UI Design of the Project (Group 17) 3.1

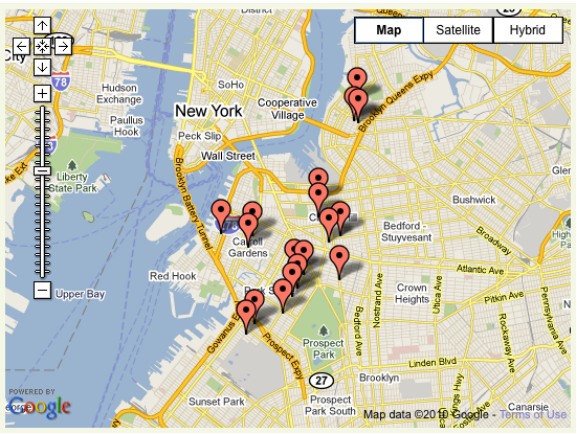
1. **Interactive Map**: Occupying the center of the web page, the map visually presents different areas of Manhattan.

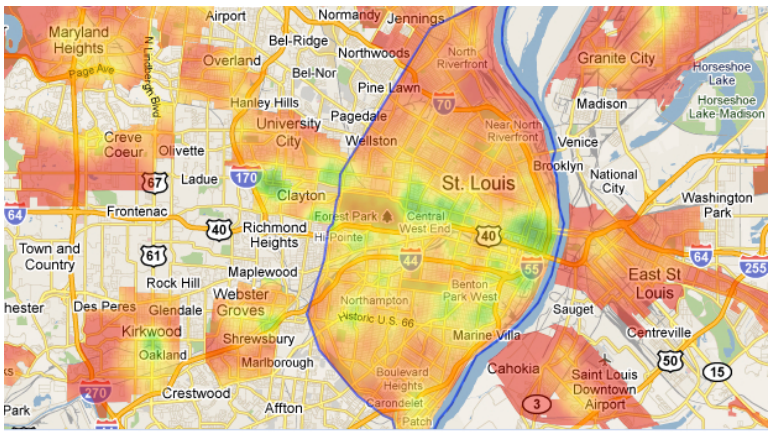
    - **Geographic Range**:

        1. Display only Manhattan.
        2. Priority: Finish the neighborhood level model, if time allows: Extend to the prediction of different building classifications within the neighborhood.

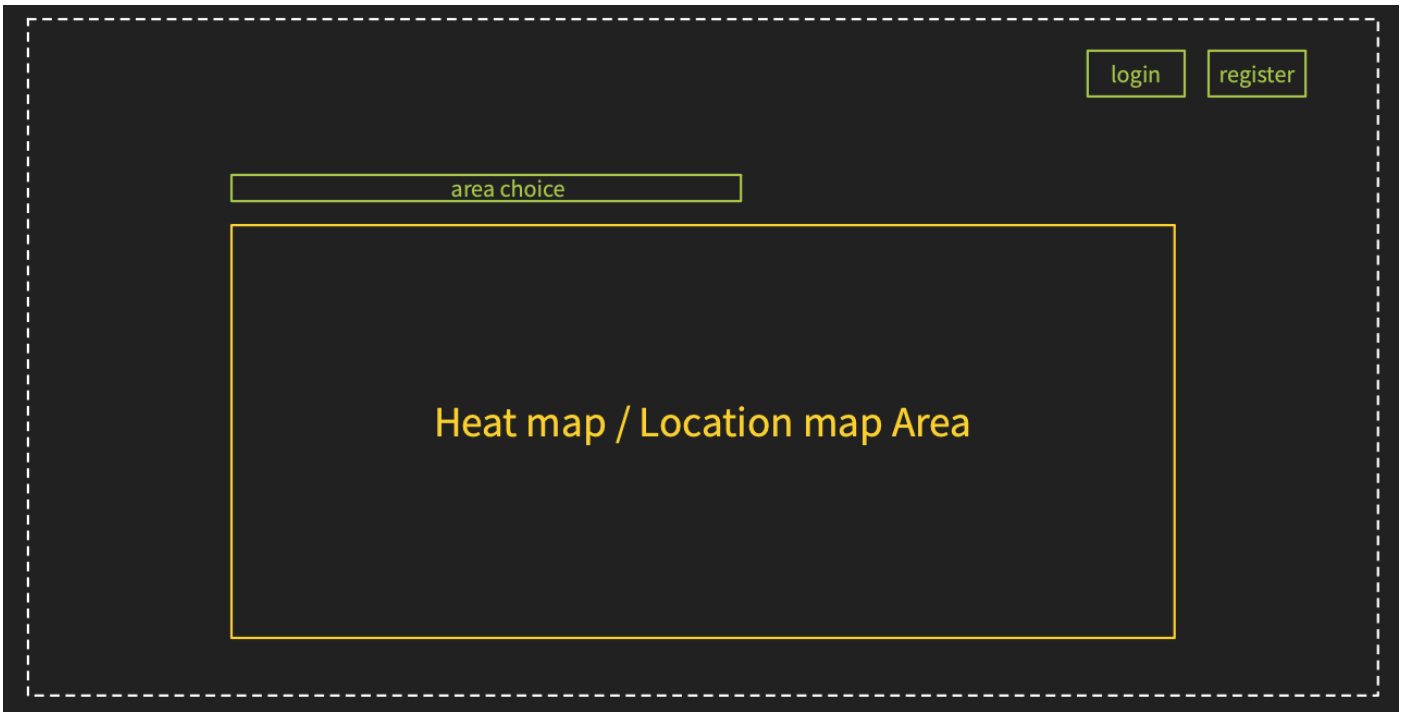
    - **Map Form**: (Choose one)

