

# IS-F341 Software Engineering (2023-24)

## T6 - *DaanNetwork: Daan Dil Se*

[Link for System Demonstration](#)

Admin Login Link : <http://3.7.46.8/admin-login>

[Link for stand up meetings document](#)

Team group photo



Student ID	Name	Role
2021A7PS1315H	Saksham Bajaj	Product Owner, Developer
2021A7PS2587H	Pavas Garg	Scrum Master, Developer
2021A7PS0182H	Dev Gala	Developer
2021A7PS2175H	Pritam Basu	Developer
2021A7PS2062H	Vani Jain	Developer

## **Login Creds:**

Admin: (email: sakshambajaj18@gmail.com pwd:1234567890)

NGO: (email: devgala2898@gmail.com pwd:1234567890)

Donor: (email: devgala25@gmail.com pwd:1234567890)

## Section 1 – Project Overview

The problem of food wastage is not a new one, yet there exists a wide gap between the working parties and hence the problem is not dealt with in an efficient and effective manner. It becomes very critical to address this disconnect if we are to have any progress in tackling this worldwide issue. All the stakeholders including NGOs, event managers, restaurant owners as well as a single household need to be linked together so that they can all operate in harmony to solve this problem.

This is how we got the idea to come up with DaanNetwork. Greatly alarmed by the amount of food that goes waste everyday from our college mess, we were inspired to take up and tackle this problem as part of our Project. On inquiring and delving in the topic further, we were exposed to the current challenges that are leading to this wide disconnect. We realised that there is no platform to bring all of these stakeholders together so that they can mutually fulfil each other's needs.

Hence, we took it upon ourselves to design a system that brings about these people together. DaanNetwork allows Donors and NGOs to connect over one platform. Donors can make donation requests that the NGOs in close proximity are alerted to and can choose to take up the Donation. This is where we connect the two. Moreover NGOs can also host Donation and Volunteering Drives to widen their reach and get them more supporters for the cause.

Furthermore, we realised there is an issue of authenticity and hence we designed the portal to allow only verified NGOs to operate on it with a good level of checks on them in ensuring they are using all the donation judiciously and not contributing themselves to the food wastage. Thus, we attempt to connect the two active stakeholders in an effective and trustworthy manner and try our small best to help solve this very large prevalent problem.

## Section 2 – Existing Work System

### AS-IS Work System Snapshot

Customers	Product/Services	
<ul style="list-style-type: none"> <li>• Donors</li> <li>• NGOs</li> </ul>	<ul style="list-style-type: none"> <li>• Donors donate to NGOs</li> </ul>	
Major Activities and Processes		
<ul style="list-style-type: none"> <li>• Donors search up NGOs and call them</li> <li>• NGO respond to donor and tell them if they are interested</li> <li>• NGO release pamphlets telling about their donation and volunteering needs</li> <li>• Donors can receive pamphlets and choose to apply to those drives</li> </ul>		
Participants	Information	Technologies
<ul style="list-style-type: none"> <li>• Donors</li> <li>• NGOs</li> </ul>	<ul style="list-style-type: none"> <li>• Donor Details</li> <li>• NGO Details</li> <li>• Donor Donation Details</li> <li>• NGO Donation Drive Details</li> <li>• NGO Volunteer Drive Details</li> <li>• Impact Stories</li> <li>• Points for users</li> </ul>	<ul style="list-style-type: none"> <li>• Gmail</li> <li>• Phone calls</li> </ul>

## Problems/Challenges

<b>Participant/ Customer</b>	<b>Description of problems/challenges</b>
Donors	No time to manage logistics and find the right people to donate to before the perishable items go bad
Donors (Event Managers)	Very often less turnout in people leads to a lot of food getting wasted at big events
Donors	Do not know who/where to approach for donating their items and excess food
NGO	Very little reach of donation drives and volunteering drives hence very little people involvement
NGO	Tough to find viable donors donating at the scale and quality that the NGOs need
NGO	Unable to know and connect with donors around their location and in nearby locations
Donor	Does not know how to verify NGO or get to know that a particular entity is trustworthy to handle their donations
Donor (Buffet Restaurant Manager)	Very often faces the problem of a lot of leftover food due to excess preparation in hope of more customers
NGO	Unable to reach wider audience and hence their demands for donation are usually not met
Donors	Unaware and left in dark about how their donations are used by the NGOs
NGO	A lot of the events hosted are under-manned and do not have enough support from the community

## User Personas

Atharva Dashora Bakery Owner	<p>"It is very disheartening to see my baked goods go to waste when there are so many people around without any food"</p>	
	<b>Capabilities</b> <ul style="list-style-type: none"> <li>- Very good at baking puffs and desserts</li> <li>- Good at managing her staff</li> </ul>	<b>Goals/Objectives</b> <ul style="list-style-type: none"> <li>- To ensure that leftover baked goods are put to good use</li> <li>- To help those in need in any way she can</li> </ul>
<b>Demographics</b> Age: 28 Education: MBA Work: FnB industry Family: Single Location: Dehradun	<b>Brief bio</b> Atharva started her baking journey from a small stall in college and school fests to finally opening her own bakery. To further her management skills she joined an executive MBA program as well.	<b>Frustrations/Pain points</b> <ul style="list-style-type: none"> <li>- Does not get the time to go to distribute leftover food everyday after closing</li> <li>- Is not able to increase the reach of her help to her desired extents</li> </ul>

Smriti Rastogi Events planner	<p>"I see too much food go to waste and want to do something about it"</p>	
	<b>Capabilities</b> <ul style="list-style-type: none"> <li>- Good at planning events and managing people</li> <li>- Have good creative skills to come up with unique ideas for events</li> </ul>	<b>Goals/Objectives</b> <ul style="list-style-type: none"> <li>- To ensure that the large amount of food leftover after events don't go to waste</li> <li>- To find NGOs that can help giving the leftovers to those in need</li> </ul>
<b>Demographics</b> Age: 26 Education: Hospitality Management Work: Event Planning Family: Single Location: Delhi	<b>Brief bio</b> Smriti is passionate about creating memorable experiences for others through meticulous planning and attention to detail. With a degree in hospitality management, she orchestrates a wide range of events, from weddings to corporate conferences.	<b>Frustrations/Pain points</b> <ul style="list-style-type: none"> <li>- A lot of times turnout of events is less than expected which leads to lot of food wastage</li> <li>- Don't have enough time to find people in need of food and deliver it to them before the leftover prepared food goes bad</li> </ul>

Rahul Sharma Home Gardener	"I love gardening and always end up having extra produce"	
	<p><b>Capabilities</b></p> <ul style="list-style-type: none"> <li>- Very good at gardening</li> <li>- Has good communication skills</li> </ul>	<p><b>Goals/Objectives</b></p> <ul style="list-style-type: none"> <li>- Wants to share his harvest with those in need in his community</li> <li>- To help put his extra produce to good use</li> </ul>
<b>Demographics</b> Age: 25 Education: B.Tech Work: IT industry Family: Single Location: Hyderabad	<p><b>Brief bio</b></p> <p>Rahul loves gardening and often has an abundance of fresh produce from his backyard garden.</p>	<p><b>Frustrations/Pain points</b></p> <ul style="list-style-type: none"> <li>- Does not know the right people to contact to donate fresh produce</li> </ul>

Aryan Goyal NGO Coordinator	"It's disheartening to see people die of starvation when somewhere else, there is so much food going to waste."	
	<p><b>Capabilities</b></p> <ul style="list-style-type: none"> <li>- Able to effectively communicate in English, Hindi and Telugu</li> <li>- Good at organizing events and managing people</li> </ul>	<p><b>Goals/Objectives</b></p> <ul style="list-style-type: none"> <li>- Improve food security and make food accessible to as many people as possible</li> <li>- To help people suffering from hunger and undernourishment</li> <li>- To serve nutritious and high-quality meals to the underprivileged communities</li> </ul>
<b>Demographics</b> Age: 29 Education: MBA Work: Social worker Family: Married Location: Hyderabad	<p><b>Brief bio</b></p> <p>Aryan is passionate about social justice and strives to empower marginalized communities through access to sustainable food. He has a background in humanitarian studies and project management.</p>	<p><b>Frustrations/Pain points</b></p> <ul style="list-style-type: none"> <li>- Difficult to find people who are willing to donate the type of food we want</li> <li>- Low turnout and participation in donation drives because of low outreach</li> </ul>

Akshay Gupta Farm Owner	"I want to give back to my community by donating surplus crops"	
	<p><b>Capabilities</b></p> <ul style="list-style-type: none"> <li>- Have proficient knowledge of farming</li> <li>- Able to use smartphone</li> </ul>	<p><b>Goals/Objectives</b></p> <ul style="list-style-type: none"> <li>- Want to donate surplus crops to local food banks or soup kitchens</li> <li>- Interested in finding NGOs that can pick up large quantities of fresh produce directly from his farm and distribute it to those in need</li> </ul>
<p><b>Demographics</b></p> <p>Age: 32</p> <p>Education: BA</p> <p>Work: Farmer</p> <p>Family: Married</p> <p>Location: Punjab</p>	<p><b>Brief bio</b></p> <p>Akshay is a dedicated farm owner with a passion for sustainable agriculture. He took over the family farm and with his innovative ideas he became one of the most earning farmers in his locality.</p>	<p><b>Frustrations/Pain points</b></p> <ul style="list-style-type: none"> <li>- Do not have time to find and contact NGOs to collect produce</li> <li>- Difficult to operate complex websites</li> </ul>

