SW Engineering CSC648/848 FALL 2020

Let's Donate

Team 3

Milestone 1

October 1, 2020

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Date	Version
October 1, 2020	Milestone 1 v1
October 8, 2020	Milestone 1 v2

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Executive Summary:

San Francisco is one of the most expensive cities to live in throughout the world. The housing and furniture prices are high and can be almost non-affordable for most. In addition to that, there are many other expenses like hospital bills or insurance and there are almost no options available to the public that can help with this pricey lifestyle. Hence there is definitely a need for a support service where any individual can get at least some of the essentials like furniture and financial support from people with some privileges.

Let's Donate comes to the rescue to provide support to the people in need of daily use products for free along with some financial support to get help during difficult times. We at Let's Donate will build a community that revolves around helping people in need.

With everything that's going on this year, people have been laid off, lost homes, lost loved ones, or found some other form of hardship and yet there is merely no support scheme for the situations. The Let's Donate team has been consistently analysing the situation and came up with an idea of providing goods and products from one person to another who needs it. It is within human nature to find some amount of happiness and satisfaction through helping others or getting help from others during a time of need and through these donations both the donor and receiver of an item can attain some form of joy and hope in these hard times.

In this modern day and age, there are many products that try to support those in need such as Craigslist, Facebook marketplace, etc. but almost all of them have some drawbacks (more information is provided in the competitive analysis). Our aim is to provide *the* platform with the sole purpose of providing help to people in need through people willing to help while presenting the best user experience with little to none of the inconveniences our competitors face.

While Let's Donate strives to be completely free compared to the competition, to guarantee the longevity of the product, there will be a number of ways that we can obtain income. To ensure that our product is not taken advantage of, users will have a monthly limit of claiming five instances of support whether it be a physical item or monetary donation. If a user would like to be able to accept more support in a given month, there will be a fee that will lift that limit for the month. Another way to ensure the financial support for the product would be through monetary donations that users can give directly to Let's Donate. When a user provides financial support to someone in need, they will also have the option to donate to Let's Donate. In addition to a pay-off to receive more products and accepting donations, with enough traction, Let's Donate may also use advertising from other businesses to gain revenue. Doing so can guarantee that Let's Donate can continue to operate.
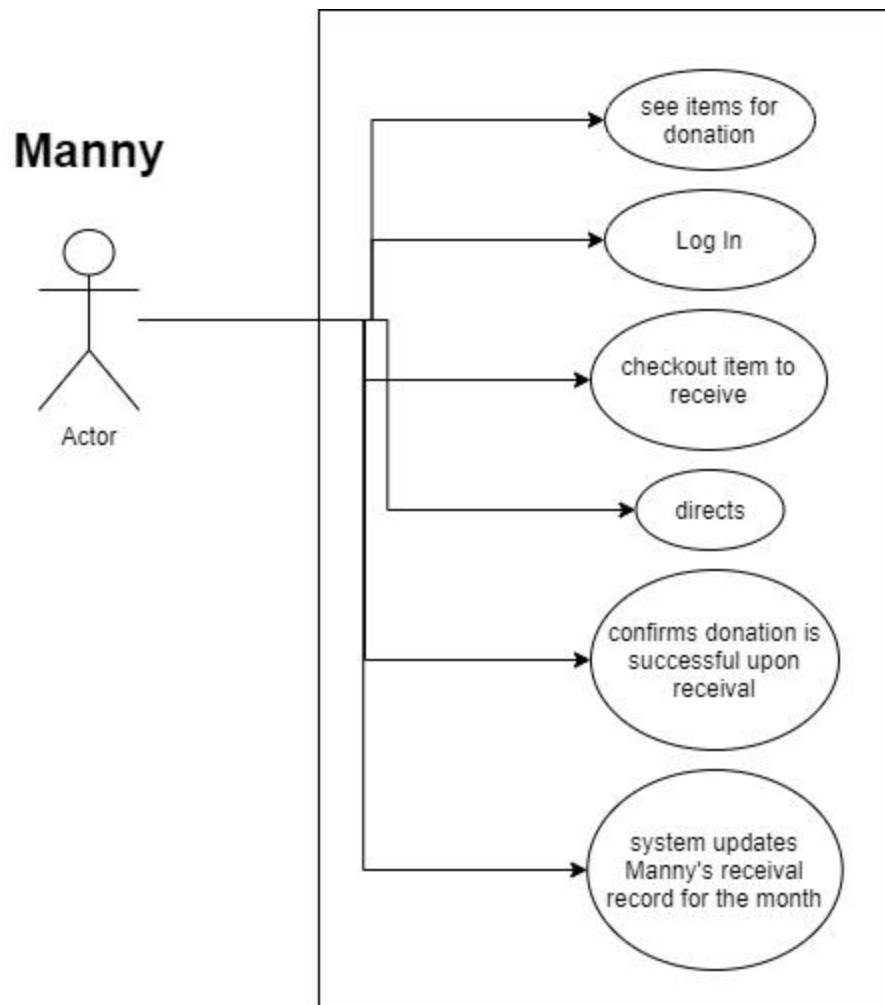
Main Use Cases:

