

1.1 Problem Statement

What problem is your project trying to solve? Use non-technical jargon as much as possible.

Searching for a new home can be an exhausting and time-consuming process. It requires endless hours of browsing through numerous listings and websites to find the ideal area for residency. The process can be even more overwhelming if you're unfamiliar with the area. This is where our platform can make things easier. Our platform simplifies the home search process by allowing you to input your preferences, including your frequently visited places and maximum desired travel time between them. Our algorithm generates a heat map for your desired location, making it easier for you to identify houses within the desired area. You will be able to observe your average daily commutes, and plan your busy schedule more effectively. Additionally, the platform can help you locate an expansion for your private business. Ideal for daycares, physicians and dentists, and recurring customer base entities. This is done by calculating the average commute time for your recurring clientele through saved addresses. An additional feature will be the inclusion of the business finder side of the application. This side of the application will allow businesses to find ideal locations for physical properties by analyzing traffic information, zoning laws, ect,.. Our project will prevent wasted time and undo frustration and stress by integrating many popular applications with our unique algorithm to create a visually pleasing and natively intuitive heat map.

1.2 Requirements & Constraints

List all requirements for your project . This includes functional requirements (specification), resource requirements, qualitative aesthetics requirements, economic/market requirements, environmental requirements, UI requirements, and any others relevant to your project. When a requirement is also a quantitative constraint, either separate it into a list of constraints, or annotate at the end of requirement as “**(constraint)**”. Other requirements can be a single list or can be broken out into multiple lists based on the category.

Functional requirements:

The application will be fully accessible on web connected mobile phones, desktops, and laptops.

The server side will process inputted information within 5 seconds of form submission (constraint)

Creating a heat map based on a list of data input by user like locations, frequency and time.

Creating a distance calculator that takes an input of locations and calculates distance.

The ability to create accounts and log in to existing ones.

The ability to create, save, access and delete records.

Resource requirements:

Ability to access a web based browser for viewing the application

A hosting platform will be required to display our web page and allow interaction

Qualitative aesthetic requirements:

The application needs to be visually accessible to users, including text size, font, color contrast, etc. The overall layout of the site should also be compatible with its corresponding real-estate site in order to display both the heat map of applicable neighborhoods and the available housing on the market.

Economic requirements:

All members of the team are required to have access to a web enabled device for program sharing.

UI requirements:

The application will be designed and tested with the user experience at the forefront of development. By focusing on what users might find unnecessary and stripping much of the visual frills associated with other housing applications, our application will be easier to use, understand, and benefit from.

1.3 Engineering Standards

What Engineering standards are likely to apply to your project? Some standards might be built into your requirements (Use 802.11 ac wifi standard) and many others might fall out of design. For each standard listed, also provide a brief justification.

IEEE 802.11 ac,g,b,a,n are required for universal wifi access to our application. Because our application will process information server side to limit user resource use, these 802.11 suite of standards will be required for access

IEEE 802.3 defines the ethernet standard. wired , or ethernet based connectivity will be required for our application to be used by the maximum number of individuals

IEEE 4003. This standard defines the ability for data from constellations of satellites to be used in navigation. This is crucial to our application as the global positioning system, governed under the Global Navigation Satellite System (IEEE 4003) identifies locations, aids in calculating commute times, and provides the data necessary to create the ultimate goal of this project: the weighted heat map of ideal areas to live.

1.4 Intended Users and Uses

Who benefits from the results of your project? Who cares that it exists? How will they use it? Enumerating as many “use cases” as possible also helps you make sure that your requirements are complete (each use case may give rise to its own set of requirements).

Our project is intended for people in the market for new housing who may not want to disrupt their normal routine. Currently many real estate applications just show a map of available housing and leave users to do the calculations of their daily commutes on their own. With our application users will be provided a heat map of neighborhoods that have the least commute time based on their frequented locations and their level of importance (which users can also alter if necessary).

Some example use cases for our application include:

1. A family of three is expecting to add a new member to their family. They need to upgrade to a larger home, but they don't want to pull their child out of their current school system. With HomeFinder they can find neighborhoods close to the school while also finding a home that matches their size needs.
2. A businessman is promoted to a position that requires frequent travel. They decide they would like to move closer to the airport to reduce their commute time to the airport. This user can input the airport as an important location and HomeFinder will highlight more neighborhoods surrounding the airport.
3. A college student is having troubles with her current roommate situation. She decides she would like to move to a different apartment, but she doesn't want to give up the convenience of her living arrangement. HomeFinder takes into account that the student frequently visits central campus, the mall, and her favorite pho restaurant, and generates a heat map of neighborhoods that are located short distances between these locations. The student finds an apartment that cuts her weekly commute time by almost a third.