Installation and User Guide

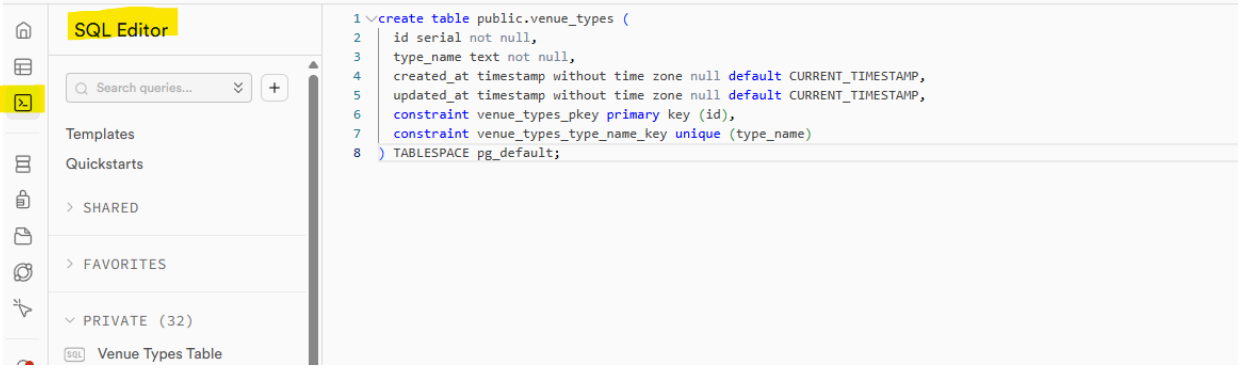
This guide explains how to run BizBeacon SG locally. The first step is to clone from the GitHub repository: https://github.com/johnsonweih/biz-location-advisor-system.git. Subsequently, there are multiple services to set up and run. We describe these in the subsections below.

Installation Guide

1 Supabase

Follow the steps below to set up a Supabase project with data.

1. Sign in or create a Supabase account at (https://supabase.com/dashboard/sign-in).
2. Create a new project in Supabase and head to the SQL Editor, which can be found on the leftside menu.



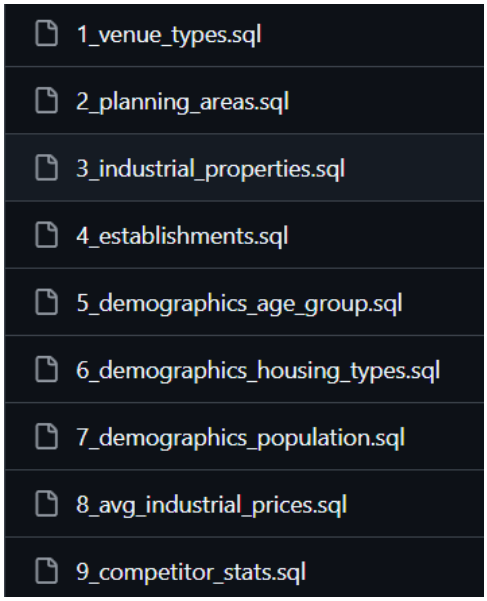
3. Run the following query to enable the PostGIS extension:

   ```
   CREATE EXTENSION IF NOT EXISTS postgis;
   ```

4. Inside the GitHub repository, navigate to the backend supabase_setup directory, which contains `table_creations` and `data` folders:

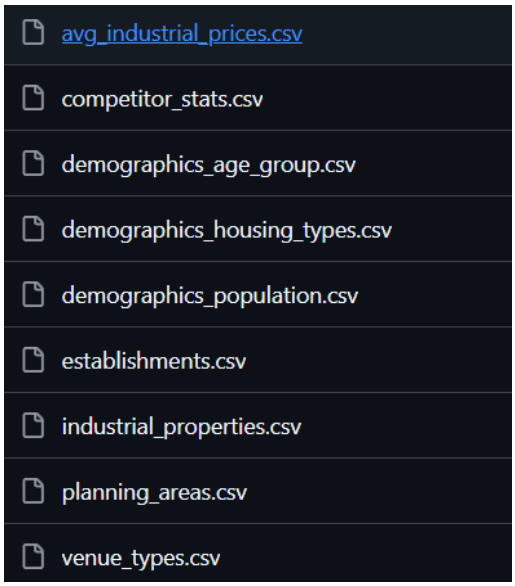
   ```
   cd SystemCode/backend/supabase_setup
   ```

