Erica Walker

Walker Development Corp.

Superhero Sightings Project Plan

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Overview

The purpose of the Superhero Sightings application is to create and maintain a database of superheroes, organizations, sighting locations and superpowers. The data in this database will be accessible in many forms, as is described in the Entity Relationship Diagram (ERD) section of this document.

The intended audience for this web application is two-fold. One audience is the general public who will come to the site to see where heroes have been spotted and to add their own sightings. The other audience is the Hero Education and Relationship Organization (HERO) who will be using the data to keep track of all of the superheroes and organizations.

The business case for this project is directly related to the rising popularity of superhero movies. Because of that rise, there has been a heightened awareness of superheroes in our midst and the frequency of superhero and supervillain sightings is increasing at an alarming rate. This web application will address those concerns by keeping a database of all of the sightings that can be analyzed to assist in any pattern modifications that need to be made to decrease the visibility of the superheroes.

Definitions

Terms

1. **User:** A user in this project is anyone who interacts with this application by visiting the website to search sightings and/or to add their own.
2. **Administrator:** An administrator in this project is anyone from the Hero Education and Relationship Organization (HERO) who has the credentials to access and modify the database we well as anyone on our team who is assigned to manage the database.
3. **CRUD:** An acronym for Create, Read, Update, Delete. This is shorthand for saying you want the functionality to create something in the database like a superhero, sighting, location, etc. (C), read or get information back from the database (R), update existing information in the database (U), and delete information in the database (D).
4. **Query:** A query is how we access the database. Think of a query as a request or a question for the server. “Give me all of the sightings for Superhero B.” “Can you tell me how many times Superhero B has been spotted at Location X?”
5. **Happy Path:** The happy path in coding is when someone follows the exact set of processes or steps in an application or program so that they interact with the program exactly as it was designed to be interacted with. When someone strays off the happy path that’s where errors come in like entering a name where a date should go or submitting a form that isn’t completely filled out.

Entities

1. **Hero:** A hero in this project can be either a superhero or a supervillain. A hero has a name, a description, a superpower and can be affiliated with one or more superhero/supervillain organizations. They are the ones we will be tracking in this project.
2. **Superpower:** A superpower in this project is a trait that a superhero has that sets them apart from regular humans. These could be things like the ability to fly, superhuman strength, invisibility, etc.

3. **Organization:** An organization in this project can be made up of either superheroes or supervillains. An organization has a name, a description, an address, contact information and can have many superhero/supervillain members.
4. **Location:** A location in this project has a name, a description, address information, and latitude and longitude coordinates. Each hero sighting will include the location and each organization includes a location as well.
5. **Sighting:** A sighing in this project is when a hero is sighted and it is entered into the database by a user. Each sighting will include which hero was spotted, the date and the location where they were spotted.
6. **Homepage:** This will be the landing page for the project and the first thing a user sees when they come to our site. It will display general information about the application and include navigation to all the other pages and a news feed of the 10 latest sightings in the database.
7. **Sighting page:** This is the page where a user can add their superhero sightings. There will be a form on this page so the user can enter all of the required information for a sighting: the hero's name (and a link to create a hero if that hero doesn't exist in the database yet), the location's name, address (street address/city/state/country) and a calendar to select the date.
8. **View page:** On this page the user can view all of the heros. There will be functionality so that the heroes can be displayed by date, by organization, by location, by date and location and, by organization.
9. **Create page:** On this page a user can create a hero / location / superpower / organization if they don't already exist in the database. There will be a form with fields to fill in all of the necessary elements for that particular entity.
10. **Edit page:** On this page a user can edit an existing hero / location / superpower / organization / sighting in the database. There will be a form with fields to edit all of the necessary elements for that particular entity.
11. **Delete page:** On this page a user can delete an existing hero / location / superpower / organization / sighting from the database. There will be a form with a dropdown menu to select which entity to delete.

