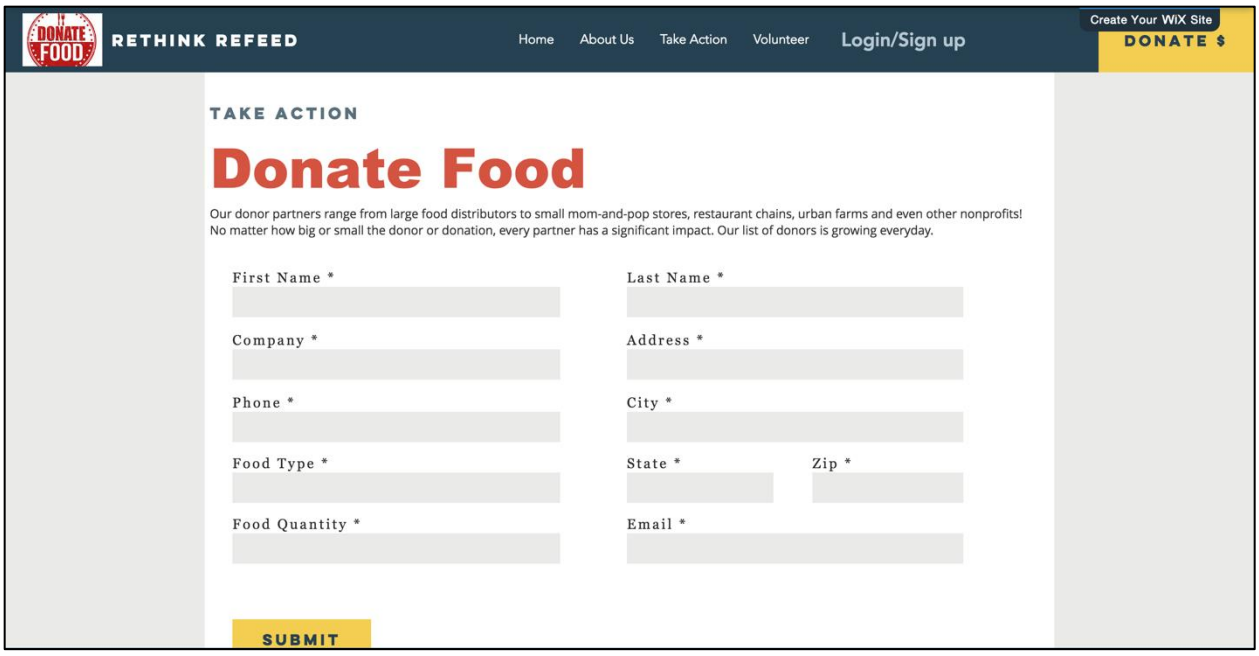
DONATE

Over the Phone

1-800-000-0000

By Email

info@rethinkrefeed.com


RETHINK REFEED
Home
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Volunteer
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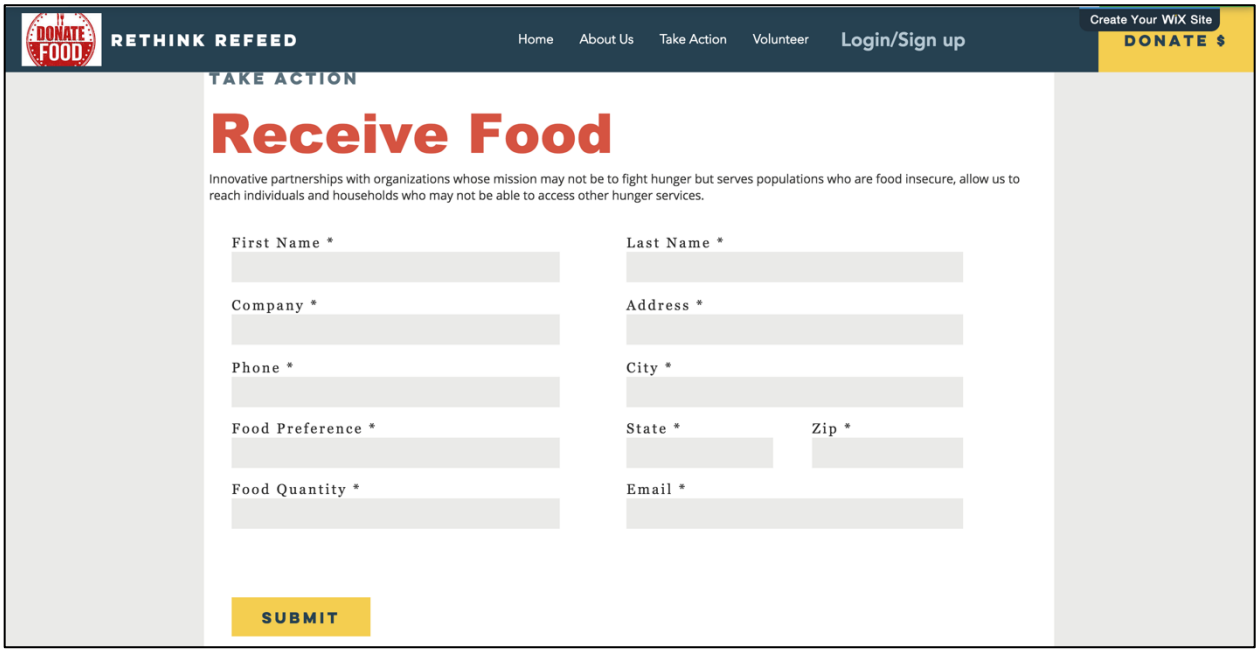
Create Your WiX Site
DONATE $
TAKE ACTION
Donate Food
Our donor partners range from large food distributors to small mom-and-pop stores, restaurant chains, urban farms and even other nonprofits! No matter how big or small the donor or donation, every partner has a significant impact. Our list of donors is growing everyday.
First Name *
Last Name *
Company *
Address *
Phone *
City *
Food Type *
State *
Zip *
Food Quantity *
Email *
SUBMIT