Actors:
- Manny:
  - A college student that lives alone, remotely from his widowed father, Russel.
  - Has a part-time job that gives him *just* enough to keep his place, live comfortably, and pay for his student loans.
  - He has a close relationship with his father and is willing to help out the best he can should he need it.
  - Manny tends to think in the mindset that "if you get enough for one person, it's only fair to share with everyone else".
  - Goals and scenario:
    - Manny's father has recently lost his home and without any funds to buy him anything like clothes or food to help cope with the loss, Manny asks for donations to help Russel.
    - While searching for clothes for his father, Manny comes across a fundraiser for a father seeking help to pay for his daughters medical procedures. Not having enough spare change to make a donation, Manny at the very least endorses the story so that anyone viewing his profile may be able to see it and to increase the recognition the story will receive.
- Ann:
  - A woman in her late twenties living with her boyfriend, Jay.
  - While Jay can be sentimental about a lot of things they keep around the house, Ann believes in the need to get rid of any items they have in the house that they don't use. She also tends to be very sympathetic to others.
  - Ann's late father, Jack, used to live with her and Jay before his passing a year before.
  - Goals and scenarios:
    - While cleaning out one of their house's closet's Ann comes across some of Jack's old clothes, and instead of throwing them away, Ann tries to think of ways to get rid of them without wasting them and ends up putting them up for donation. Some time later, a college student reaches out to her about them and she gives the clothes away to him.
    - Without the expenses of feeding/taking care of another person in their home, Ann and Jay tend to have more money in their account these days. One day, while randomly browsing donations, Ann notices a fundraiser for a father seeking aid for his sick daughter with nowhere else to turn to. So she ends up digitally donating to the father's cause.
- Chris:
  - A single father that lives in a two bedroom apartment with his 8 year old daughter, Winnie.
  - He works a lot, but always tries to make time to spend with his daughter.

- ○ He doesn't make a lot of money so there aren't a lot of funds for leisure, but if there are any expenses to take care of his daughter's wellbeing, he wouldn't think twice about spending what he has.
- ○ Goals and scenarios:
  - ■ Winnie has just been diagnosed with medulloblastoma, a type of brain cancer that commonly develops in young children and Chris knows that the treatment is almost too much for him to handle with his current position, so he seeks out monetary donations to help pay for Winnie's medical expenses.

Usage Cases:

Diagram Legend

Actor — Actor

Relationship

System

Use Case
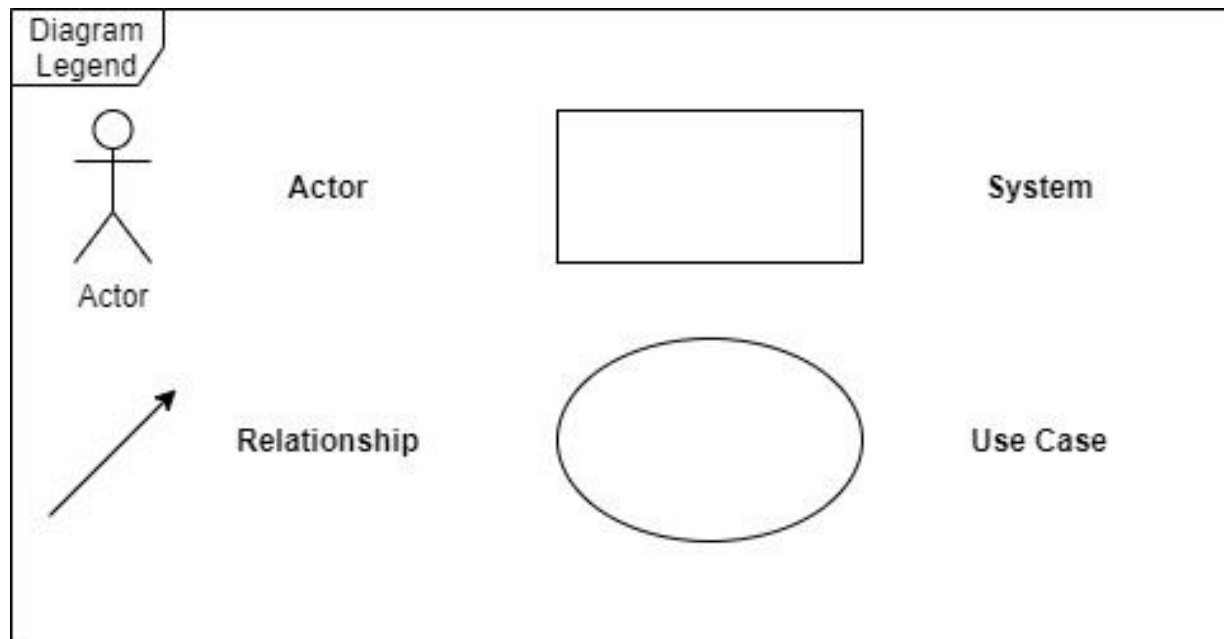
1. Receiving donations, physical donations receiver: Living remotely from his family for school, Manny has recently learned that his widowed father's house was one of the ones that have been caught in the California fires. Having to pay for college loans, Manny doesn't have a lot of funds to help his father and might need to look into getting donations for him. He finds that a woman living not too far from him is willing to donate her late father's clothes and is able to contact her. After explaining his situation, the two meet up at an agreed location and Manny is able to receive said clothes for his father.