## Section 3 – System Scope

### TO-BE Work System Snapshot (moderate support)

Customers	Product/Services	
<ul style="list-style-type: none"> <li>• Donors</li> <li>• NGO</li> </ul>	<ul style="list-style-type: none"> <li>• Donors raise donation requests</li> <li>• NGO host Donation and Volunteering Drive</li> </ul>	
Major Activities and Processes		
	<ul style="list-style-type: none"> <li>• Donors and NGOs register with their details on the portal</li> <li>• NGO upload registration number and registration certificate to the admin for verification</li> <li>• Donors put donation posts on their profiles</li> <li>• NGOs view the posts and mail the donor accepting their donation</li> <li>• NGOs host donation drive and give details about the requirements about the items they require with respective quantities and end date</li> <li>• Donors mail the NGO to apply to these drive and donate items</li> <li>• NGOs raise volunteering requests on the portal with details about the same</li> <li>• Donors can choose to mail the NGO applying to become a volunteer</li> <li>• NGOs update status of collected donations on the portal which admin can see.</li> <li>• Donors mail NGO or the Admin and asks for update about their donation</li> <li>• Donors and NGOs can see history of their involvement in the portal</li> <li>• Admin can block users that violate guidelines and portal policies</li> <li>• Admin shares impact stories on the portal</li> <li>• Donors view points and leadership boards based on their contributions</li> </ul>	
Participants	Information	Technologies
<ul style="list-style-type: none"> <li>• Donors</li> <li>• NGOs</li> <li>• Admin</li> </ul>	<ul style="list-style-type: none"> <li>• Donor Details</li> <li>• NGO Details</li> <li>• Donor Donation Details</li> <li>• NGO Donation Drive Details</li> <li>• NGO Volunteer Drive Details</li> <li>• Points for users</li> </ul>	<ul style="list-style-type: none"> <li>• Web Application</li> <li>• Gmail</li> </ul>

## TO-BE Work System Snapshot (maximum support)

Customers		Product/Services	
<ul style="list-style-type: none"> <li>• NGO</li> <li>• Donors</li> </ul>		<ul style="list-style-type: none"> <li>• Donors raise donation requests</li> <li>• NGO host Donation and Volunteering Drive</li> </ul>	
Major Activities and Processes			
Participants	Information	Technologies	
<ul style="list-style-type: none"> <li>• Donors and NGOs register with their details on the portal</li> <li>• NGO upload registration number and registration certificate that is automatically verified by connection to government portal</li> <li>• Donors put donation posts on their profiles</li> <li>• NGOs view donation requests that are close to their locations and accepts to collect which they desire</li> <li>• NGOs and Donors are set up to chat on the platform with an option of teleconferencing</li> <li>• NGOs are shown navigation to the pick up spot of the donation</li> <li>• NGOs can host donation drive and give details about the requirements about the items they require with respective quantities and end date</li> <li>• Donors can choose to donate to these donation drives and submit details about the items they can contribute</li> <li>• NGOs can raise volunteering requests on the portal with details about the same</li> <li>• Donors can choose to apply to the volunteering drives and send their details to the NGO</li> <li>• NGOs update status of collected donations on the portal which is verified automatically using intelligence analysis</li> <li>• Donors and NGOs can see history of their involvement in the portal</li> <li>• Users that violate guidelines are automatically blocked and restricted</li> <li>• Donors view points and leadership boards based on their contributions</li> </ul>			
<ul style="list-style-type: none"> <li>• Donors</li> <li>• NGOs</li> </ul>	<ul style="list-style-type: none"> <li>• Donor Details</li> <li>• NGO Details</li> <li>• Donor Donation Details</li> <li>• NGO Donation Drive Details</li> <li>• NGO Volunteer Drive Details</li> <li>• Points for users</li> </ul>	<ul style="list-style-type: none"> <li>• Web Application</li> <li>• GPS</li> </ul>	

## TO-BE Work System Snapshot (selected for project work)

Customers	Product/Services	
<ul style="list-style-type: none"> <li>● Donors</li> <li>● NGOS</li> </ul>	<ul style="list-style-type: none"> <li>● Donors raise donation requests</li> <li>● NGOs host donation drives</li> <li>● NGOs host Volunteering drives</li> </ul>	
Major Activities and Processes		
	<ul style="list-style-type: none"> <li>● Donors and NGOs register with their details on the portal</li> <li>● NGO upload registration number and registration certificate to the admin for verification</li> <li>● Donors put donation posts on their profiles</li> <li>● NGOs view donation requests that are close to their locations and accepts to collect which they desire</li> <li>● NGOs receive contact details of donor as well as details about donation and pick up location</li> <li>● NGOs can host donation drive and give details about the requirements about the items they require with respective quantities and end date</li> <li>● Donors can choose to donate to these donation drives and submit details about the items they can contribute</li> <li>● NGOs can raise volunteering requests on the portal with details about the same</li> <li>● Donors can choose to apply to the volunteering drives and send their details to the NGO</li> <li>● NGOs update status of collected donations on the portal which admin and donor can see and verify</li> <li>● Donors see updates about their donations</li> <li>● Donors and NGOs can see history of their involvement in the portal</li> <li>● Admin can block users that violate guidelines and portal policies</li> <li>● Admin shares impact stories on the portal</li> <li>● Donors view points and leadership boards based on their contributions</li> </ul>	
Participants	Information	Technologies
<ul style="list-style-type: none"> <li>● Donors</li> <li>● NGOs</li> <li>● Admin</li> </ul>	<ul style="list-style-type: none"> <li>● Donor Details</li> <li>● NGO Details</li> <li>● Donor Donation Details</li> <li>● NGO Donation Drive Details</li> <li>● NGO Volunteer Drive Details</li> <li>● Impact Stories</li> <li>● Points for users</li> </ul>	<ul style="list-style-type: none"> <li>● Web Application</li> <li>● Gmail</li> <li>● Google Maps</li> </ul>

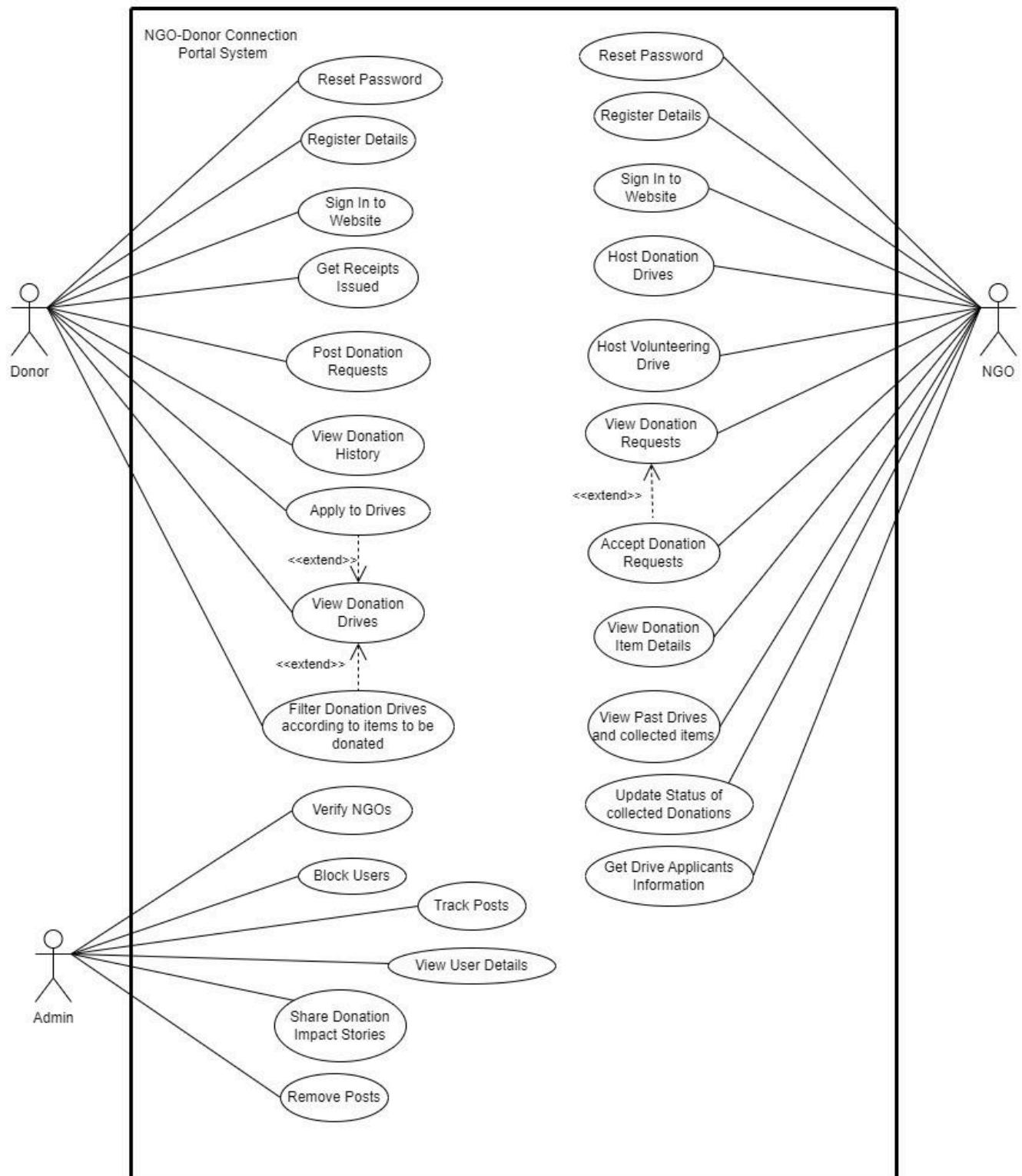
## Section 4 – Product Backlog

<b>As a</b>	<b>I want to</b>	<b>So that</b>
Admin	Remove posts	Inappropriate posts are removed
Admin	Verify NGOs	Authenticity can be maintained
Admin	Block NGOs and Donors that violate guidelines	Quality and authenticity of transactions can be maintained
Admin	View User details	I can track site usage
Admin	Verify that NGOs have used the donations judiciously	All donations are used effectively
Admin	Share donation impact stories	Users of platform can be increased
Admin	Keep Track of all posts	I can ensure no spamming is being done
Donor	Register with my details	I can use the services
Donor	Sign in to the portal	I can see dashboard
Donor	Get receipts issued online	I can get my donations recognised
Donor	Post information about food donation or host events which will have excess food	I can connect with relevant NGOs
Donor	View past donations made	I can see what donations I have made
Donor	Get contact information about NGO that wants to take my donation	I can figure out logistics easily
Donor	Be able to update and edit my details	My details are up to date on the platform
Donor	View verified NGOs	I know my donations are going into the right hands
Donor	Apply to drives	I can help NGOs with their requirements
Donor	Want to filter ngo drives according to the	I can donate my items to where it is