Processes

1. **Add Sighting:** A user will fill out the form on the Add Sighting page. The form will be validated in the Java service layer before being added to the database.
2. **View:** A user will set which type of view they want to see on the View page. The database will be queried for the results through ThymeLeaf and MySQL and returned to the page in a table.
3. **Create:** A user will fill out the form on the Create page. The form will be validated in the Java service layer before being added to the database.
4. **Edit:** A user will fill out the form on the Edit page. The form will be validated in the Java service layer before being edited in the database.
5. **Delete:** A user will fill out the form on the Delete page. The form will be validated in the Java service layer before being deleted from the database.
6. **News Feed:** The ten latest sightings will appear when the homepage loads. This will be provided through Spring HTTP Requests to the database.

User Stories

The user stories below are descriptions of the features of this application. The weight estimates how long each user story is going to take to build out.

ID	Story	Weight
1	As a user, I want to be able to record a superhero sighting for a particular location and date.	8
2	As a user, I want to be able to see all of the superheroes sighted at a particular location.	5
3	As a user, I want to be able to see all of the locations where a particular superhero was sighted.	5
4	As a user, I want to be able to see all sightings (hero and location) for a particular date.	5
5	As a user, I want to be able to see all the members of a particular organization.	5

6	As a user, I want to be able to see all of the organizations a particular superhero/villain belongs to.	5
7	As a user, I want to be able to see general information about the application when I navigate to the site	3
8	As a user, I want to be able to see the 10 latest sightings when I navigate to the site.	5
9	As an administrator, I want to be able to CRUD superheroes / supervillains in the system.	5
10	As an administrator, I want to be able to CRUD super powers in the system.	5
11	As an administrator, I want to be able to CRUD locations in the system.	5
12	As an administrator, I want to be able to CRUD organizations in the system.	5
13	As an administrator, I want to be able to CRUD sightings in the system.	5

ERD

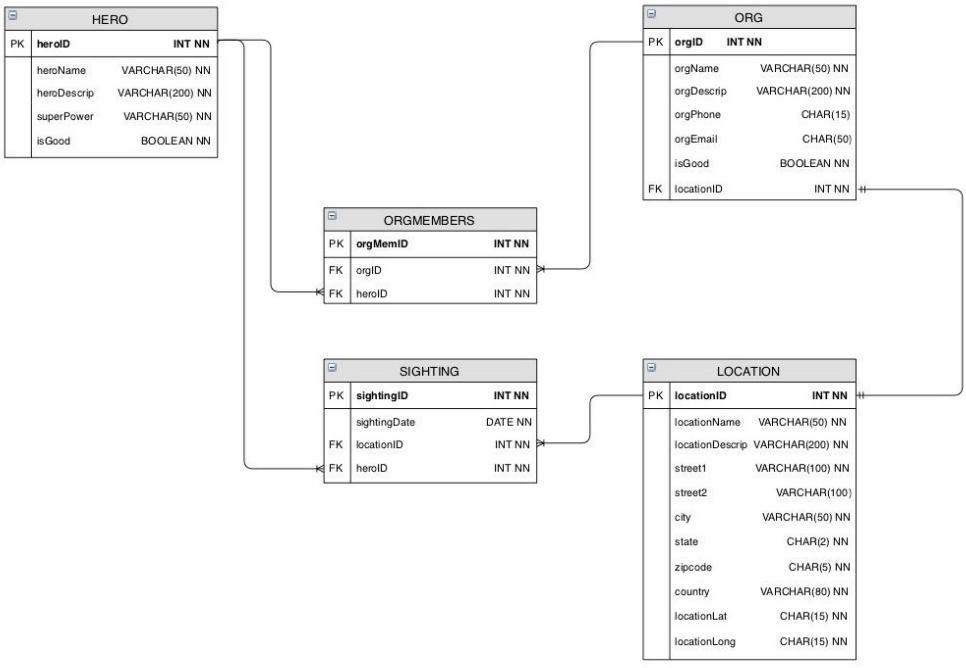
The Entity Relationship Diagram (or ERD) lays out the relationship between the data that is stored in our project database. You can see in the diagram that there is a table for Heros, Organizations, Locations, Sightings, and Organization Members. These tables help us keep all of the data organized by breaking them out. If all of the data was in one large table it would be more difficult to read, update, and access that data in the database. But since they are broken out with relationships to other tables, we can access all the data that we need quickly and keep everything organized.

