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title: "Team 8 Project Overview"

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word\_document: default

pdf\_document: default

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```{r setup, include=FALSE}

knitr::opts\_chunk$set(echo = TRUE)

```

The Green Expectations Calculator UI can be found [here](https://liam142857.shinyapps.io/GreenExpectationsUI/)

# Project Outline

## a) Motivation and Overview

\*\*Provide an overview of the project goals and the motivation for it.

Consider that this will be read by people who did not see your project proposal.\*\*

GreenifiAI.com is the website for Green Expectations LLC. This company is a brokerage with emphasis on software development with AI tools and methods. Green Expectations connects buyers and sellers with sustainability resources. This works by providing a carbon footprint calculator to aid homeowners with sustainability resources. There is also a blog with sustainability information and featured properties. The overarching goal of Green Expectations is to help those with an interest in sustainability get started, connect with others, calculate their footprint, and learn what may be effective for their circumstances

## b) Related Work

\*\*Anything that inspired you, such as a paper, a web site, or something we discussed in class.\*\*

The following sites are provided as inspiration for our work

[Forbes](https://www.forbes.com/sites/jodiecook/2024/03/01/chatgpt-prompts-create-compelling-content-and-captivate-your-audience/?sh=157e83211093)

[Kayak](https://www.kayak.com/ask)

[Yahoo](https://www.yahoo.com/tech/ceo-says-tried-hire-ai-182817278.html?guccounter=2)

[zdnet](https://www.zdnet.com/article/how-to-write-better-chatgpt-prompts-in-5-steps/)

[norahsakal](https://norahsakal.com/blog/chatgpt-product-recommendation-embeddings/)

We utilized a wide variety of R skills from class discussion. The core of this project was a shiny app that users could interface with for inputting data. Data visualization skills were also essential for displaying user input for analysis. The API topic was instrumental in learning how to connect the OpenAI API to the shiny app

## c) Initial Questions

\*\*What questions are you trying to answer?

How did these questions evolve over the course of the project?

What new questions did you consider in the course of your analysis?\*\*

We were initially trying to answer how homeowners and prospective buyers would help their housing become better for the environment. Through the project we added green actions for the user as well. The addition of user actions to decrease carbon footprint and reduce energy costs helps form a larger picture for the user as to how their

## d) Data

\*\*The description of the features; document the data import, wrangling, etc.\*\*

## e) Exploratory Data Analysis

\*\*What visualizations did you use to look at your data in different ways?

What are the different statistical methods you considered?

Justify the decisions you made, and show any major changes to your ideas.

How did you reach these conclusions?

You should use this section to motivate the statistical analyses that you decided to use in the next section.\*\*

## f) Data Analysis

\*\*What statistical or computational method did you apply and why?

What others did you consider?\*\*

We used a linear regression model to estimate home price based on square footage.

We followed the GHGCalculator. This involved converting the excel logic into an R function.

## g) Narrative and Summary

\*\*What did you learn about the data?

How did you answer the questions?

How can you justify your answers?

What are the limitations of the analyses?\*\*

Description of UI

Calculator Tab

The calculator tab was derived from the EPA calculations given to determine the carbon footprint and any savings that can result from green actions such as using less heat and switching appliances tyo more efficient versions. The UI asks relevant questions from the user that will determine what carbon footprint the user has in their daily life and in their habits. There are also questions to determine a user's willingness to make certain changes to decrease their carbon footprint or lower their energy costs. The formulas are currently in debugging in order to correctly use inputs and send outputs to the UI for the user. Next steps are to continue to trace through the reactives to determine which inputs are being given to the formulas and which are not. The outputs are then sent to the main UI for debugging with extra description and intermediate values. The reactives are added one at a time in order to maintain functionality of the app and minimize complications. Once the reactives are working properly with the user's input the outputs will be used in visuals helping the user to develop an action plan to reduce their carbon footprint. Together with the calculator, regression data, and glossary of green actions, the user can identify ways they can "greenify" their life and their housing and help the planet.