	items I want to donate	actually needed
Donor	Track my donations and see if they have been used properly	I know I am contributing in a positive way
NGO	Register with my details	I can use the services
NGO	Sign in to the portal	I can see dashboard
NGO	Get information about food donors	We can collect food from them
NGO	Get information about the donation items	Easier for us to determine if its required by us and figure out logistics
NGO	View donors near our area of operation based on proximity	We can collect the food as quickly as possible
NGO	Get donors' contact information	To easily contact them for donation
NGO	Get directions to pick up area	It's easy for our volunteers to reach the donors.
NGO	See images of the donation item	We can verify if the donation is not a fake and also get an idea how to transport it
NGO	Host donation drives	Donors can directly donate to the NGO
NGO	Raise volunteer request for upcoming food donation drive	We can get all the needed help
NGO	View past donation drives and collected donations	We can keep track of our working on the platform
NGO	Get notified if any donations have been posted in our area	We can respond to the donors at a fast rate
NGO	Update the status of collected donations	We can make ensure transparency with the donors
NGO/ Donors	Reset password in case I forget it	I can keep using the services of the site

## Section 5 - Use case modelling

### Use case diagram



## Use case description # 1

Name	<b>Post Donation Requests</b>
Description	A donor wants to donate food items and he wants to post donation requests so that NGOs can view his request and accept it.
Actors	Donor
Trigger	The donor decides to make a donation and navigates to the "Donate" section of the site.
Preconditions	The donor is logged in to the account.
Postconditions	The donor has successfully posted a donation request.
Main course	<ol style="list-style-type: none"> <li>1. User goes to the donate now page.</li> <li>2. The system presents a form for the donor to fill out with details about the donation.</li> <li>3. The donor fills in the form the total donation quantity and quantity of each item. (AC1, AC2)</li> <li>4. The donor chooses a pick up date.(AC1)</li> <li>5. The donor writes the pick up location.(AC1)</li> <li>6. The donor gives a description of the food he wants to donate.(AC1)</li> <li>7. The donor uploads images (if any) for the donation.</li> <li>8. The donor submits the donation post.</li> <li>9. The system confirms successful submission.</li> </ol>
Alternate courses	<p>AC1. The donor does not fill in the required field</p> <ol style="list-style-type: none"> <li>1. System displays a message to fill the required fields.</li> <li>2. Return to step 3 in MC.</li> </ol> <p>AC2. Donor fills the donation quantity as 0</p> <ol style="list-style-type: none"> <li>1. System displays a message that item lists can not be empty.</li> <li>2. Return to step 3 in MC.</li> </ol>

Exceptions	<p>EX1. Donor decides not to post donation request right now</p> <ol style="list-style-type: none"><li>1. Donor goes to the homepage.</li></ol> <p>EX2. System fails on posting donation request</p> <ol style="list-style-type: none"><li>1. System notifies the donor that an error has occurred.</li><li>2. Return to step 1 in MC.</li></ol>
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## Use case description # 2

Name	<b>Post Donation Drive</b>
Description	An NGO wants to post Donation drives for specific items so that donors can directly donate it to the NGO
Actors	NGO
Trigger	NGO wants to host a donation drive
Preconditions	NGO is logged into account
Postconditions	NGO successfully posted a donation drive
Main course	<ol style="list-style-type: none"> <li>1. System presents a form for creating a donation drive.</li> <li>2. NGO enters name of donation drive.</li> <li>3. NGO enters one or more items and their quantity it would like to receive as donation.</li> <li>4. NGO enters start and end date of donation drive.</li> <li>5. NGO fills description for donation drive(AC1)</li> <li>6. NGO adds poster image for donation drive(AC2)</li> <li>7. NGO submits form(EX1,EX2,EX3)</li> <li>8. System shows success message to NGO(EX4)</li> </ol>
Alternate courses	<p>AC1: NGO opts out of filling description</p> <ol style="list-style-type: none"> <li>1. NGO leaves the description field blank</li> <li>2. return to MC 6</li> </ol> <p>AC2: NGO opts out of providing poster</p> <ol style="list-style-type: none"> <li>1. NGO does not upload poster for their donation drive</li> <li>2. return to MC7</li> </ol>
Exceptions	<p>EX1: Donation drive name is empty</p> <ol style="list-style-type: none"> <li>1. System does not allow form submission and prompts NGO to fill name.</li> </ol> <p>EX2: NGO did not enter any items for donation drive</p> <ol style="list-style-type: none"> <li>1. System does not allow form submission and prompts NGO to fill at least one item for donation</li> </ol> <p>EX3: Start date is after end date</p> <ol style="list-style-type: none"> <li>1. System does not allow form submission and prompts NGO to correct start or end date.</li> </ol> <p>EX4: Error in form submission</p>

	1. System informs NGO about error in form submission and redirects to home page.
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## Use case description # 3

Name	<b>Accept Donation Requests</b>
Description	An NGO wants to accept Donation Requests posted by the Donors based on proximity to them.
Actors	NGO
Trigger	NGO decides to view Donation Requests and potentially choose to accept one of them
Preconditions	NGO is signed in to the portal and is on NGO home/dashboard page
Postconditions	NGO has accepted a Donation from a Donor
Main course	<ol style="list-style-type: none"> <li>1. System displays all Donation Requests to the NGO</li> <li>2. System displays that the NGO can filter out Donation Requests by choosing distance on slider. (EC1)</li> <li>3. NGO chooses a max distance on the slider</li> <li>4. System filters out the Donation Requests within the max distance to the NGO location from the list of all available Donation Requests. (AC1)</li> <li>5. NGO from the displayed Donation Requests, clicks on one and system displays the details of the said Request. (AC2, EC2)</li> <li>6. NGO presses accept donation button</li> <li>7. System marks the Request as accepted and sends a mail to the NGO with all the details of the Donation.</li> <li>8. System removes the Donation Request from display and is invisible to other NGOs as well.</li> </ol>
Alternate courses	<p>AC1- No Donation Requests in the set distance</p> <ol style="list-style-type: none"> <li>1. NGO slides the filter and sets a greater max distance</li> <li>2. Go to MC step 4</li> </ol> <p>AC2- NGO doesn't find any desired Donation request in the set Distance</p> <ol style="list-style-type: none"> <li>1. NGO slides the filter to set a new max distance</li> <li>2. Go to MC step 4</li> </ol>

Exceptions	<p>EX1-No Donation Requests</p> <ol style="list-style-type: none"><li>1. NGO logs out or moves to some other page</li></ol> <p>EX2- NGO doesn't find any desired donations</p> <ol style="list-style-type: none"><li>1. NGO moves to some other page and comes back to this at a later time</li></ol>
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## Use case description # 4

Name	<b>Apply to Donation Drive</b>
Description	A donor can apply to a donation drive hosted by an NGO, so that the donor can donate food items.
Actors	Donor
Trigger	The donor wants to donate food items for a donation drive
Preconditions	<ul style="list-style-type: none"> <li>1. Donor is signed in to the portal.</li> <li>2. Donor is on the donation drives page.</li> </ul>
Postconditions	<ul style="list-style-type: none"> <li>1. The donor gets a confirmation pop-up message.</li> <li>2. The donor receives confirmation mail on his or her registered mail ID with details of donated items and NGO contact details.</li> <li>3. The NGO gets confirmation mail, which includes details of donated items and donor contact details.</li> </ul>
Main course	<ul style="list-style-type: none"> <li>1. System displays all donation drives to the donor (EX1)</li> <li>2. System allows donors to filter drives according to the items they want to donate</li> <li>3. Donor inputs the name of food items he/she wants to donate (AC1)</li> <li>4. System filters out the donation drives according to the items entered by the donor</li> <li>5. System displays name of donation drive, end date and name of organising NGO</li> <li>6. Donor chooses one of the donation drives from the available options by clicking on apply (AC2, EX2)</li> <li>7. System displays the required items and their quantity as asked by the NGO along with a description for the drive.</li> <li>8. System prompts the donor to enter details of items the donor wants to donate along with the quantity.</li> <li>9. Donor enters the name of food items and their quantity he/she wants to donate along with pickup date and address. (AC3)</li> <li>10. Donor submits the donation request (EX3)</li> </ul>