The Hero table includes all the information that makes up a hero, including a status to define if they are a superhero or a supervillain which is the boolean “isGood.” When entering a hero into the database we can set them as either a superhero or a supervillain. The Organization table is similarly laid out with the information included that makes up and organization and a status to define if that organization is made up of superheroes or supervillains.

Since an Organization will have many members and a hero can belong to more than one organization, we keep that information in a separate table called Organization Members (or OrgMems for short in the diagram and in the database). Since this table references both the hero and organization tables, it can tell us which organizations the hero belongs to as well as the members of a particular organization.

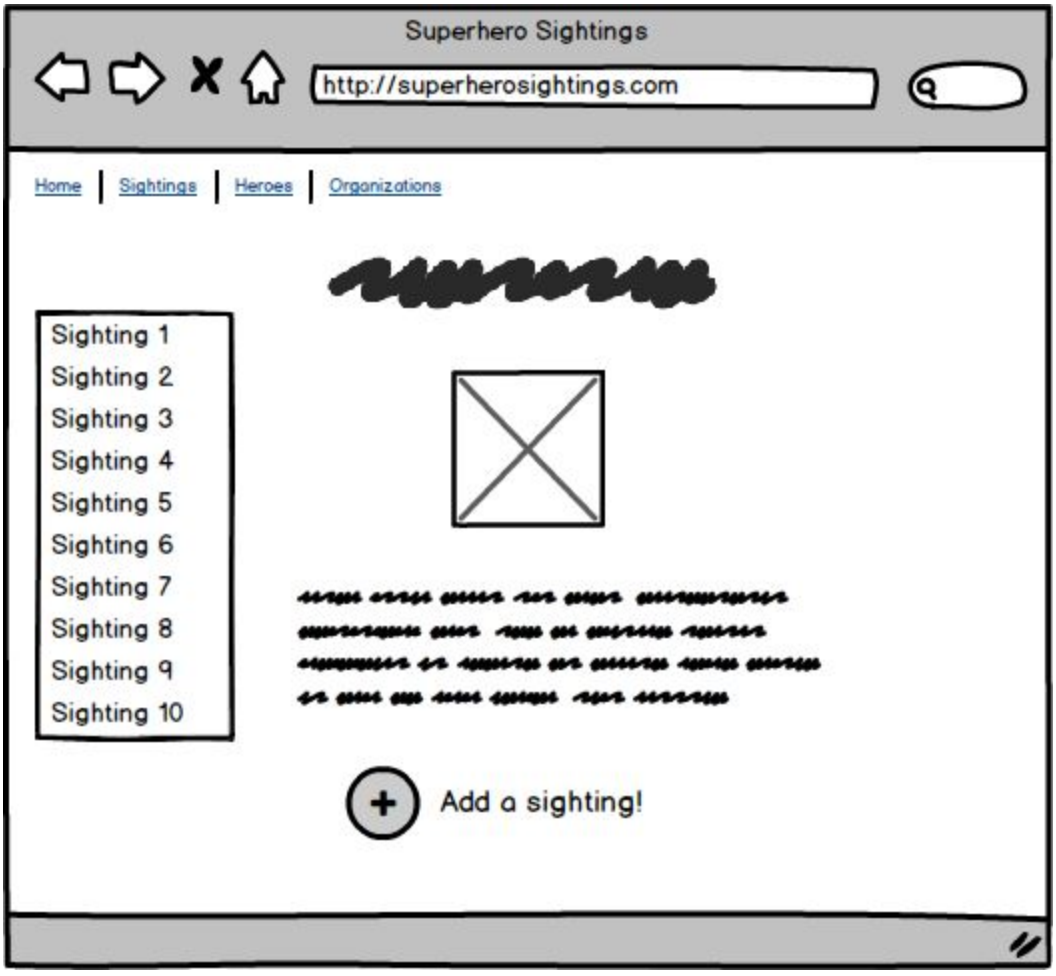
The location table holds all of the information that is associated with a physical space like the address, the latitude and longitudinal coordinates as well as the name and description of the location. Because each organization has a location and the Sightings will all include a location as well, the location can be accessed by both of those tables. For example, think if a superhero is sighted at 123 Main Street and Organization A is located at 123 Main Street - now we know that the superhero was sighted at Organization A's headquarters. Separating out the location helps us to be able to cross-reference the data in many more ways *and* it saves database space versus if the location was stored in both the Organization and the Sighting table.

