State Finder

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Overview

Our website aims to help others in their location and career decisions by providing users with initial information regarding livable areas based on a specific income. We ask users for their potential career, the seniority level, and household demographic data. With that we populate a map with livable areas based on the residual income they'd have in the location. Users are also provided demographic data on each metro area to learn a bit more about the places they could choose.

Initial Information

Languages used

- Python, HTML, CSS, Javascript

Databases used

- Azure SQL Server

Deployment method

- Heroku

Livable areas subsystem

- Data pulled from first html page
- User income is calculated by pulling the occupation data
- Living costs calculated by pulling the corresponding living wage data.
- Residual income is calculated by : user income - living costs.

- Map population
  - Geojson file used to provide shape boundaries for metro areas
  - Plotly used for map creation

Map Infographics Subsystem

- Composed of US Infographic page and User Selected State Infographic page
  - Information shown in hover box includes:
    - Total population of state/metropolitan area
    - Total housing units of state/metropolitan area
    - Breakdown of occupied and vacant housing units
    - Popular attractions in each state

- Plotly used for choropleth map generation (heat value based on population)
- Data and geojson comes from US Census Bureau

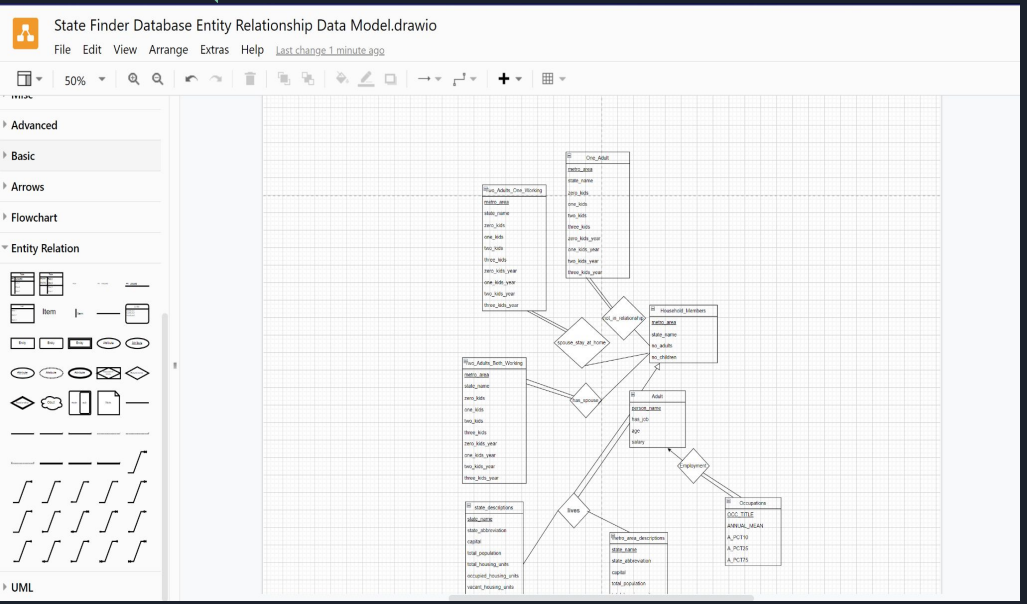
HTML Subsystem

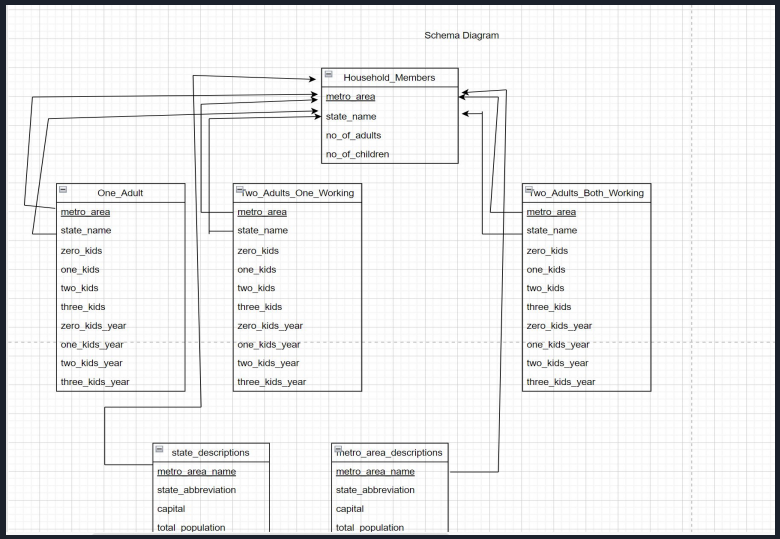
- Written in HTML, CSS, and Javascript
  - Originally included Bootstrap
- Index page
  - Collect user information
    - Occupation
    - Job level
    - Working adults
    - Children (0-3)
- About page
  - Combined with resource page
- Contact page
  - Send admins an email
  - Auto email response
- Login page
- Design choices:
  - Dropdown menus
  - Error messages on contact page

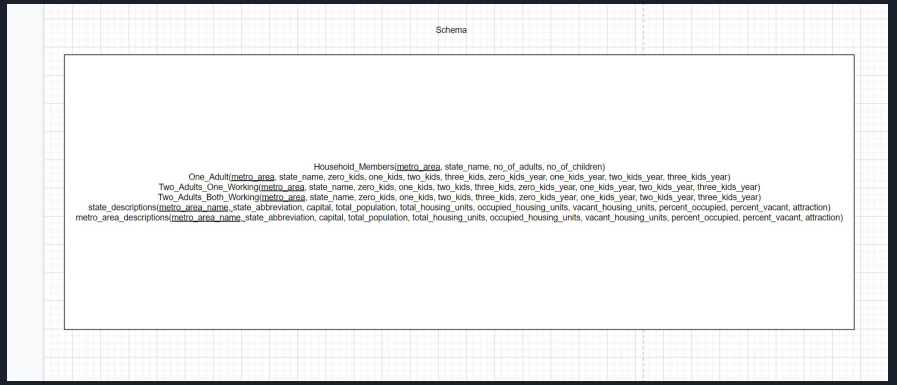
Database Subsystem

- The Initial Design and Model of the Database includes an ER Diagram and a Schema Diagram that would help us restructure the csv files that we have into tables so that we can use it later on.
- The design choices that we made is to have the “metro_area_name” be the foreign key constraint that connects all of the entities. Some of the metro area names have the same name such as Jacksonville so we added a suffix such as “_one”.
- We used diagrams.net and its UML shapes to create the ER diagram and the schema diagram.
- Data dictionary includes attributes from these entities and their data types.
- The changes from the initial model include the addition of the state_descriptions entity and the metro_area_descriptions table.
- We used an Azure database and made changes in Azure Data Studio.
- Language - SQL Server
- Database has been tested by providing the azure database credentials through an ODBC driver in the Flask App.
- During deployment the ODBC driver had to be changed to pymssql - db api due to some issues.

Database Subsystem







Login Subsystem

- Used firebase docs as a reference for implementation.
- We were initially focused on google authentication, wanted to let users have other options.
- Faced issues with Facebook and Twitter Authentication when initializing the firebase app multiple times in order to get the login popup.
- Coding - Used Javascript to implement the login subsystem.
- Firebase provided some javascript sdks when we created the project.
- Had to make sure the firebase app link to the developer sites in order to connect it to firebase.

Login Subsystem