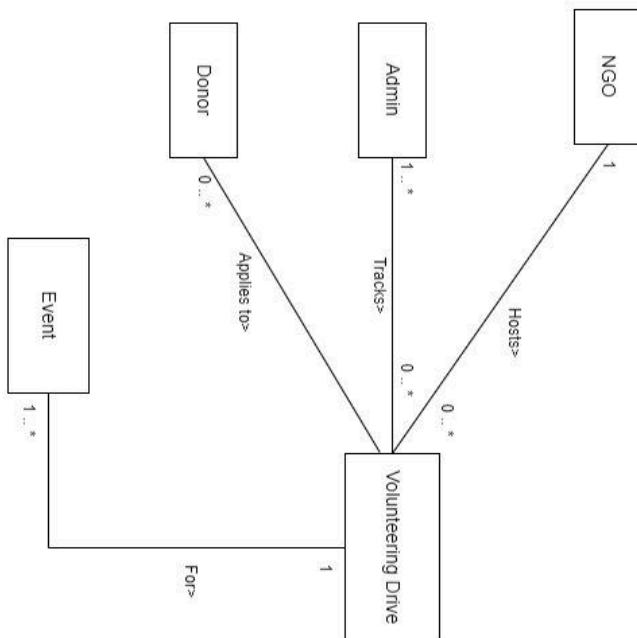
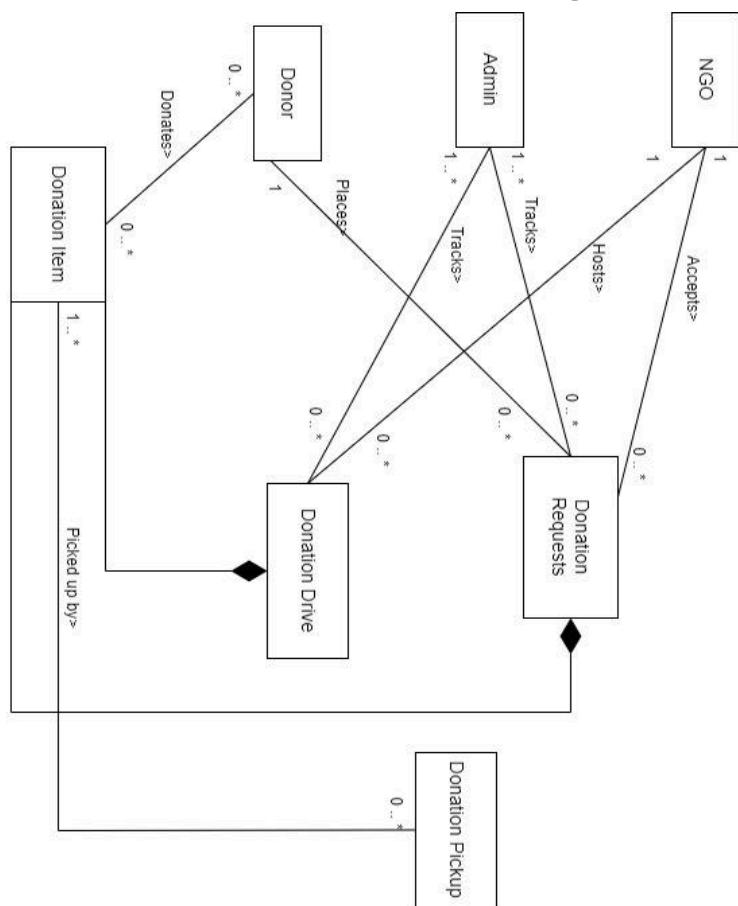
Alternate courses	<p>AC1: Donor does not input anything in search bar</p> <ol style="list-style-type: none"> <li>1. System displays all available donation drives to the donor.</li> <li>2. Return to MC5</li> </ol> <p>AC2 : Donor applies to a donation drive, whose end date has already passed.</p> <ol style="list-style-type: none"> <li>1. System notifies the donor about the same</li> <li>2. Return to MC6</li> </ol> <p>AC3: Donor closes the pop-up box</p> <ol style="list-style-type: none"> <li>1. System displays all donation drives to the donor.</li> <li>2. Return to MC2</li> </ol>
Exceptions	<p>EX1: No donation drives to display</p> <ol style="list-style-type: none"> <li>1. Donor logs out or navigates to some other page</li> </ol> <p>EX2: Donor does not apply to any donation drive</p> <ol style="list-style-type: none"> <li>1. Donor logs out or navigates to some other page.</li> </ol> <p>EX3: Donor did not enter any food items to be donated</p> <ol style="list-style-type: none"> <li>1. System notifies the donor to fill in the details</li> <li>2. Return to MC9</li> </ol>

## Use case description # 5

Name	<b>Verify NGO</b>
Description	Admin must verify NGOs so that start donation drives
Actors	Admin
Trigger	The NGO has finished successfully registering on the website and wants to create a donation drive.
Preconditions	<ol style="list-style-type: none"> <li>1. The NGO has registered on the website</li> <li>2. The admin is on the List of NGOs page.</li> </ol>
Postconditions	<ol style="list-style-type: none"> <li>1. The NGO gets an email that it has been verified.</li> <li>2. The NGO can now start donation drives.</li> </ol>
Main course	<ol style="list-style-type: none"> <li>1. System shows admin the list of NGOs with verified/not verified badges.</li> <li>2. Admin finds the unverified NGO from the list of NGOs and clicks on View NGO.</li> <li>3. System shows the admin all the details of the NGO</li> <li>4. Admin checks the NGO registration number and clicks on the button to show NGO certificate.</li> <li>5. System shows the NGO certificate to the admin in jpg/pdf format.</li> <li>6. Admin verifies the legitimacy of the NGO certificate and clicks on Verify NGO button.</li> <li>7. System verifies the NGO and adds a verified tag to the NGO.</li> </ol>
Alternate courses	<p>AC1: Admin does not find the NGO in the list of NGOs</p> <ol style="list-style-type: none"> <li>1. Admin refreshes the page.</li> <li>2. System re-fetches the list of NGOs from the database.</li> <li>3. Return to Step 2 in MC.</li> </ol> <p>AC2: The verified tag is not added to the NGO.</p> <ol style="list-style-type: none"> <li>1. Admin refreshes the NGO page</li> <li>2. Return to Step 6 in MC</li> </ol>

Exceptions	<p>EX1: The NGO certificate is not readable.</p> <ol style="list-style-type: none"><li>1. System notifies the NGO to re-upload the certificate by email.</li><li>2. System takes admin to the admin page</li></ol> <p>EX2: Admin finds suspicious activity from the NGO.</p> <ol style="list-style-type: none"><li>1. Admin clicks on BAN NGO</li><li>2. System bans the NGO from the website and the account is blocked.</li></ol>
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## Section 6 – Class diagram



### Attributes and operations

Class name	Attributes	Operations
Admin	Name, DOB, Phone Number, Email-Id, password, gender, address	blockUser, unblockUser, verifyNgo, deletePost, hidePost, deleteUser, postImpactStory
Donor	Name, Phone Number, DOB, Email-Id, Password, Gender, Address, City, State, Zip-code, Nationality	createDonationRequest, deleteDonationRequest, applyForDonationDrive, applyForVolunteeringDrive
NGO	Name, NameofHead, GenderofHead, Pan Number, Website, password, Email-Id, GSTNumber, RegNumber	createDonationDrive, deleteDonationDrive, createVolunteerDrive, acceptDonation, deleteVolunteerDrive
Donation Drive	startDate, endDate, preferredItems, targetQuantity, description, donationRequestNumber	getAllDonors, getItemsDonated, updateEndDate, getTotalQuantity, updateDonationStatus
Donation Request	totalQuantity, totalWeight, eventDetails, donationRequestNumber	getAcceptingNgo, getNgoContact, getAllAcceptedDonations
Volunteering Drive	requiredNumber, tasksAssociated	getAllVolunteers, updateAssociatedEvent
Donation Item	perishability, name, description, quantity, image	updatePerishability, uploadImage
Donation Pickup	totalNumberOfItems, totalWeightOfItems, dropLocation, pickupLocation, pickupDate, pickupTime	estimatedDeliveryTime, totalDonationDrivesMonth, totalNumberofTripsForADonationDrive, getDirectionsToLocation
Event	Name, date, time, location, capacity, description	getAssignedVolunteers, getVolunteersOfTasks, getTotalAttendees

**NoSQL documents**

<b>Document name and structure</b>	<b>Classe(s)</b>	<b>Justification(s) for embedding, referencing and denormalization</b>
<pre>donationDrive({   _id : id   donationRequestNum: Number   createdAt: DateTime   startDate: DateTime   endDate: DateTime   requiredItems: [item1, item2..]   Donors: [ {ObjectId: referenced,   DonationItem:[{....},{...} ],   {ObjectId: referenced,   DonationItem:[{....},{...} ]} })</pre>	Donation Drive Donors Donation Item	<p>Donors are being referenced because they contain a lot of attributes that can be edited over time and thus embedding might lead to data inconsistency. Also, since a drive may have a lot of donors, embedding them will increase the size of documents too much.</p> <p>Donation Items are being embedded to give faster reads as they have limited attributes that are not updated that frequently and thus do not lead to inconsistencies.</p>
<pre>donationRequests({   _id: id   donationRequestNumber: Number   totalQuantity: Number   totalWeight: Number   pickUpDate: DateTime   pickUpLocation: String   accepted: Boolean   DonationItem:[{ObjectId,   Quantity:Number, Perishability: Number },   {ObjectId,  Quantity:Number,   Perishability: Number }]   Donor: ObjectId   NGO: ObjectId })</pre>	Donation Request Donor NGO Donation Item	<p>Donors and NGOs are being referenced because they contain a lot of attributes that can be edited over time and thus embedding might lead to data inconsistency</p> <p>Donation Items are being embedded to give faster reads as they have limited attributes that are not updated that frequently and thus do not lead to inconsistencies. They also need to be displayed with donation requests frequently and thus embedding them makes it smoother and faster</p>
<pre>donationPickup({   _id: id   pickupDate: DateTime   pickupLocation: String   pickupTime: DateTime   DonationItem:[{ObjectId,   Quantity:Number, Weight: Number },   {ObjectId,  Quantity:Number,   Weight: Number }]   NGO: ObjectId   Donor: ObjectId })</pre>	Donation Pickup Donor NGO Donation Item	<p>Donors and NGOs are being referenced because they contain a lot of attributes that can be edited over time and thus embedding might lead to data inconsistency</p> <p>Donation Items are being embedded to give faster reads as they have limited attributes that are not updated that frequently and thus do not lead to inconsistencies. They also need to be</p>