Manny

Actor

see items for donation

Log In

checkout item to receive

directs

confirms donation is successful upon receival

system updates Manny's receival record for the month

2. Giving Donations, physical donations giver: A year after her father, Jack's passing, Ann finds some of his clothes in the back of one of the closets of her and her boyfriend, Jay's house while cleaning it out. The clothes weren't in the kind of style that Jay would wear, nor did she know of anyone that would want them, but she didn't want to just throw them away. So she puts them up for donation and a few weeks later gets contacted by a college student living about 25 minutes away from where her house is. After a bit of back and forth, Ann and the college student, Manny agree to meet at a park between their home locations where Ann gives the clothes to Manny.
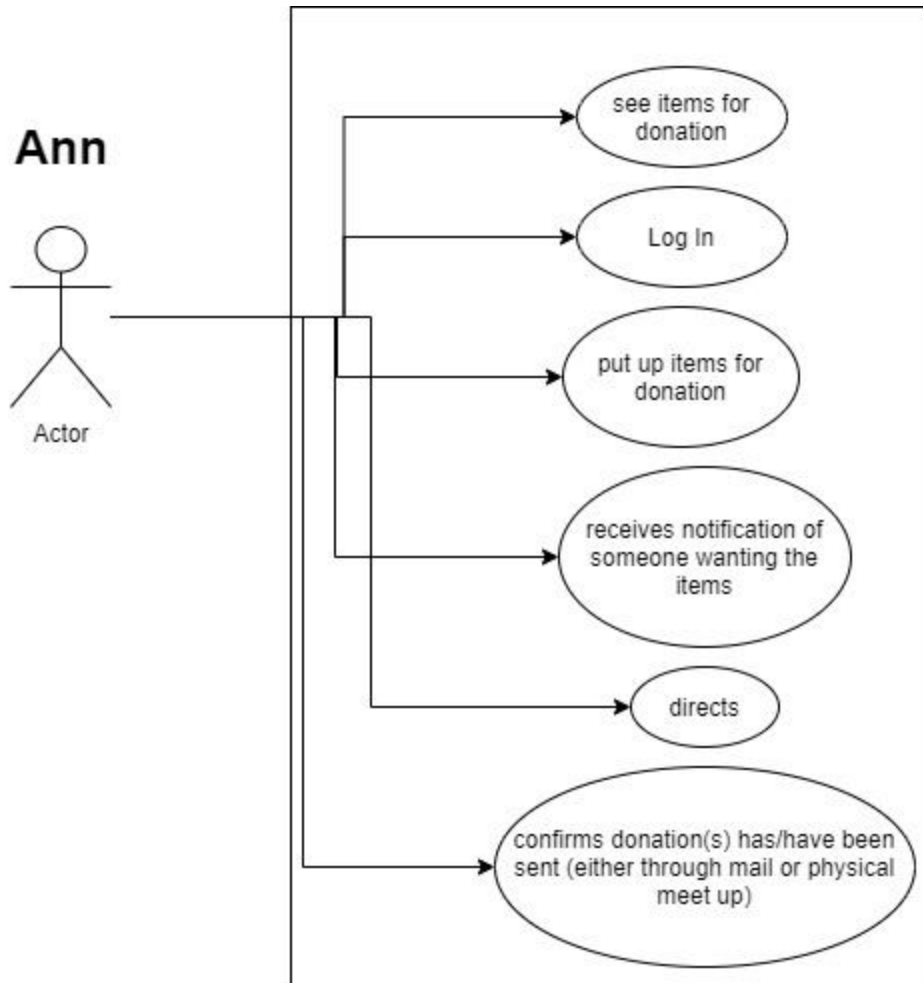
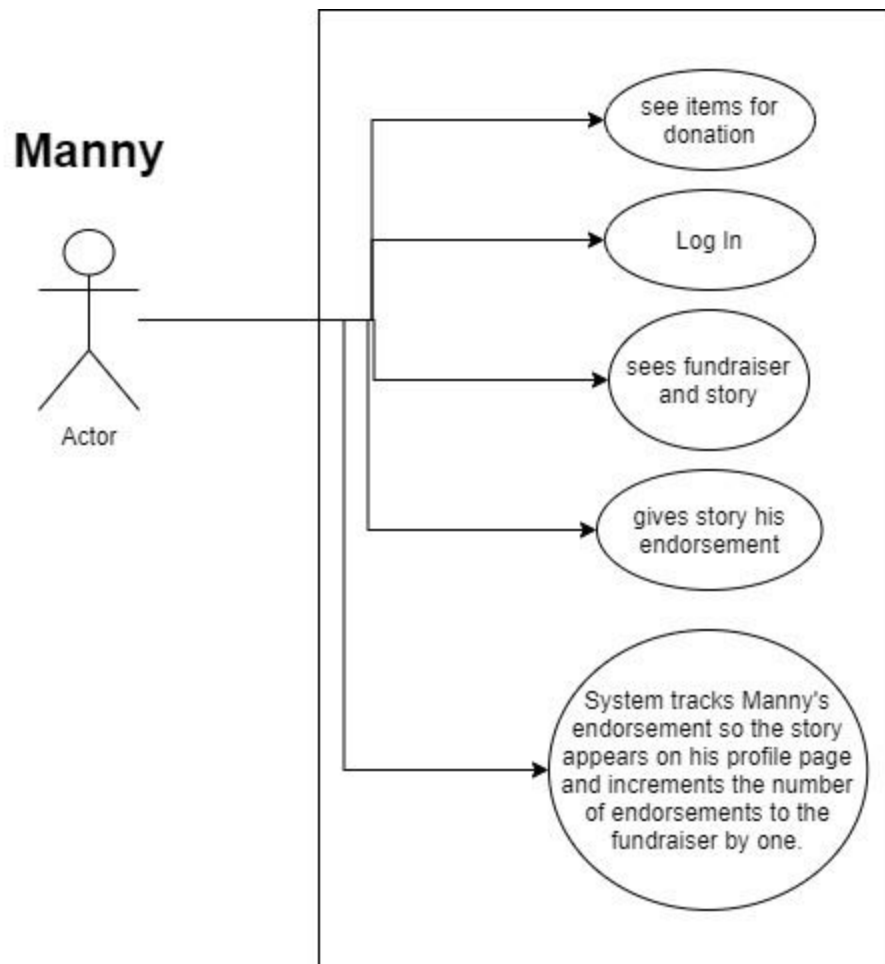3. Getting funds for a medical procedure, monetary donations receiver: With his only child diagnosed with cancer and his job the only means of funds they have, Chris struggles to pay for the cost of treatment. Posting