The Sighting table stores the date the sighting took place and it references the Hero table to store which hero was spotted as well as referencing the Location table to store where the sighting took place.

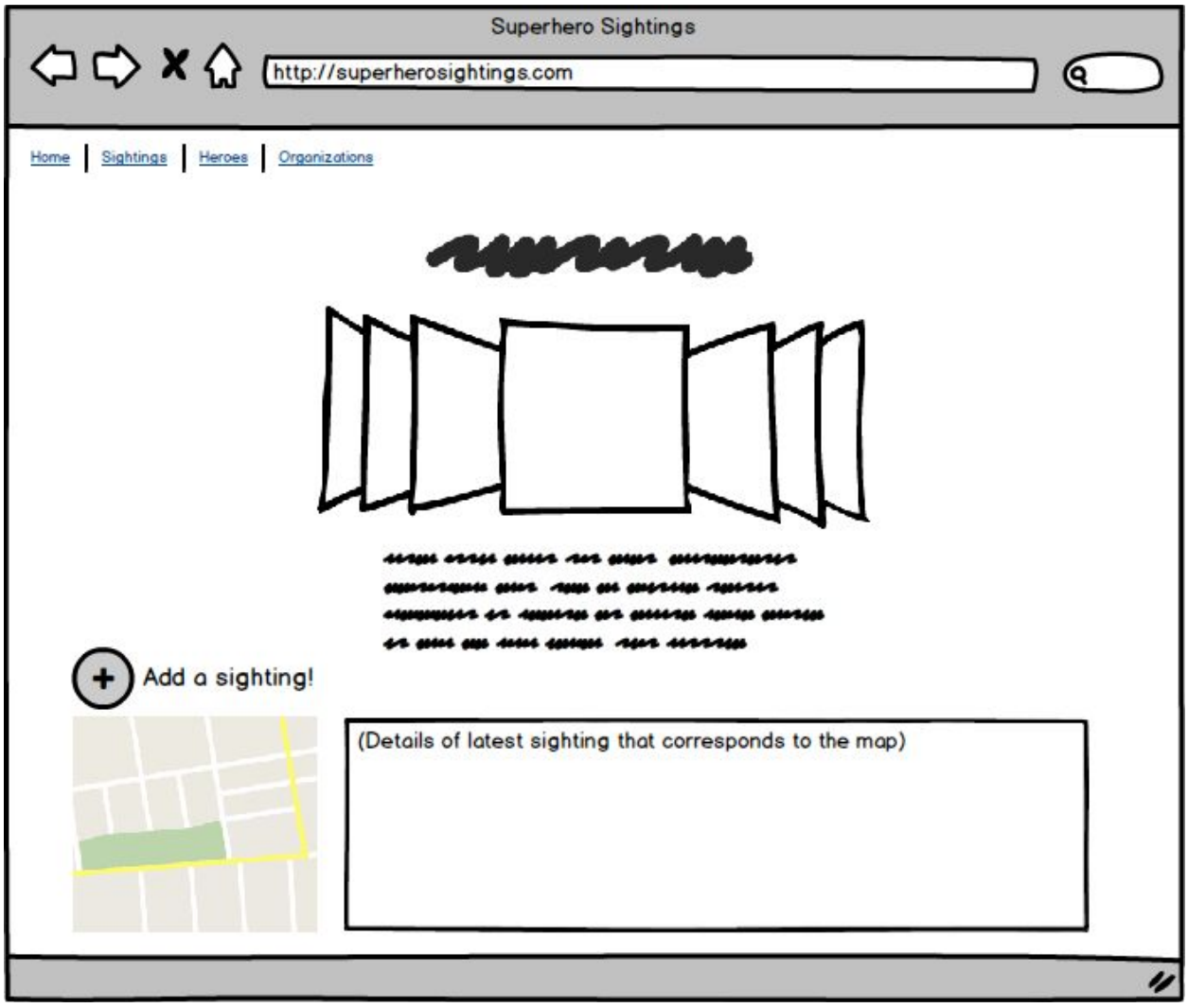


Wireframes

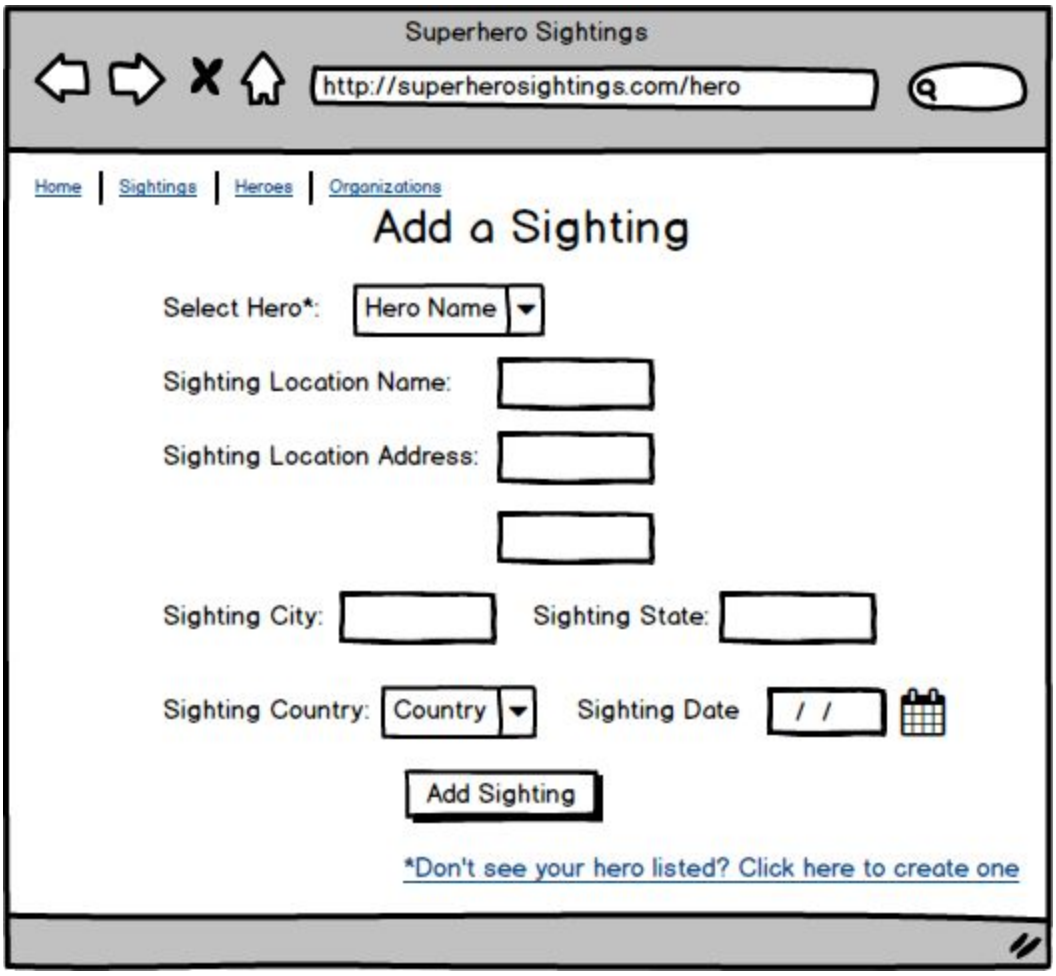
These are the first passes of the designs for the various pages for this application. The homepage has the initial design and then an enhanced design for phase 2 that will add features to the homepage. The look and feel for the Create, Edit, View and Delete pages will be similar so there is one wire frame for each of those. Where there are differences in the input needed those will be applied.