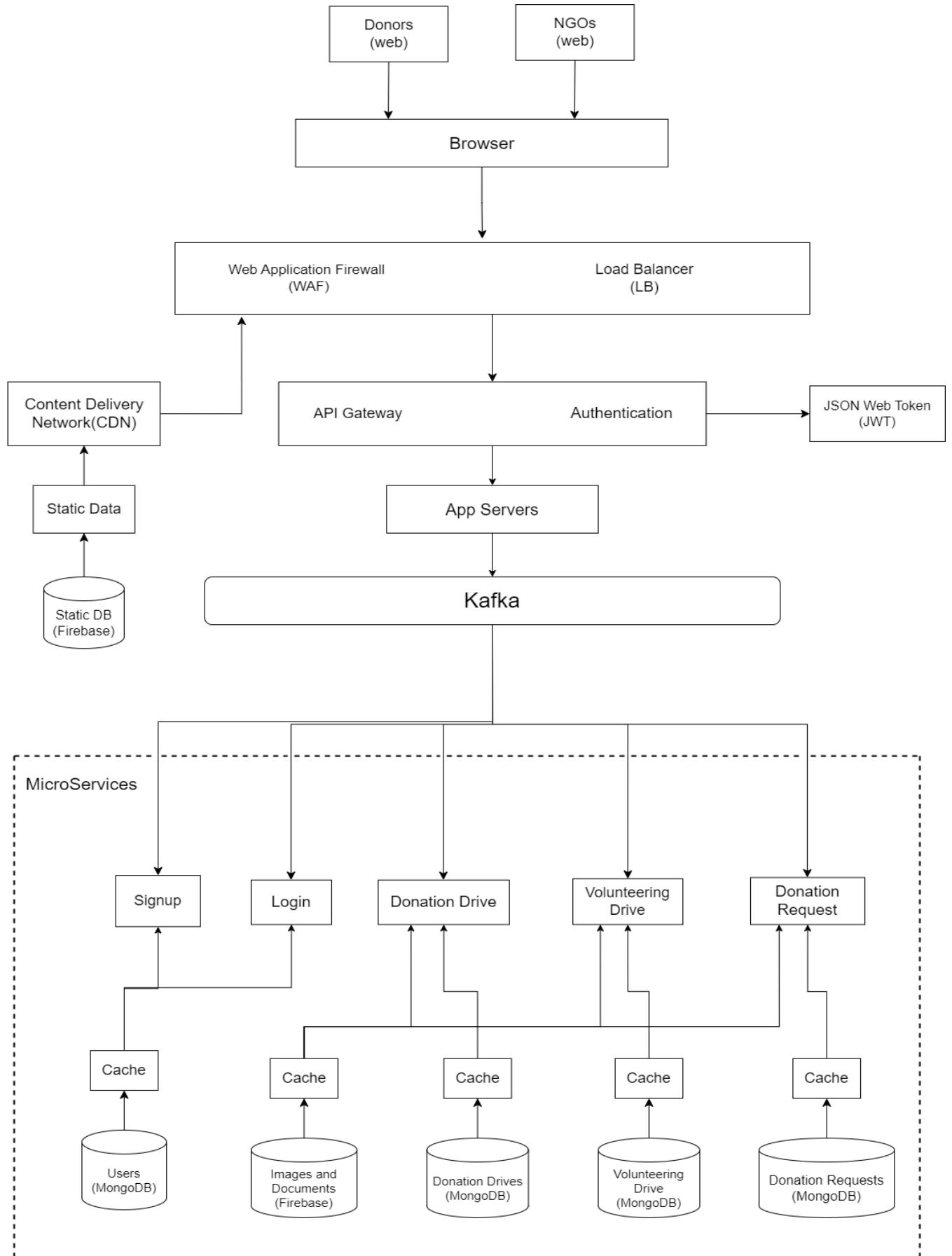
		displayed with donation pickups frequently and thus embedding them makes it smoother and faster
<pre>volunteeringDrive({     _id:id     NGO: ObjectId     requiredNumber: Number     taskDescription: String     Event: [{ObjectId: Id, Location:String},     {ObjectId: Id, Location:String}....]     Participants: [{ObjectId : Id}, {ObjectId : Id}, {ObjectId : Id}, {ObjectId : Id}....] })</pre>	<p>Volunteering Drive NGO Donor Event</p>	<p>Donors and NGOs are being referenced because they contain a lot of attributes that can be edited over time and thus embedding might lead to data inconsistency</p> <p>Events are being embedded because they are frequently shown with volunteering drives and thus embedding provides faster reads and makes the process efficient. Also events do not have a high number of attributes thus limiting the document size from growing too much. Event class attributes majorly remain unchanged and hence embedding them do not have the risk of data inconsistencies.</p>

## Section 7 – System Architecture

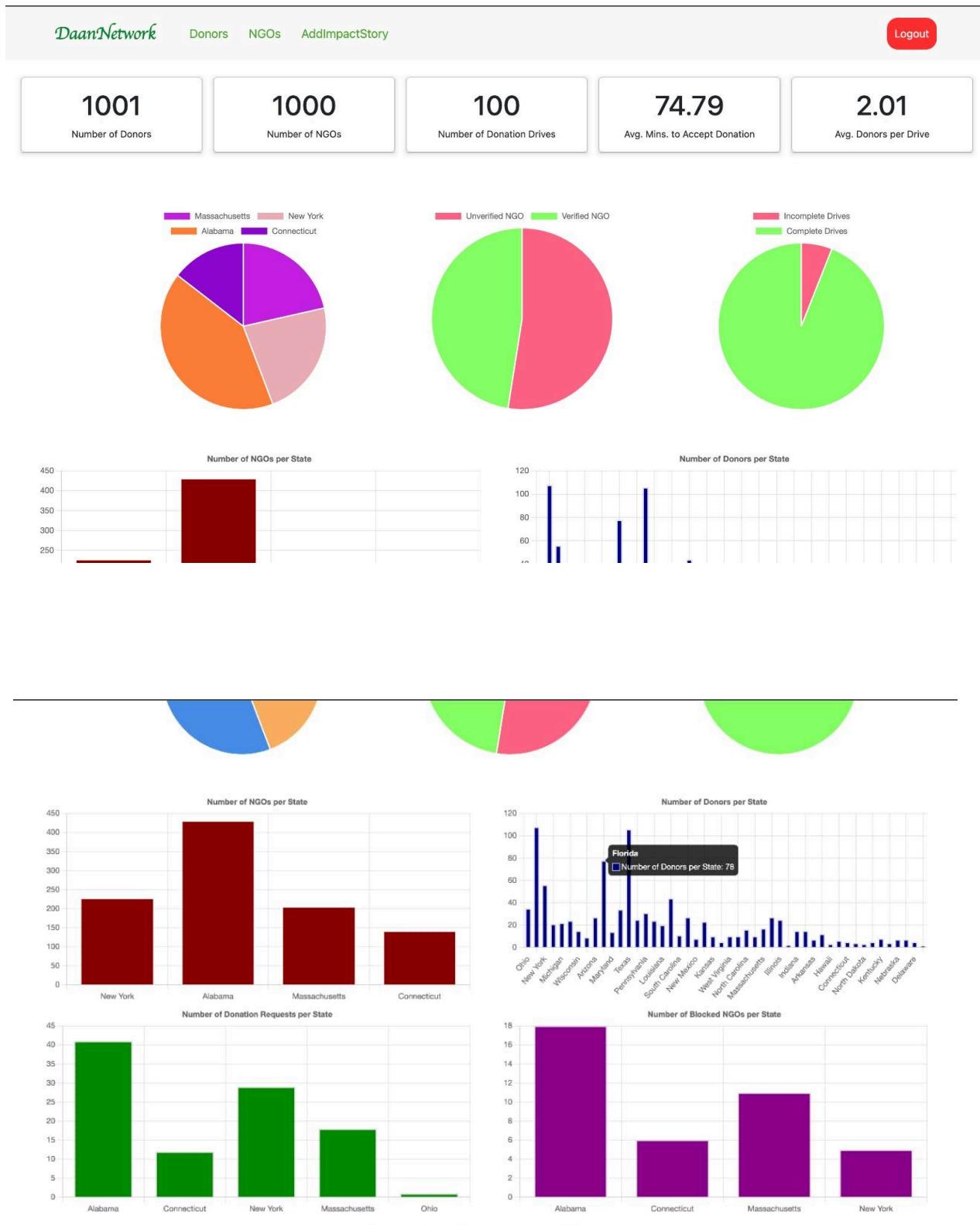
In our project, we have chosen a microservice based architecture with Kafka serving as a message broker for inter service communication and firebase as well as MongoDb for our databases along with memory caching to improve performance. We've chosen a microservice-based architecture because it offers the scalability we need to grow and adapt. This approach lets us scale individual services horizontally, so we can support 10 times to 100 times more users just by adding more instances, ensuring that our web product can handle increasing traffic and workload. We also appreciate the flexibility it provides; even during peak times, we aim to keep downtime below 1%, ensuring our users experience smooth and consistent service. Moreover, with microservices, we can deploy changes quickly and often. Kafka's ability to handle asynchronous messaging means that we can have multiple services working independently, yet still communicating effectively through event-driven messages. This is crucial for our project because it allows us to scale without running into bottlenecks, and it ensures that each microservice can function autonomously.