the story of how his 8-year old daughter, Winnie, needs treatment for her case of medulloblastoma and how he needs money to pay for it, he gains monetary funds from a number of donors through online donations.
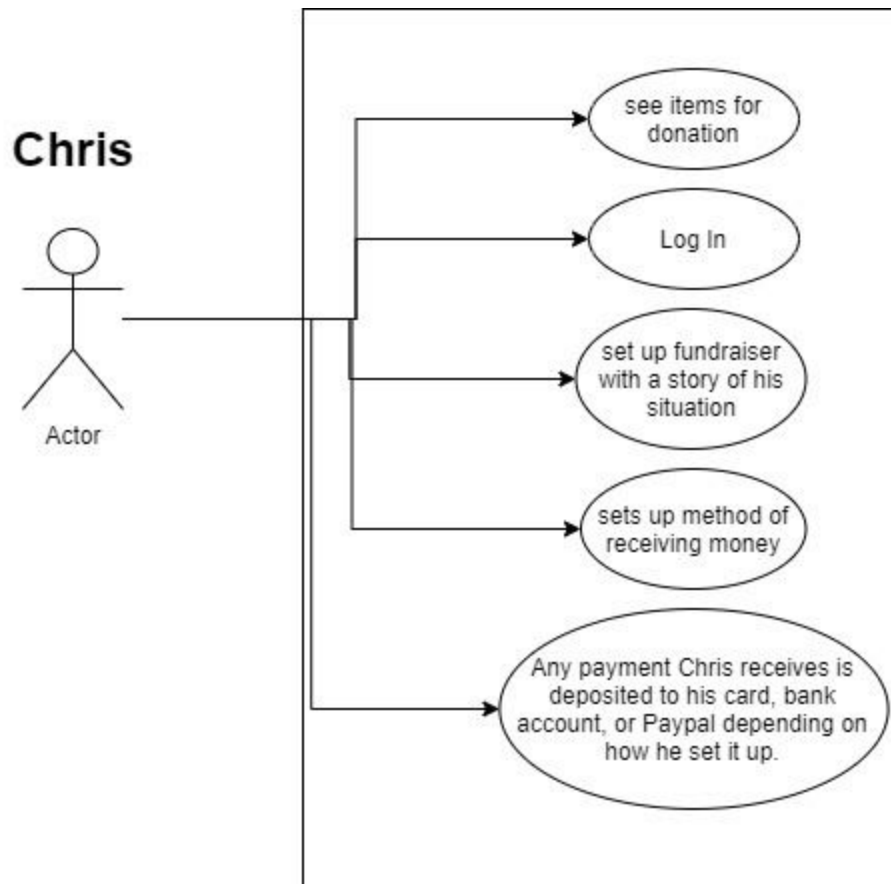
4. Giving money for a cause, monetary donations giver: Without the need to pay for maintenance of their late dog, Chip, Ann and her boyfriend, Jay, have had more money to spend lately. While Ann was browsing through fundraisers, she came across the story of a single father trying to get money to pay for his 8 year old daughter's treatment since he has no spare funds of his own. After consulting with Jay, Ann donates money through a digital payment system.
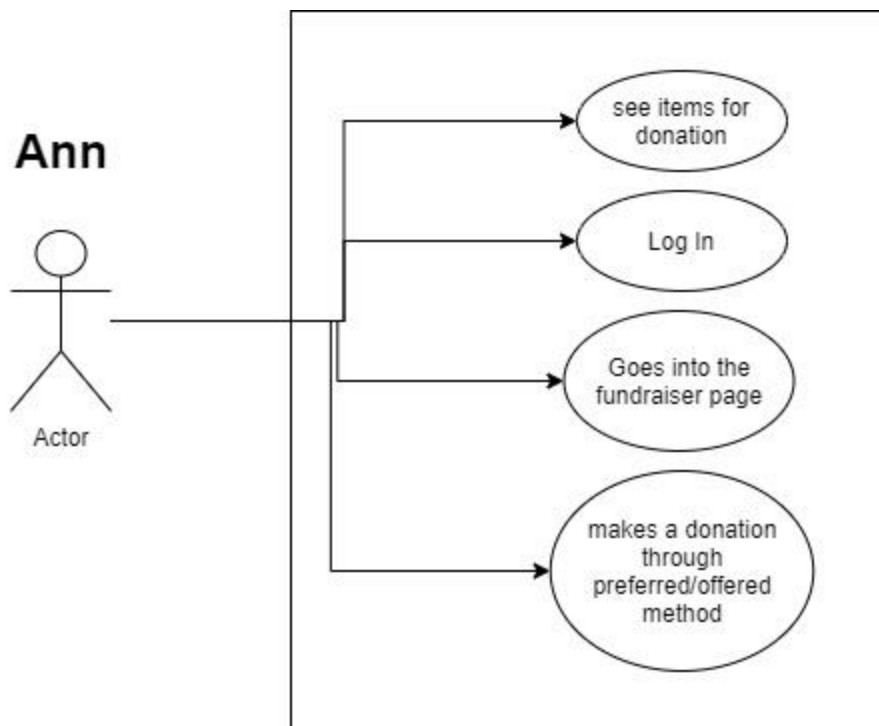
5. Endorsing a fundraiser, college student: While browsing for clothes for his father, Russel, a fundraiser for an 8-year old daughter manages to catch his eye. Knowing he's already strapped for funds and has his own issues to help take care of but still wanting to help out in some way, Manny endorses the story so it'll show up on his profile page and give the story a chance to get more recognition.