5. Run each script inside the `table_creations` folder in ascending order based on the prefixed number in their filenames. Based on the screenshot below:

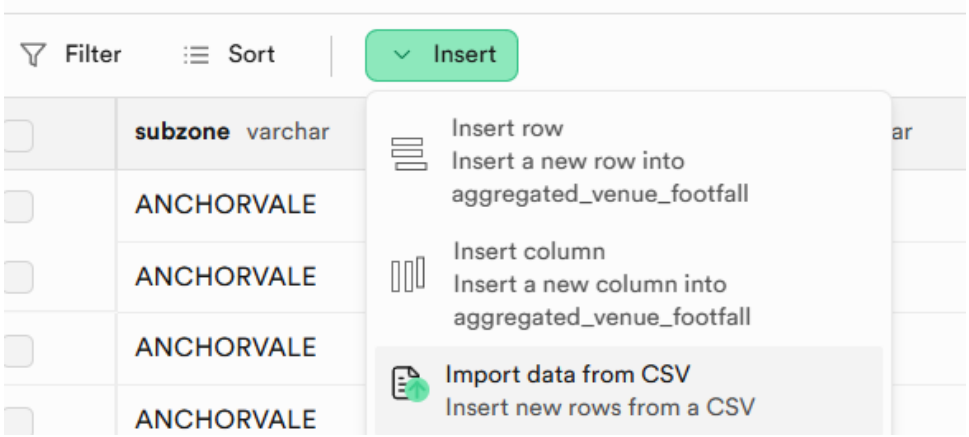


Run `1_venue_types.sql`, followed by `2_planning_areas.sql`, and so on, by copying and pasting the queries in the SQL Editor and then clicking “Run”. The corresponding table names will then be created in your own instance of Supabase, under the “public” schema.

6. In the `data` subfolder, we extracted the current state of data from each table in our Supabase instance. Below is a screenshot of all file names:



Head to Supabase's Table Editor, also found on the leftside menu, and in each table, click on insert, and select "Import data from CSV":

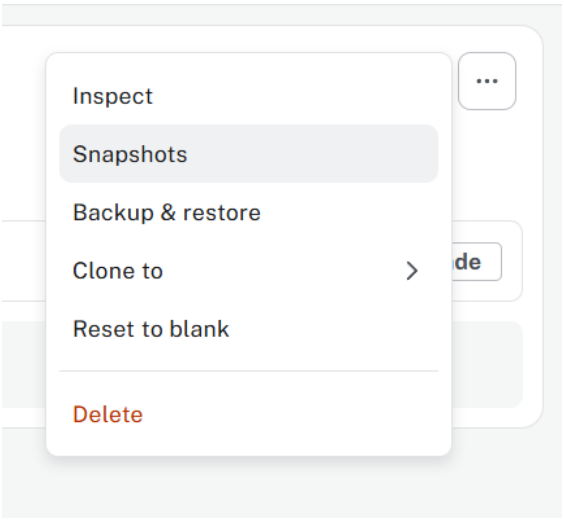


Import each csv file into their corresponding tables.