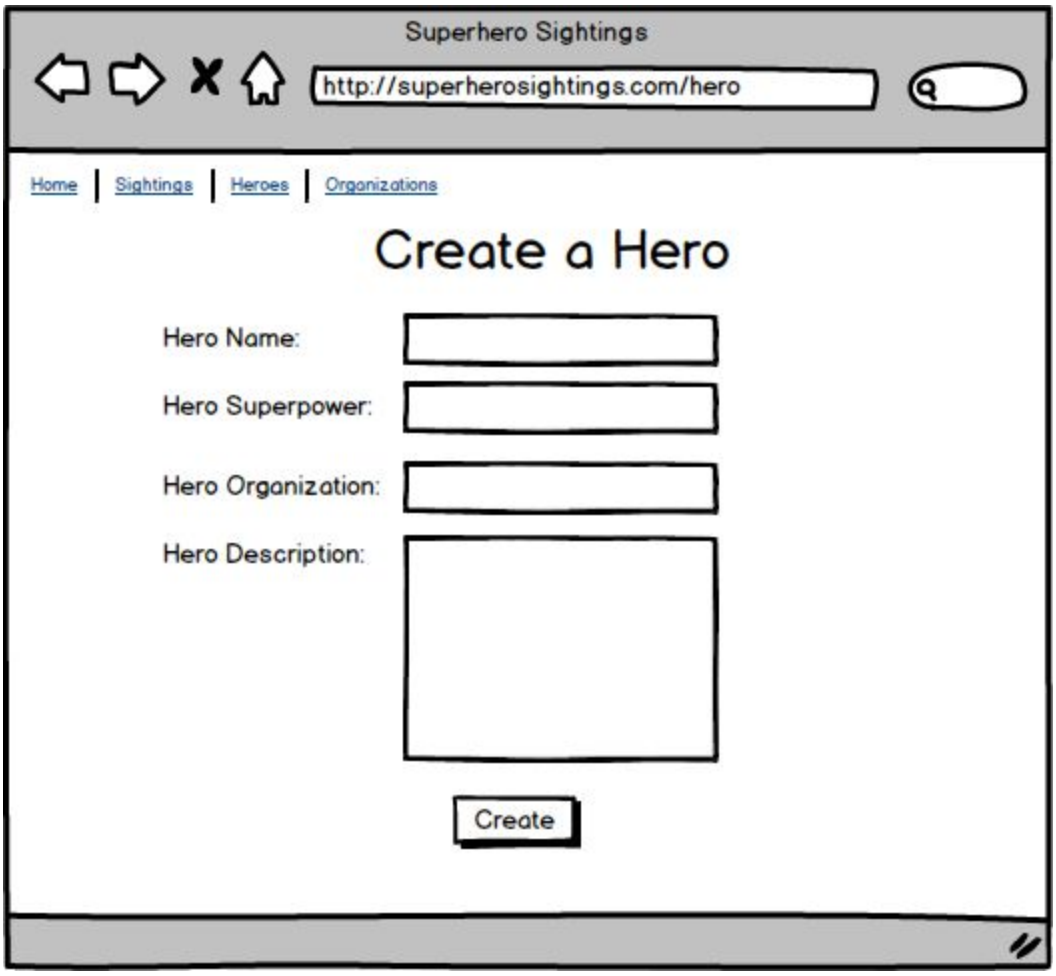
Superhero Sightings Homepage Wireframe