Manny

Actor

- see items for donation
- Log In
- sees fundraiser and story
- gives story his endorsement
- System tracks Manny's endorsement so the story appears on his profile page and increments the number of endorsements to the fundraiser by one.

List of Main Data Items and Entities:

Admin: An incharge of Let's Donate to keep a track of all the activities over the website and tracking of malicious accounts to delete them if required.

User or registered User: Any visitor to Let's Donate website is a user if they signed up at Let's Donate.

Donor: A registered user who will be able to post ads and donate money over the website.

Receiver: A registered user who can contact the donor and ask for the uploaded product or cash donation.

Guest: An unregistered user who will be able to view the available products posted for donation but need to register to get or post products.

Product: A product can be anything that any user wants to donate like television, bed, bike, etc.

Post: Post products like chairs, books, tables, and every other material that you want to donate.

FundRaiserPost: Every user can make a post asking for funds.

Moderators: Moderators will work with the admin to track spam users and posts.

Sign up: User sign up is required for making and receiving donations.

Show Interest in Post: Users can show interest in any of the products mentioned on the website by hitting the like button for whichever product they like.

Grab the Product: Contact the donor for whichever product/posting you like via email provided by the website when interest is shown.

Number of Products Received Limit: There will be a limit on the number of products a receiver can get i.e. 5 per month.

Ask for Financial Support: Write your story about why you need money and attract donors for receiving money donations.

Profile: User profile will show the products they donated or received.

Product Info: A little information is required for every product when uploading a post to describe the condition of product and other details.

Report Spam Posts: Users can always report spam posts which can be deleted by the Admin.

Search: An user can use the search bar to find a product based on product name.

Functional Requirements

<u>Guests:</u>
1. Guests shall be able to take a tour of the website
2. Guests shall be able to register themselves in the website
3. Guests shall be able to browse donations and fundraisers
4. Guests shall be able to make one time
5. Guests shall be able to contact administrators
6. Guests shall be able to view user profiles

<u>Users:</u>
1. Users shall be able to login to the website
2. Users shall have a username
3. Users shall have a password.
4. Users shall be given an editable profile
5. Users shall be able to visit their profile
6. Users shall be able to check their donation history
7. Users shall be able to see other people's donation history
8. Users shall be able to set their profiles as private
9. Users shall be able to reset their password
10. Users shall be able to receive a reset link through their email
11. Users shall be notified about new items through email.
12. Users shall be able to shop
13. Users shall be able to have their own cart to bag their items
14. Users shall be able to keep a wishlist of items
15. Users shall able to add items in their wish list
16. Users shall able to remove items in their wish list
17. Users shall able to search items by distance
18. Users shall able to search items by date
19. Users shall able to search items by name
20. Users shall sort donations as they wish (i.e. by endorsement)
21. Users shall be able to search up other users
22. Users shall be able to see other users' items
23. Users shall be able to see other users' fundraisers
24. Users shall reserve donated items for a certain period of time
25. Users shall checkout their reserved item
26. Users shall able to endorse fundraisers
27. Users shall be able to make payments
28. Users shall be able to place items up for donation.
29. Users shall be able to set up description of items for donation

30. Users shall be able to remove their own posts
31. Users shall be able to remove their own fundraisers
32. Users shall be notified if their donating item has been requested by another user
33. Users shall be able to direct message each other
34. Users shall be provided with recommended items based on their view history
35. Users shall be able to rate other users on their credibility
36. Users shall be able to send complaints about other users to administrators.
37. Users shall be able to send reports about other users to administrators.
38. Users shall be able to get support from administrators
39. Users shall be able to delete their own profile
40. Users shall be able to log out of the website
41. Users shall be able to appeal for a deleted post by contacting an Administrator
42. Users shall be able to appeal for a deleted fundraiser by contacting an Administrator
43. Users shall be able to follow other users
44. Users shall be able to donate directly to the product