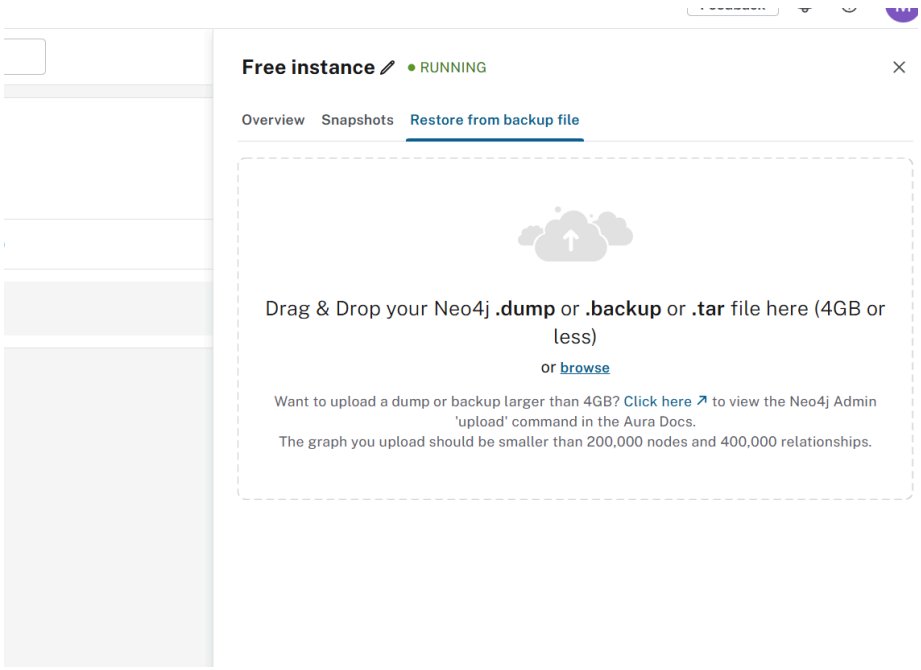
2 Neo4j

Neo4j powers the knowledge graphs, which allows structured and semantic querying of relationships between subzones , business types, demographic metrics, and more.

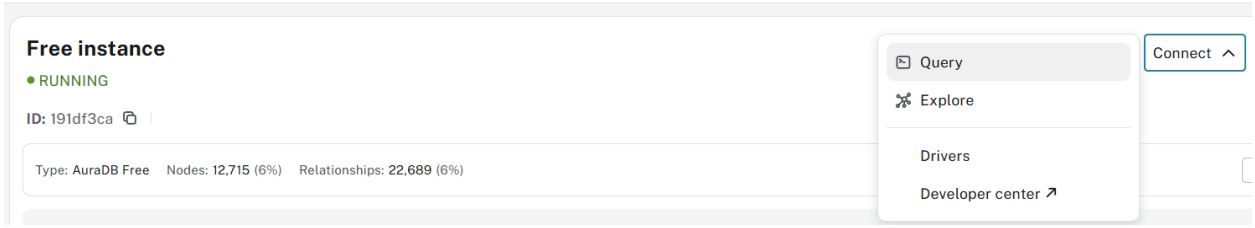
1. To set up, sign in or create an account at Neo4j Aura (https://console-preview.neo4j.io/).
2. Once logged in, create a new instance or use an existing instance.
3. Click the 3 dots by the instance and go to "Snapshots".



4. Upload the `neo4j_snapshot.backup` file which is in the `neo4j_setup` subfolder in the backend folder of the repository.



5. Once imported, the knowledge graph is ready to be viewed and queried. Click on “Connect” and then “Query” to connect to the uploaded knowledge graph snapshot.



3 Backend

The backend is a Python Flask server that integrates with OpenAI's GPT-4o API to provide intelligent responses.

Steps:

1. Open a terminal and navigate to the backend server directory: `cd SystemCode/backend/server`
2. Create and activate a virtual environment using the commands below:

    a. Run: `python -m venv venv`
    b. On Mac: `source venv/bin/activate`
    c. On Windows: `venv\Scripts\activate`
3. Install the required Python packages: `pip install -r requirements.txt`
4. Create a `.env` file in the same directory and add your OpenAI API key as well as the other credentials which we will need for the other platforms:
    a. `OPENAI_API_KEY=<your_openai_api_key_here>`
    b. `NEO4J_URI=neo4j+s:<your_neo4j_uri_here>`
    c. `NEO4J_USERNAME=neo4j`
    d. `NEO4J_PASSWORD=<your_neo4j_pwd_here>`
    e. `SUPABASE_URL=<your_supabase_url_here>`
    f. `SUPABASE_KEY=<your_supabase_key_here>`
5. Run the Flask server: `python app.py`
6. By default, the server will be available at http://localhost:4000.

4 Frontend

The frontend is a React-based web application built with Create React App.

Steps:

1. Open a terminal and navigate to the frontend directory: `cd SystemCode/frontend`
2. Install project dependencies: `npm install`
3. Start the development server: `npm start`