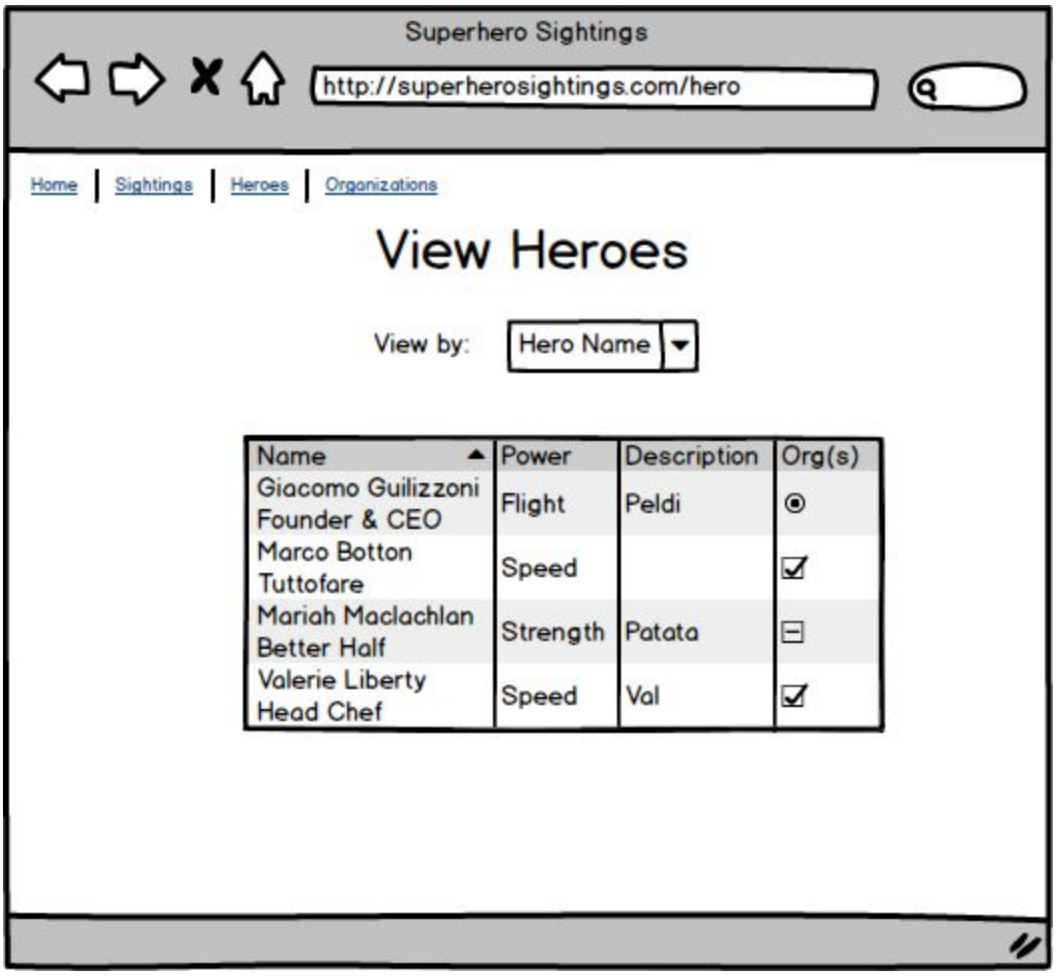
Superhero Sightings Homepage (phase 2) Wireframe