Website:
1. The website shall be regularly updated regarding items.
2. The website shall be regularly updated regarding history.
3. Website will update according to the items preference set by the user

Administrator:
1. Administrator shall receive reports about users
2. Administrator shall receive complaints about users
3. Administrators shall have the ability to ban users from using features of the website
4. Administrators shall protect the privacy data of users
5. Administrators shall be able to delete the spam items
6. Administrators shall be able to remove posted items
7. Administrators shall be able to remove posted fundraisers
8. Administrators shall be able to bring back a fundraiser if it has been removed
9. Administrators shall be able to bring back a post if it has been removed
10. Administrators shall be able to send general messages to all users

Non-functional requirements

Reliability
1. Database shall make a full backup every 24 hours.
2. The website shall provide services 24/7.

Response time
1. First Contentful Paint(FCP) shall be under 2.5 seconds.
2. Time to Interactive(TTI) shall be under 4 seconds.
3. Speed Index shall be under 3.5 seconds.
4. Total Blocking Time(TBT) shall be under 300 milliseconds.
5. Largest Contentful Paint(LCP) shall be under 3 seconds.
6. Cumulative Layout Shift(CLS) shall be under 0.1.

Hardware and networking
1. Data shall be stored in the MySQL database v8.0
2. Website shall be deployed on Amazon Web Services.
3. Frontend shall be written using the React framework v16.13
4. Backend shall be written using the Express framework v4.17.1

Usability
1. Guests shall be able to browse all existing items.
2. 99% of users shall be able to find their items through searching for the first time without assistance.
3. 90% of users shall be able to find their items through category navigation for the first time without assistance.
4. Login is needed for posting donations.
5. Login is needed for requesting donations.
6. Username is an email address.
7. Website shall scale properly for mobile devices
8. Website shall validate new user registration through email (API)
9. Website shall validate old user through email and password
10. Website shall make sure that users are legit
11. Website shall make sure that all the items shown on the donation are legit.
12. Website shall update the new item first

Marketing, legal, licensing
1. The user needs to admit website policies in order to create an account.
2. Copyrighted material shall not be used against what the copyright holder allows.

Media content
1. Users' uploaded images should be compressed.
2. Each post shall display an image of the item.

3. Each post shall have a description of the item with maximum 10 words.
4. Uploaded item images shall be stored into the cloud

Privacy
1. Phone number is optional for creating an account.
2. Zip code is required when creating an account.
3. Email address is required when creating an account.
4. Only the database administrator can access users' personal information.
5. User's password shall be stored in the database after password encryption.
6. There shall be 2 factor authentication for user login.
7. Users shall not be allowed to login from a new device until 2 process authentication is processed.

Compatibility
1. The website shall be supported by Google Chrome v86.0
2. The website shall be supported by Firefox v86.0
3. The website shall be supported by Microsoft Edge v85.0

User Experience
1. The website shall not be overcrowded with ugly buttons and links.
2. The navigation between multiple pages shall be best.
3. The font shall not be too small.
4. The website shall provide small hints when using the website for the first time.
5. The colors of font and background shall be different.
6. The website shall avoid displaying fake posts.

Programming Methodology
1. A function shall not hold many responsibilities.
2. The app architecture shall be designed before writing the code.
3. Focus more on code quality and not on number of lines.
4. Error prone code shall not be pushed to github.
5. Proper comments shall be provided with the code.
6. Proper use of data structure shall be implemented.
7. The time complexity of different functions shall be regulated.
8. Users shall not see error messages on screen.
9. The tech stack shall be approved by all team members.
10. There shall be a proper use of design patterns.
11. The code shall not break when visiting a wrong endpoint.