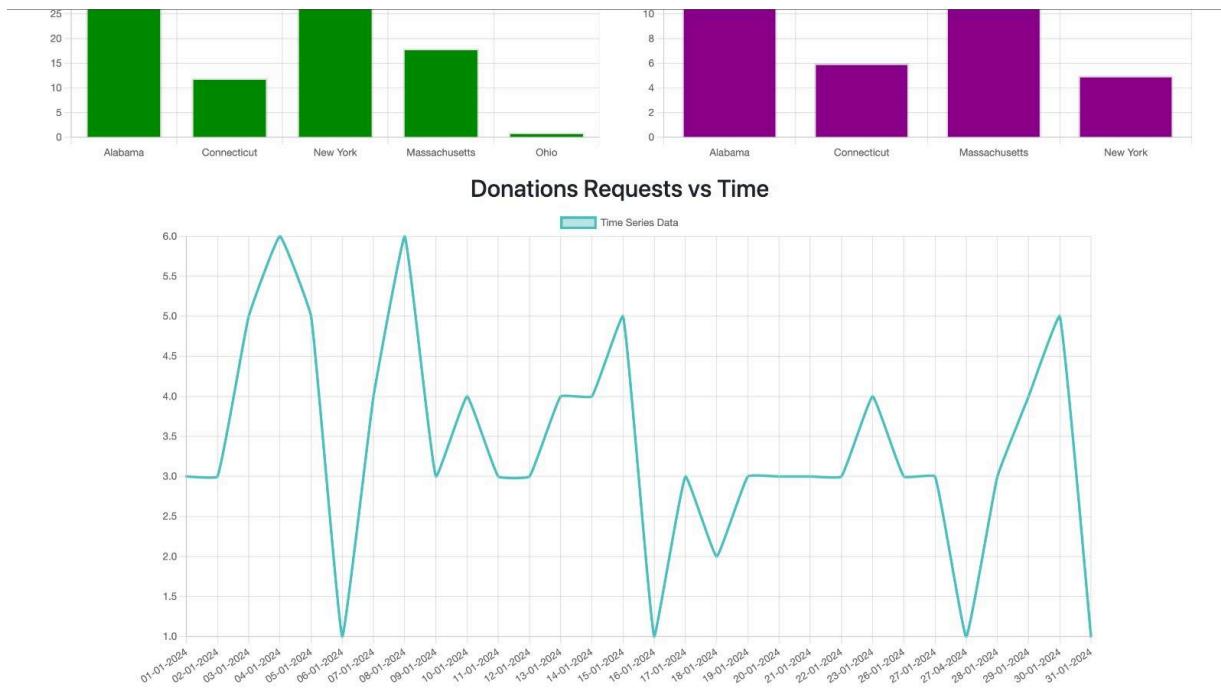
With MongoDB and Firebase as our data storage solutions, We get the best of both worlds i.e. MongoDB provides the flexibility to model our data without a rigid schema, which is great for our evolving project requirements, while Firebase's real-time capabilities are ideal for scenarios where instant data synchronisation is crucial. The addition of caching speeds up data retrieval and reduces the load on our databases, making our system more responsive. A load balancer sits at the front of our API calls, distributing incoming traffic evenly across our microservices to maintain efficiency and avoid overload. This setup allows us to handle varying traffic levels, providing a seamless experience for users even during peak times.

Additionally, we use a Web Application Firewall (WAF) to add a layer of security before requests reach our backend services, protecting us from common web attacks such as SQL injection and cross-site scripting. For delivering static content like images, scripts, and style sheets, we rely on a Content Delivery Network (CDN), which dramatically reduces latency by caching content closer to our users. This combination of load balancing, WAF, and CDN contributes to a more resilient, secure, and responsive architecture, ensuring our web product can meet the demands of our growing user base. We use an API gateway to manage authentication with JWT, ensuring secure access control for our microservices. Our microservices include services related to Donation and Volunteering Drives as well as services pertaining to Donation Requests.



## Section 8 – Dashboard





## Section 9 – Conclusion

Food wastage remains a persistent problem due to the lack of effective coordination among stakeholders. To address this issue, it's crucial to bridge the gap between NGOs, event managers, restaurant owners, and households. By creating a collaborative network, these groups can work together to tackle food waste more efficiently and effectively. We created a web platform that brings together NGOs and Donors on one platform and allows them to work in coordination to further each other's progress in reaching their societal goals. NGOs can host Donation Drives that the Donors can apply to. At the same time, Donors can create Donation Requests that the NGOs can choose to accept. We as admins can track activity ,block any users that go against platform guidelines and also track trends to keep making the application more impactful.

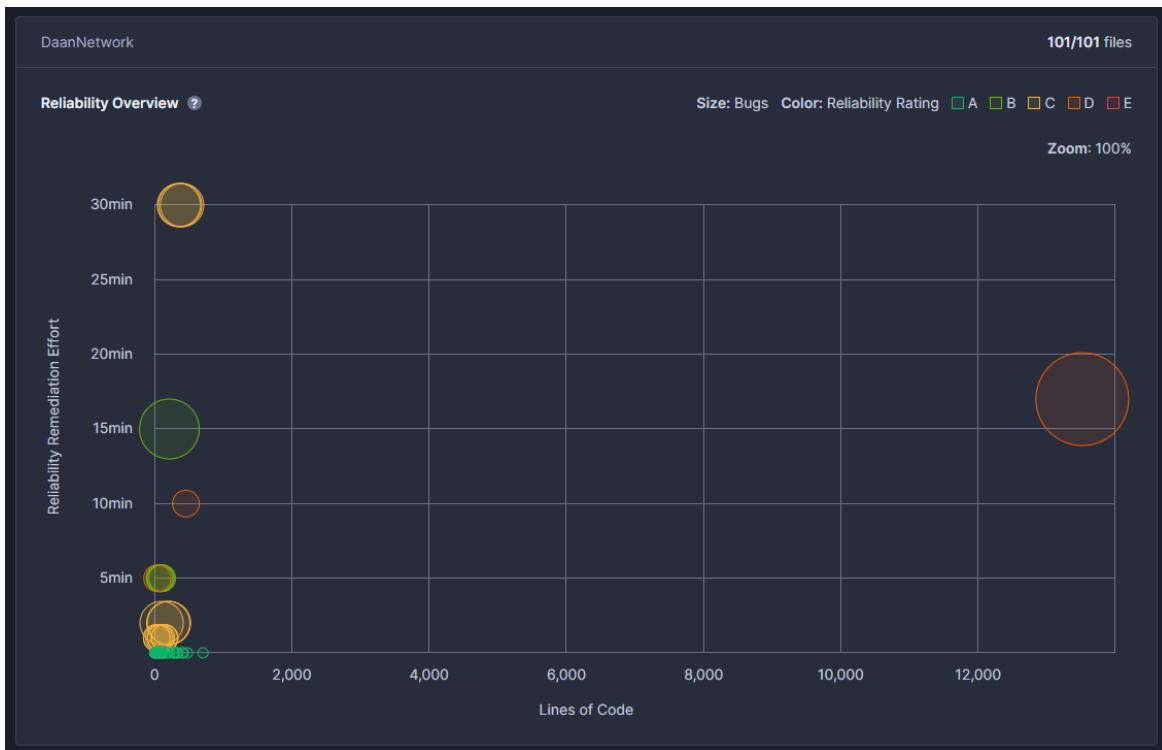
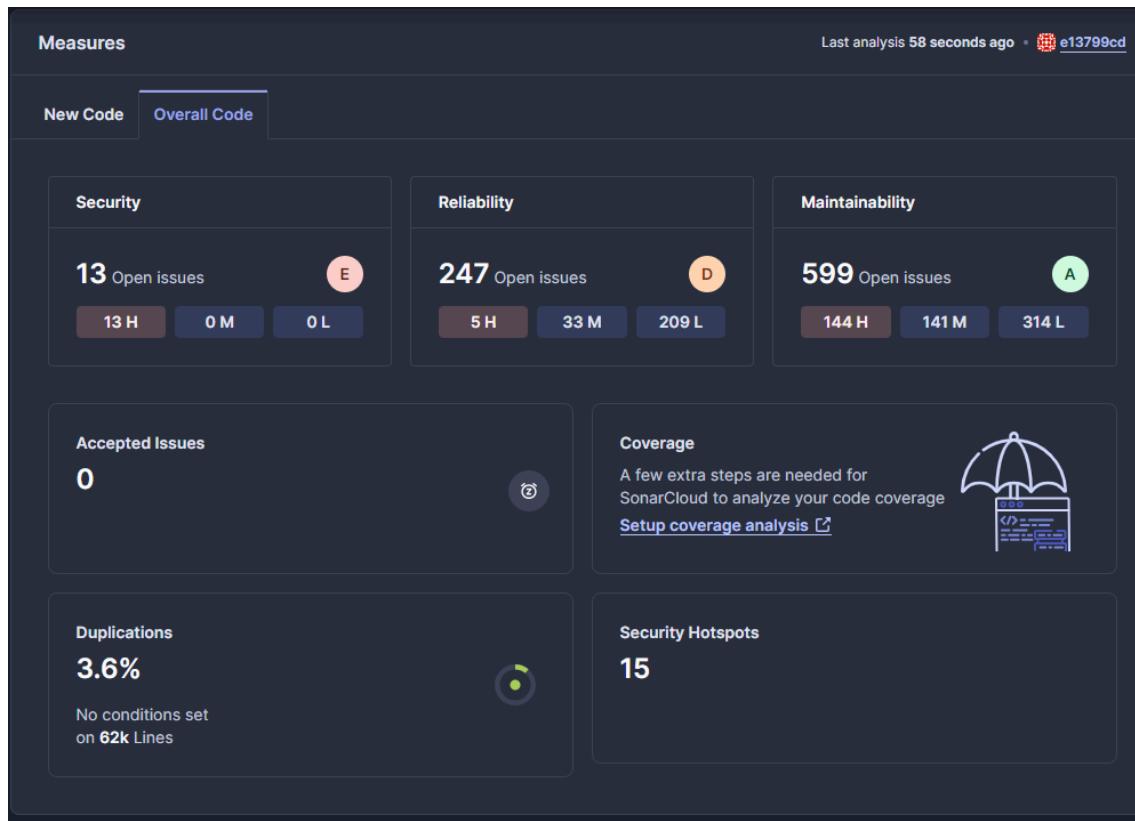
Building a project with the MERN stack gave us hands-on experience with modern web development and project management techniques. We dove into the details of each component in the stack, discovering how MongoDB allows for flexible data structures, how Express.js serves as a strong foundation for backend work, how React makes front-end development more interactive, and how Node.js's event-driven nature helps in handling server-side tasks. Not only did this project sharpen our coding skills, but it also showed us the importance of smoothly integrating all these technologies into a single, functioning application. We had to overcome issues with data flow and performance, which led us to try out different caching methods and asynchronous processes, pushing our problem-solving abilities further.

