



CSC315 & BUS/MGT385 Collaborative Project

Phase III: The Database Model Explained

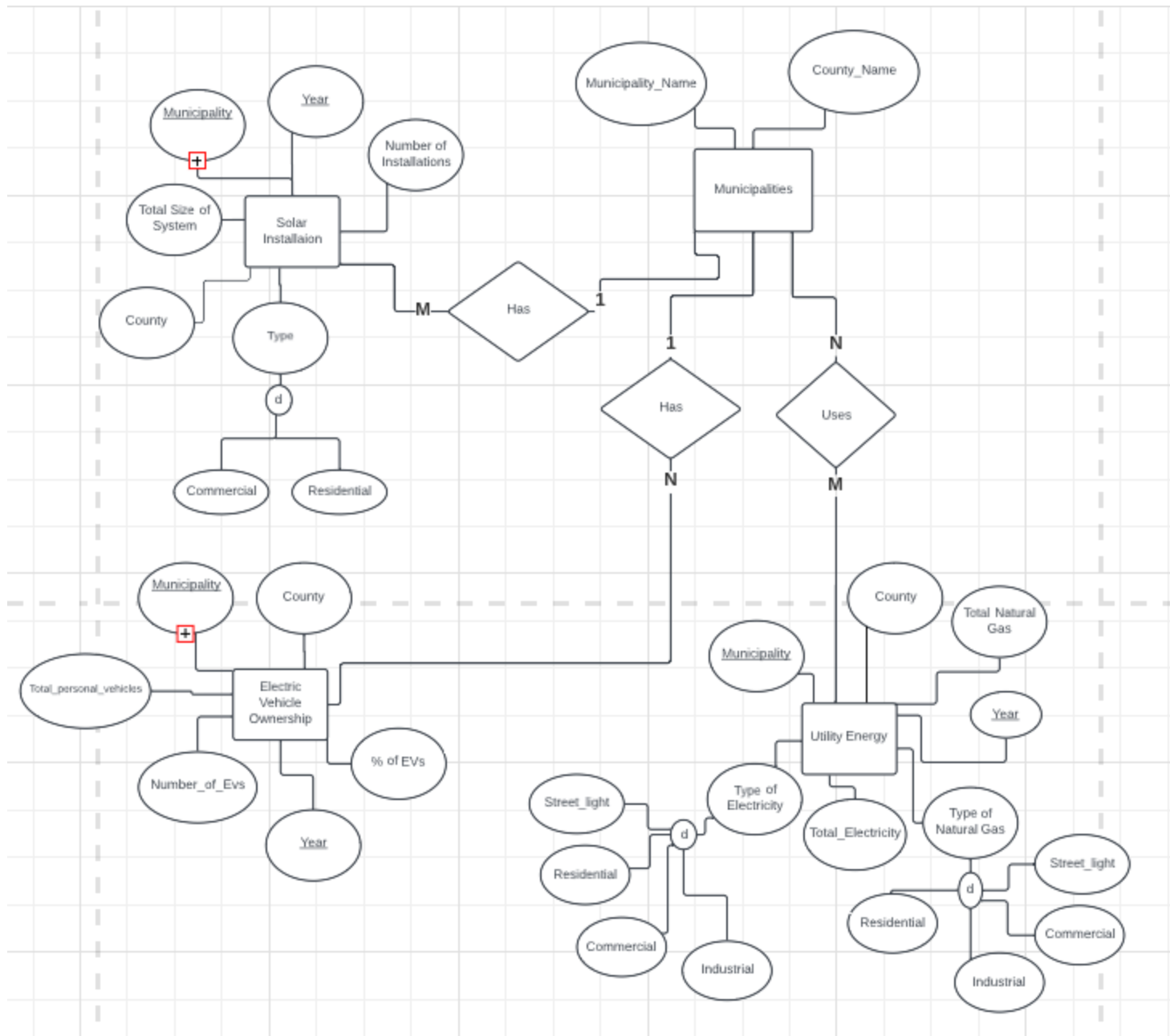
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Team Members:

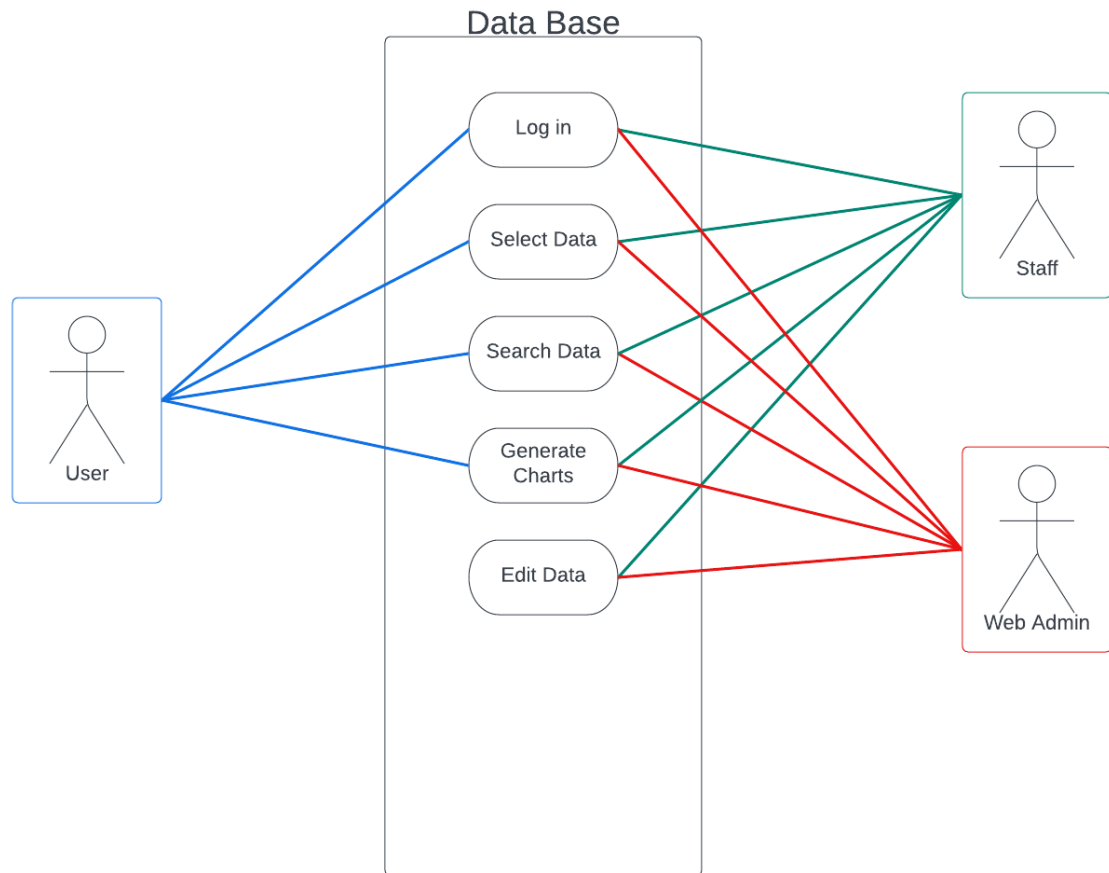
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I. ER Diagram that includes:

- A. Show all entities and the relationships between them. Be sure to clearly specify aggregation, composition, specialization / generalization, and multiplicities.
- B. Show attributes for each entity and relationship (where applicable).
- C. For each entity, indicate which attribute(s) form the primary key.



II. Use Case Diagram that includes:



- A. Summarize the details of your system's users (actors) and their interactions with your system.

The three actors in our use case are: User, Web Admin, and Staff.

The only interaction that not every actor can access is editing the data.

Web admin is the only one who can edit data in the database. Other actions that all actors can access include: log in, select data, search data, and generate charts.

- B. Describe the scope of your system.

Our system's scope includes running a set amount of queries that can help users generate charts and see the correlation between our datasets. It also should be used to encourage municipalities to be more energy efficient and give them examples on how to do so.

III. Narrative

- A. A general description of how relational databases work and why they are valuable.

Relational databases are used to manage a large amount of structured data. They provide an intuitive way to show data and allow easy access to the related data points. They are valuable because they are flexible due to the fact that it is easy to add, update, or delete tables and relationships. It is also easy to run complex queries using SQL. Lastly, multiple people can access and use the data simultaneously, which is very valuable since this is a group project.

- B. The various elements of your diagram and what they reveal about your database model.

- 1. Entities

- a) Electric Vehicle Ownership
 - b) Solar Installation
 - c) Municipalities
 - d) Utility Energy

- 2. Relationships

- a) Municipalities uses utility energy

b) Municipalities have solar installation

c) Municipalities have electric vehicle ownership

C. The reasoning behind your database design given the goals for the sustainability project.

The reasoning for our database design is to encourage municipalities to join in on sustainability projects. Our main goal is to be able to view data correlations and generate graphical correlations. These correlations can encourage and show municipalities who are looking to become more sustainable, ways they can. It can also prove how sustainable acts can affect the environment and specifically help New Jersey become more sustainable.

D. Detailed Textual Use Cases

1. Use Case 1

1) System prompts user to select first data set to retrieve

2) User selects data set

3) System prompts user to select second data set

4) User selects second data set

5) System prompts user on how to view data correlations

6) User selects data view type

7) System generates graphical correlation data

2. Use Case 2

1) System prompts user to select data set

2) User selects data set

3) System displays data

4) System analyzes data for outlier data

5) System displays areas that could use improvement

6) System prompts user to highlight areas that could use improvement

- 7) User highlights displayed areas that could use improvement
- 8) System displays detailed information regarding the highlighted data set