Competitive Analysis

Feature/Company	Craigslist	Facebook Marketplace	OfferUp	Poshmark	GoFundMe
Strengths	- Well known - UI equally prioritizes listing information - View listing without account	- Many users - View listing without account - Can view other listings from seller - Can contact seller directly from website	- Native mobile apps - Rated user profiles - View listing without account - Can contact seller directly from website	- View listing without account - Can view other listings from seller - Can purchase without account	- Can donate without an account - Homepage shows top fundraisers
Weaknesses	- Ugly UI - False price listings - Contact seller by email, sometimes phone	- False price listings - Focus on product image	- Cluttered UI - Need account to contact	- Confusing to view products - Homepage presents a signup screen - Retail store feel	- Monetary only - Fundraiser description could be hidden - Page shows who donated and how much
Pricing	Free-$75	Free-5% of selling price	Free-12.9% of selling price	$2.95 or 20% of product price	2.9% of donation and $.30
Social Media	Inactive	Facebook	Twitter, Facebook, Instagram, Blog	Twitter, Facebook, Instagram, Blog	Twitter, Facebook, Instagram, Blog
Onboarding Experience	- Easy to search for items - Difficult to figure out	- Easy to search for items - Difficult to figure out	- Easy to search for items - Pages have cluttered	- Difficult to find products without an account	- Nice layout - Donations seem more like social

	pricing	pricing - Difficult to find details about item - Focus is on the product and not similar items	results - Product page has images not organized -	- Search results have a good layout - Product page focuses more on buying	media than donating

Feature	Craigslist	Facebook Marketplace	OfferUp	Poshmark	GoFundMe	Let's Donate
Search	+	+	+	+	+	+
Browse	+	+	+	+	+	+
Communication	+	+	+	-	-	++
Location	+	+	+	-	+	+
Free to use	+	+	+	-	-	++

\+ feature exists; ++ superior; - does not exist

This year of 2020 has seen many forms of disasters like the wildfires in Australia and parts of the U.S., the pandemic of Covid-19 and the quarantines it's brought with it, and more. Each of these harsheties have harmed people in some way or form. The world is in a time of need and while sites like Craigslist and GoFundMe can be utilized by families experiencing hardship, Let's Donate aims to provide a better experience. Our competitors like Facebook Marketplace and Offerup provide an outlet for individuals to offer their belongings for free to people that need help. How Let's Donate differs from this is that we provide a platform that eliminates solicited listings and only contains listings for donated items that are completely free. Not only that, but individuals also have the choice of reaching out to their community for financial assistance. Websites like GoFundMe will provide the fundraised goal to a person, but there are fees that the donator may need to pay. Let's Donate will not take any cut from these donations unless they wish to and provide a seamless platform for the community to donate directly to one another. With our website being free to use, individuals will not have to worry about finding a good deal or spending what little they have on essential items. This means that if someone is in need of clothes or food, all they have to do is go onto Let's Donate and look for a product or put up a post seeking assistance. With our more feature rich communication system, people can communicate with each other by email, phone, and our websites chat feature. Having this many options for communications allows people to have more ways to get in touch about a listing or simply to connect to one another.

High-Level system architecture and technologies used:

Server Host : AWS EC2 1vCPU 1GB RAM
Operating System : Ubuntu 16.04 Server
Database : MySQL v16.3
Web Server : Caddy v1
Server-Side language : Express.js (Javascript)
Additional Technologies : Web Framework: React.JS v8.0
                                          SSL: Lets Encrypt.
IDE : Visual Studio Code, Atom
Web Analytics : Google Analytics, PageSpeed Insights.

TEAM

Himanshu Garg: Worked on Executive Summary, Main Data Items (With team discussions) and Entries and some non-functional requirements.

Milo Abril: Worked on Main Use Cases, Executive Summary and Functional Requirements. Regular to weekly group and after class meetings. Implemented the assigned work and more before the deadline.

Marlon Bustamate: Worked on many different sections - Competitive Analysis, Executive Summary, Title Page, Table of Contents, and formatted the non-functional requirements. Highly attentive and active in all group activities and meetings. Completed assigned work and more before the deadline.

Kunyu Ruan: Worked on both Functional and Non-functional requirements. Always present in team meetings with great participation. Completed assigned work before the deadline.

Dipendra Dhoj Rana: Worked on Functional Requirements. Again, highly attentive and active in all groups meetings and discussions. Completed assigned work before the deadline.

Suman Basaula: Priorly worked on High Level System Architecture. Great Contributor. Always present in group meetings and always participates in group discussions. Completed assigned work before the deadline.

CheckList

• Team found a time slot to meet outside of the class : **DONE**
• Github master chosen: **DONE**
• Team decided and agreed together on using the listed SW tools and deployment server: **DONE**
• Team ready and able to use the chosen back and front end frameworks and those who need to learn are working on learning and practicing: **DONE**
• Team lead ensured that all team members read the final M1 and agree/ understand it before submission: **DONE**
• Github organized as discussed in class (e.g. master branch, development branch, folder for milestone documents etc.): **DONE**