The application would then be available at http://localhost:3000

User Guide

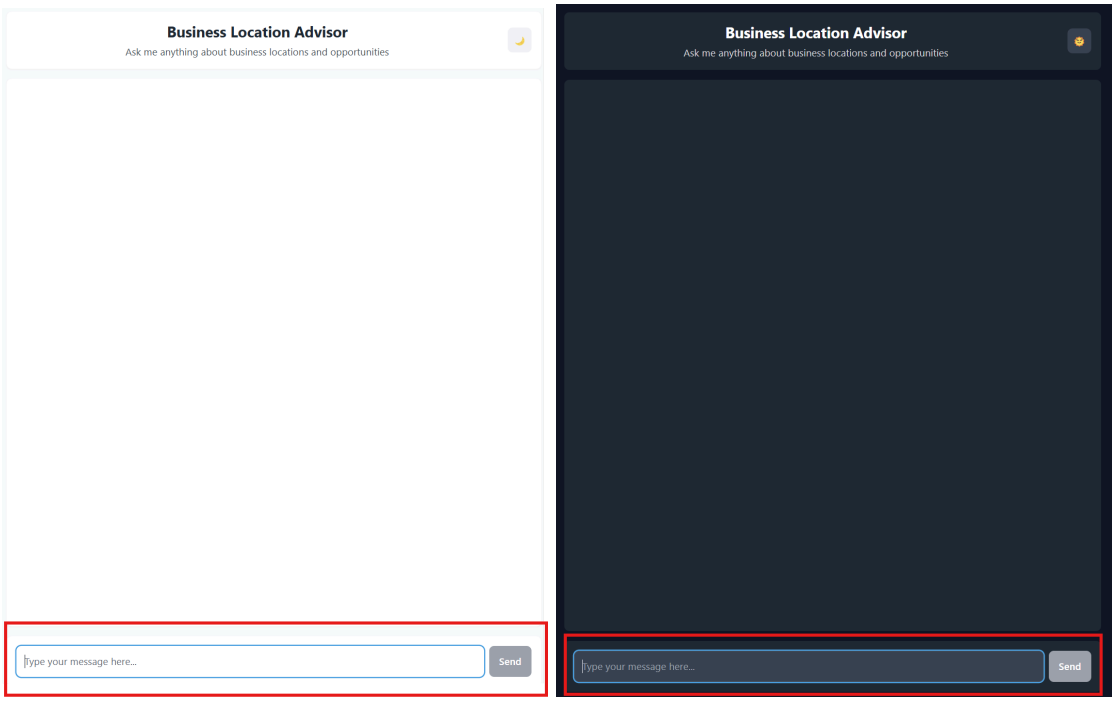
After setting up the system, head to http://localhost:3000 to chat with our chatbot.

Our chatbot supports the following query types:

- general advice given a business type and planning area / subzone
    - e.g., “I would like to open a cafe at Katong. What do you think about it?”
- location suggestion given a business type
    - e.g., “Where should I open a cafe in Singapore?”
- business type suggestion given a planning area / subzone
    - e.g., “What type of business would you recommend me to start in Katong?”
- demographics information, such as population statistics, age distribution, and housing profile, in a given planning area / subzone
    - e.g., “How is the demographics in Katong?”, “Tell me more about Katong’s age distribution.”
- competitor information, such as overall score, underserved score, and competitor examples, for a given business type and/or planning area / subzone
    - e.g., “How is the competition for cafes like in Katong?”, “How is the overall competition like in Katong?”, “How is the competition for cafes like across the whole of Singapore?”, “I would like to open a cafe at Katong. Who are some competitors?”
- properties information, including average property prices for different venue types for both rent and sale, and available properties in a given planning area / subzone
    - e.g., “What is the average property prices for retail shops in Katong?”, “What are some properties I can consider if I want to open a cafe at Katong?”