RETHINK REFEED
Home
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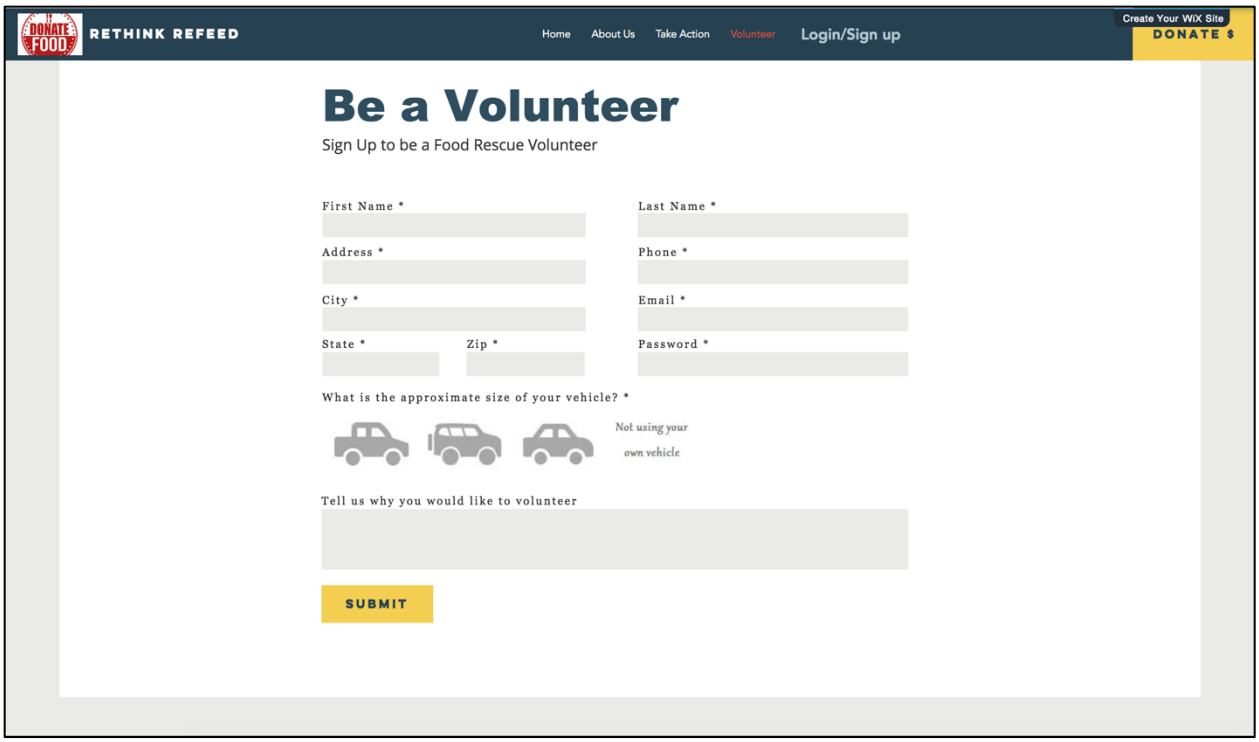
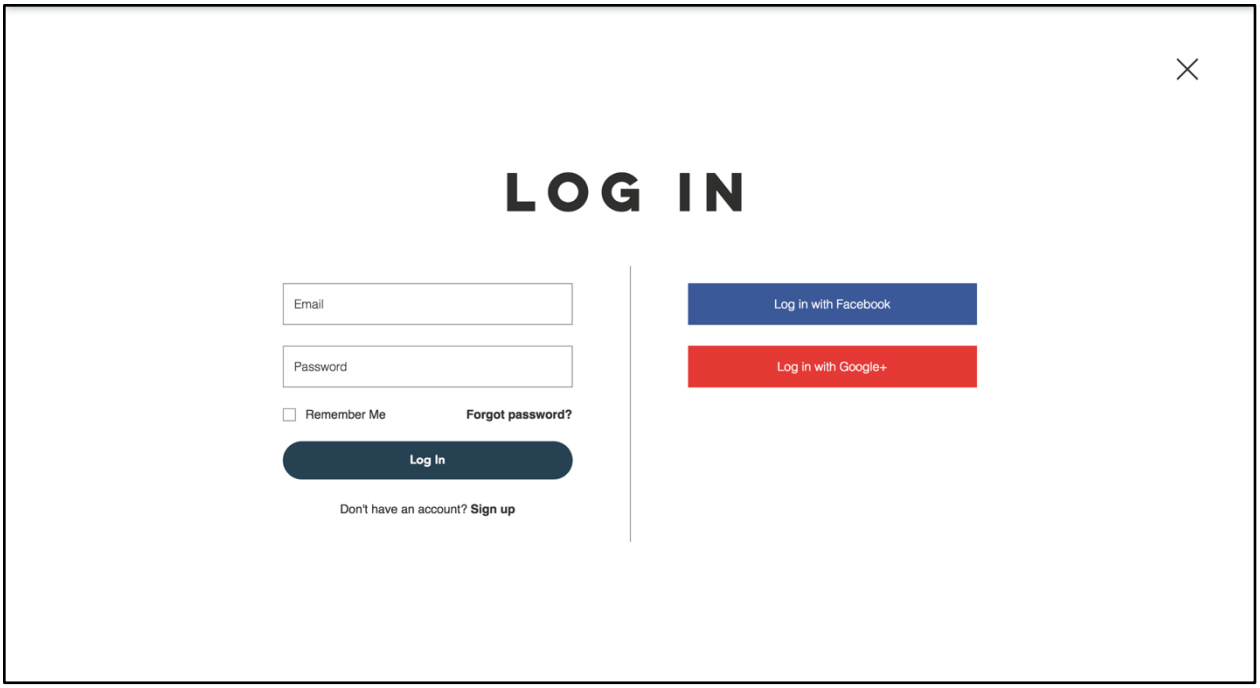
Volunteer
Login/Sign up
Create Your WiX Site
DONATE $
TAKE ACTION
Receive Food
Innovative partnerships with organizations whose mission may not be to fight hunger but serves populations who are food insecure, allow us to reach individuals and households who may not be able to access other hunger services.
First Name *
Last Name *
Company *
Address *
Phone *
City *
Food Preference *
State *
Zip *
Food Quantity *
Email *
SUBMIT


RETHINK REFEED
Home
About Us
Take Action
Volunteer
Login/Sign up
Create Your WiX Site
DONATE $
Be a Volunteer
Sign Up to be a Food Rescue Volunteer
First Name *
Last Name *
Address *
Phone *
City *
Email *
State *
Zip *
Password *
What is the approximate size of your vehicle? *
Not using your own vehicle
Tell us why you would like to volunteer
SUBMIT


LOG IN
Email
Password
Remember Me
Forgot password?
Log In
Don't have an account? Sign up
Log in with Facebook
Log in with Google+

15.Future Scope

- Expand to other locations and markets.
- Develop a better-connected system to combine deliveries and match supply and demand efficiently.
- Tie-up with cab services (similar to Uber and Lyft) for food pick-up and delivery.
- In addition to delivering the excess food to charities, the organization can also set up facilities to directly distribute food to those in need (similar to soup kitchens).

16.Conclusion

Our experience with this exercise:

- Understanding and developing analytical skills and system designing capability.
- Understanding how to gather requirements and convert them into clear diagrammatic representations.
- Importance of dividing tasks and team work.
- Learning about consistency of data and its flow.