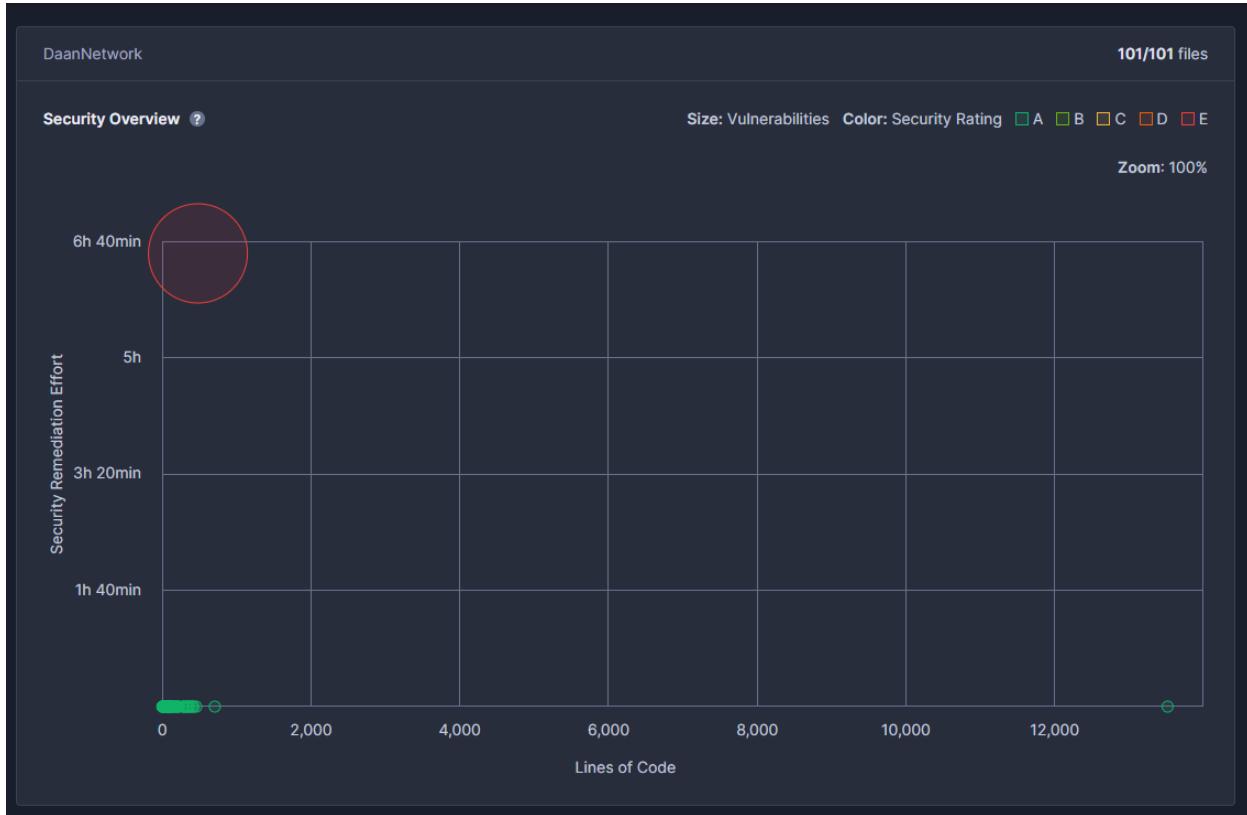
Embracing agile methodologies brought a new dynamic to how we managed the project. It gave us the freedom to iterate quickly and adjust our plans as needed. The agile approach encouraged better teamwork, with regular sprints, stand-up meetings, and retrospectives creating a supportive environment for open communication and quick feedback. This iterative workflow helped us break the project into manageable pieces, prioritise what was important, and stay flexible when unexpected issues came up. Reflecting on this experience, we realised just how crucial teamwork, adaptability, and continuous improvement are in reaching our project goals, setting a solid base for our future endeavours in development and beyond. Scrums provided a very fun way to keep track of our progress while allowing us to solve any difficulties that any one of us might be facing as a team.

A limitation we faced was that many third party APIs that could improve the quality and performance of our application by a good margin were all paid and hence we couldn't access those. This remains a very good direction for us to expand in greatly improving our website. Furthermore we would like to expand our initiative by taking a formal domain name and making DaanNetwork a real world platform. Possible enhancement includes development of a mobile app making the experience more accessible and user-friendly. One more issue we faced was that

of securing the endpoints properly and this still poses a problem for us. In the future we would like to expand this project by adding the necessary security features including an ssl certificate allowing the site to be accessed over https as well.

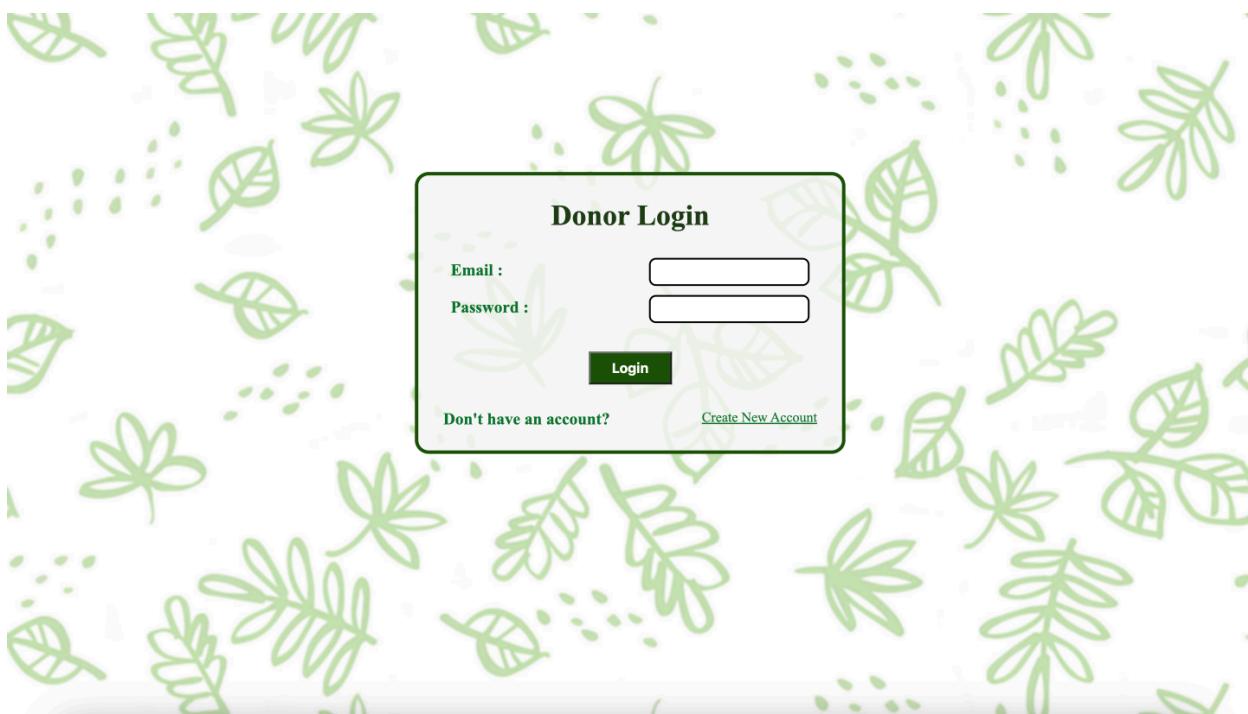
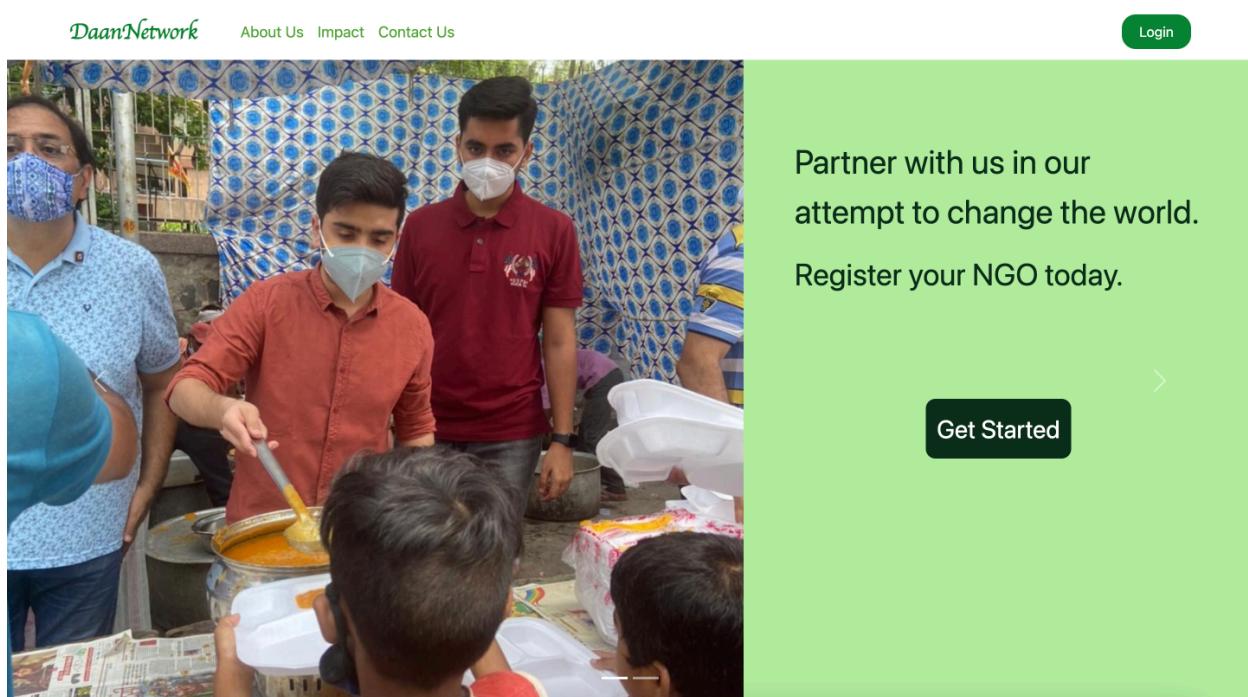
## Appendix A - Code Quality Reports