Chatting with the Chatbot

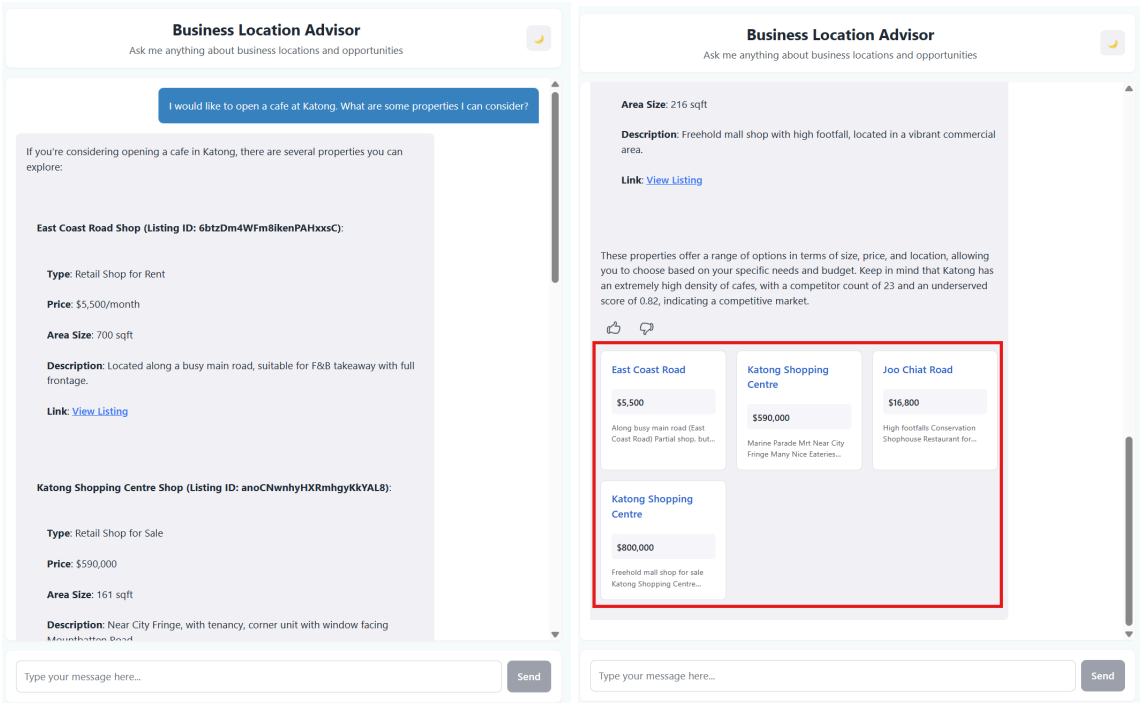
1. At http://localhost:3000, you should see the following UI. Both light and dark modes are available.



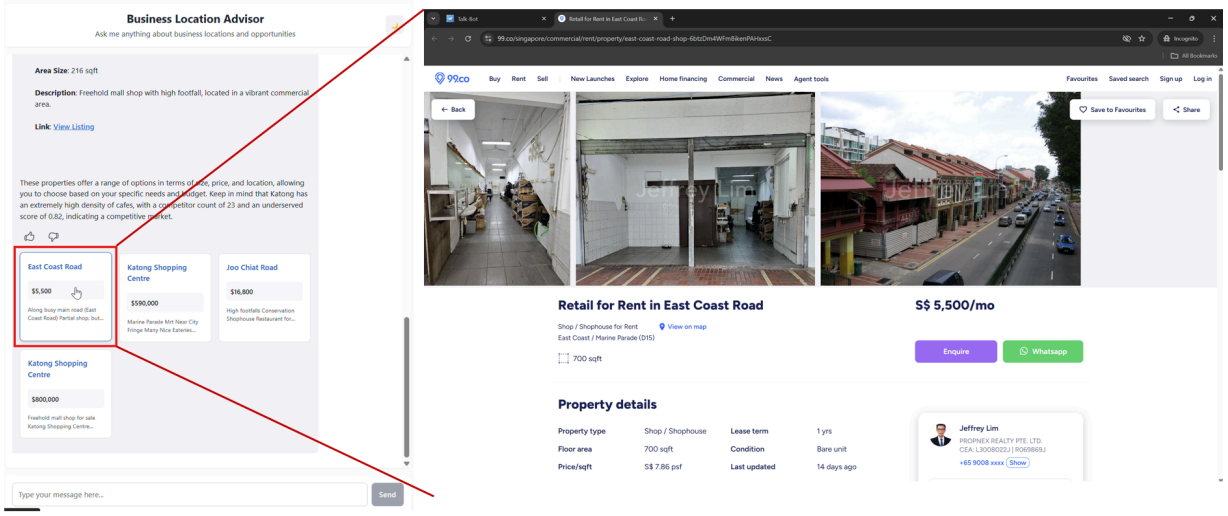
2. Type your question in the message box at the bottom of the chat, as outlined by the red box in the figures above, and press “Enter” or click the “Send” button.

Viewing Available Properties

1. For queries related to available properties in a given planning area, the property listings will additionally be embedded as cards in the generated response, as seen in the red box below.



2. Click on the property card of your interest to learn more about the property and view its corresponding listing on 99.co.



Giving Feedback

To rate the chatbot responses, click on either the thumbs-up or thumbs-down icon at the end of the response.