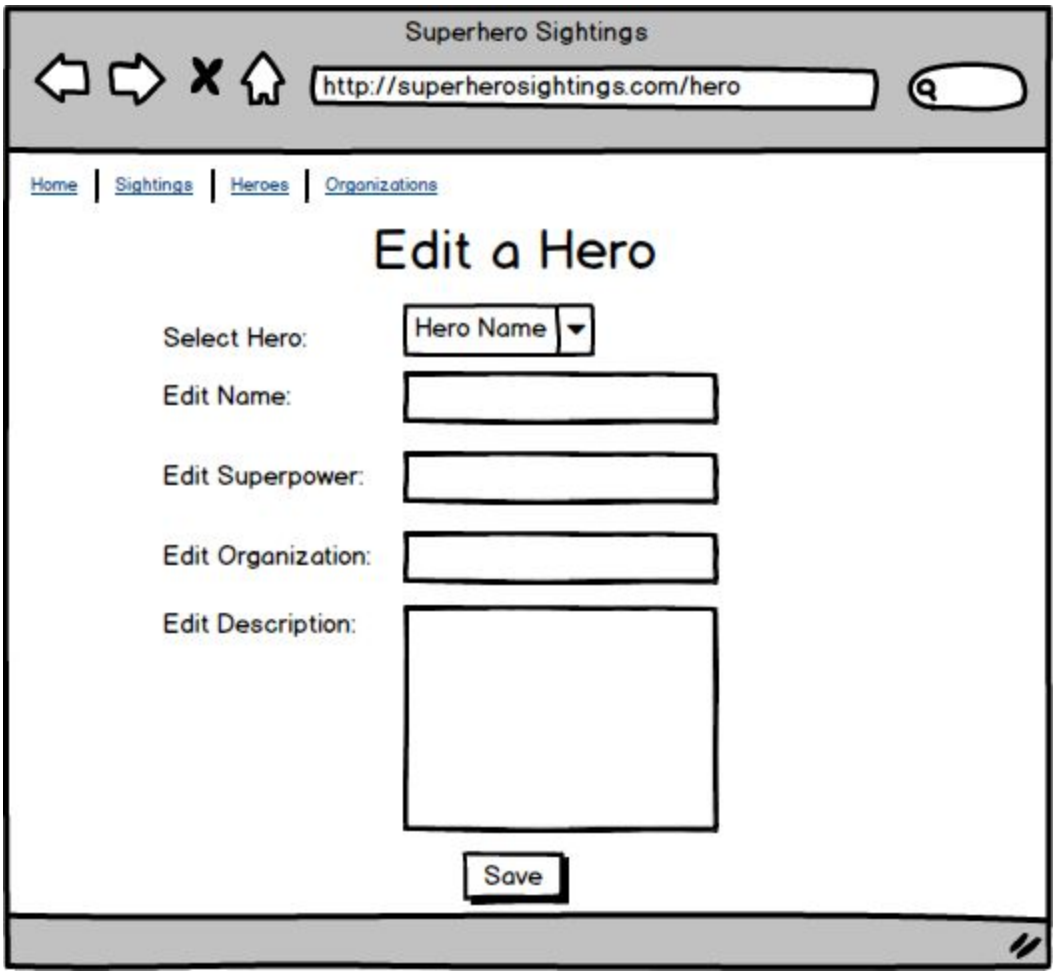
Superhero Sightings Homepage (phase 2) Wireframe



Create Hero/Organization/Power/Location/Sighting Wireframe



View Hero/Organization/Power/Location/Sighting Wireframe



Edit Hero/Organization/Power/Location/Sighting Wireframe

Delete Hero/Organization/Power/Location/Sighting Wireframe

Test Plan

All elements of the application will be tested. The CRUD for each element will be tested to ensure that it works in the intended way. The business logic for the application will also be tested thoroughly. This will involve making sure that all of the business logic rules work the way they are intended to and also that if someone strays off the “happy path” that the application will catch the error and handle it gracefully.

ID	Test Description
1	Test Hero CRUD
2	Test Sighting CRUD
3	Test Location CRUD
4	Test Organization CRUD
5	Test Superpower CRUD
6	Test form validations before writing to database
7	Test queries to database
8	Test business logic