## Appendix B - Sample screenshots





**NGO-Registration**

Name of Applicant Organisation\*:

PAN Number of Applicant Organization\*:

Name of the Head of the Organisation\*:

Gender\*:  Male

Email (used for sign in)\*:

Password\*:

Contact Number\*:

Website URL:

Address\*:

GST Number of the Organisation:

Registration Number\*:

Upload Registration Certificate for Verification: (pdf/jpg)\*

No file chosen

DaanNetwork Donors NGOs Logout

### List of NGOs

De Dana Daan	A/003, Satyam Apartment, Shimpoli Road, Borivali west	<a href="#" style="color: green; text-decoration: none;">View NGO</a>	<span style="background-color: green; color: white; border: 1px solid black; padding: 2px 5px; border-radius: 5px;">Verified</span>
Ahar Kendra	B/003, New Diamond Building, Grafton Street, Bangalore 50038	<a href="#" style="color: green; text-decoration: none;">View NGO</a>	<span style="background-color: red; color: white; border: 1px solid black; padding: 2px 5px; border-radius: 5px;">Not Verified</span>
Organisation for Homeless Women	Kukatpally, Hyderabad, 500078	<a href="#" style="color: green; text-decoration: none;">View NGO</a>	<span style="background-color: red; color: white; border: 1px solid black; padding: 2px 5px; border-radius: 5px;">Not Verified</span>
Together We Achieve Foundation	Silpa Brindavan Plot no. 145	<a href="#" style="color: green; text-decoration: none;">View NGO</a>	<span style="background-color: red; color: white; border: 1px solid black; padding: 2px 5px; border-radius: 5px;">Not Verified</span>
Together We Achieve Foundation	Vyas Bhawan	<a href="#" style="color: green; text-decoration: none;">View NGO</a>	<span style="background-color: red; color: white; border: 1px solid black; padding: 2px 5px; border-radius: 5px;">Not Verified</span>

The screenshot shows the DaanNetwork website interface. At the top, there is a navigation bar with the logo 'DaanNetwork' on the left, followed by links for 'Donors' and 'NGOs'. On the right side of the navigation bar is a red 'Logout' button. Below the navigation bar, the main content area has a title 'List of Donors' centered at the top. The list consists of five rows, each representing a donor with their name and address. To the right of each row is a green 'View Donor' button.

Donor Name	Address	Action
Dev Gala	B/401, Jannus, TPS Road, Borivali West	<a href="#">View Donor</a>
Saksham Bajaj	New Heights Apartment, Lajpat Nagar	<a href="#">View Donor</a>
Atharva Dashora	Kukatpally, Kolasani Road	<a href="#">View Donor</a>
Kolasani Amit Vishnu	narsingi, manchirevula	<a href="#">View Donor</a>
Saanya Jain	Meera Bhawan , BITS Hyd	<a href="#">View Donor</a>

The screenshot shows the DaanNetwork website interface. At the top, there is a navigation bar with the logo 'DaanNetwork' on the left, followed by links for 'Donors' and 'NGOs'. On the right side of the navigation bar is a red 'Logout' button. Below the navigation bar, the main content area has a title 'NGO Details' centered at the top. The form contains seven input fields with the following data:

NAME	Ahar Kendra
PANNUMBER	AABPZ112H
NAMEOFHEAD	Vashisth Choudary
GENDER	Male
EMAILID	devgala2898@gmail.com
CONTACTNUMBER	1234567890
WEBSITE	<a href="http://aaharkendra.com">aaharkendra.com</a>

**DaanNetwork** Donor Logout

**Registration Certificate** X

**Guidelines for Registration of NGOs with the National Trust for Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities**

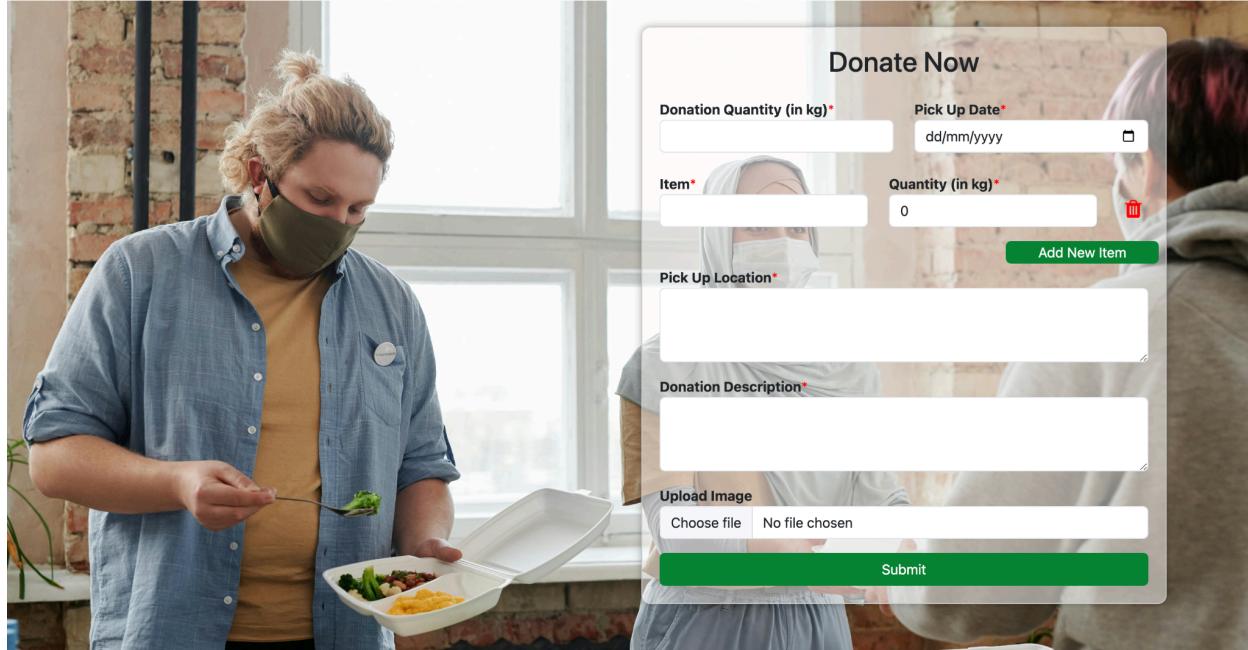
**Eligibility Criteria for Registration -**

- NGOs of the following three categories - **Voluntary Organization / Association of Parents of Person with Disability / Association of Person with Disability**, already working in the field of Autism, Cerebral Palsy, Mental Retardation, Multiple Disability can apply.
- Should be registered under Societies Registration Act of 1860 or Section of 25 of Companies Act 1956 or as a Public Charitable Trust.
- Should also be registered under Person with Disability (PWD) Act 1995 / Revised PWD Act, 2016.
- Further, should also be registered on NGO-Darpan portal of Niti Aayog.

**Documents Required To Apply For Registration**

<b>WEBSITE</b>	<a href="http://aaharkendra.com">aaharkendra.com</a>
<b>ADDRESS</b>	B/003, New Diamond Building, Grafton Street, Bangalore, Karnataka
<b>GSTNUMBER</b>	ABGH4685JY

**DaanNetwork** [Donate](#) [My Donation Requests](#) [My Accepted Donations](#) [My Profile](#) Logout



**Donate Now**

<b>Donation Quantity (in kg)*</b>	<b>Pick Up Date*</b>
<input type="text"/>	<input type="text"/> dd/mm/yyyy <span style="border: 1px solid black; padding: 2px;">X</span>
<b>Item*</b>	<b>Quantity (in kg)*</b>
<input type="text"/>	<span style="border: 1px solid black; padding: 2px;">X</span>
<b>Add New Item</b>	
<b>Pick Up Location*</b>	
<b>Donation Description*</b>	
<b>Upload Image</b>	
<input type="button" value="Choose file"/> No file chosen	
<b>Submit</b>	

**DaanNetwork** [Donate](#) [My Donation Requests](#) [My Accepted Donations](#) [My Profile](#) [Logout](#)

**Apply For Donation Drive!**



<b>Item*</b>	<b>Quantity*</b>
aloo	10
<b>Item*</b>	<b>Quantity*</b>
rice	2

[Add New Item](#)

**Food for All**

**Start Date:** 2024-03-05    **End Date:** 2024-03-15

**Recommended Items**

Item: aloo	Quantity: 36
Item: wheat	Quantity: 100
Item: rice	Quantity: 40

**Description:** needed for mid day meal in schools

**Pickup Date\*** 18/04/2024

**Pickup Address\*** V-451, BITS Pilani, Hyderabad Campus, Telangana

**Message** left over food

**Submit**

**Close**

**End Date: 2024-03-16**  
**Organising NGO: Rotary**

**End Date: 2024-05-16**  
**Organising NGO: Vyas**

**Welcome to DaanNetwork!!**

Thank you for joining us in our mission to make the world a better place. We are excited to have you as a part of our community. We are looking forward to working with you and making a difference in the society.

At DaanNetwork, we understand the vital role NGOs play in addressing food insecurity and supporting vulnerable populations. That's why we're committed to providing you with a user-friendly platform that streamlines the process of securing food donations, enabling you to focus more of your time and resources on your invaluable work. As you embark on this journey with us, please know that our team is here to support you every step of the way. Whether you have questions, need assistance, or simply want to share your successes, we're just a message away.



## Appendix C – Project management