        1. Present as a heat map, showing the hot spots of taxi pick-ups and drop-offs.
        2. Present as a scatter map with 29 different colored markers. The colors represent the frequency of taxi pick-ups and drop-offs, with red for high, yellow for medium, and green for low frequencies. The style of the marker can draw from Google Maps' pins.





2. **Filtering Section**: Positioned above the interactive map, users can use this section to customize the map view, specifically as follows:
    - **Area Choice**: Users can select to view data of specific areas.



3. **Details Window**: When users click on a certain point on the map, a details window will slide out. The content in the window includes:
    - **Area Name**: At the top of the window, display the name of the selected area so users can clearly know which area's data they are viewing.
    - **Time Filter**: Set a slider bar where users can slide to select different historical times, for example from 2015 to 2019.
    - **Past Rent Fluctuations**: Below the area name, present a line graph showing the rent fluctuations over the past 5 to 10 years. This allows users to clearly see the trend of rent changes, which can aid in their investment decisions.
    - **Predicted Housing Prices**: Below the line graph, display predictions for future housing prices. This information can help users understand possible future price trends, providing valuable reference for their investment decisions.
    - ***New：** Display the average taxi pick-up and drop-off data from historical records in the selected area, and show the difference between the averages.
    - **Window Closing and Switching**: Users can close or switch the details window by clicking on the close button in the upper right corner of the window, or by clicking on another point on the map. This design makes users' operations smoother, as they can view the data of other areas without having to return to the main interface.
4. **User Registration/Login Feature (Lower Priority Feature)**: Positioned in the upper right corner of the page, users can click the button to open a registration/login window.
5. **User Customization Dashboard (Lower Priority Feature)**: Logged–in users can access a customization dashboard for more advanced personal settings.
6. **Page Style**: Adopt a dark tone, and select a dark and minimalist illustration of New York City as the background image. The overall style is clean and professional.

Area Name

Slider bar for year filter(eg. 2010-2020)

Real estate price in history

Prediction of the estate price in the future

Take on:2706	Take off: 1575
37% more than avg	25% more than avg

Details of UI Design. (QA from Raj)

How our application looks like?

An interactive map interface that primarily showcases 29 selected areas in Manhattan, New York City.
Users can interact with it through scrolling and clicking to get real estate price information and taxi activity data for the areas.

一个具有互动功能的地图界面，主要展示纽约市曼哈顿的 29 个区域。用户可以通过滑动和点击进行交互，获取有关区域的房地产价格信息和出租车活动数据。

What are the features available?

Interactive Map: Users can click on points on the map to get more information.
Filters: Users can choose to view data from different time periods and of specific areas.
Details Window: A pop-up window with more detailed information about the area will appear when a user clicks on a point on the map.

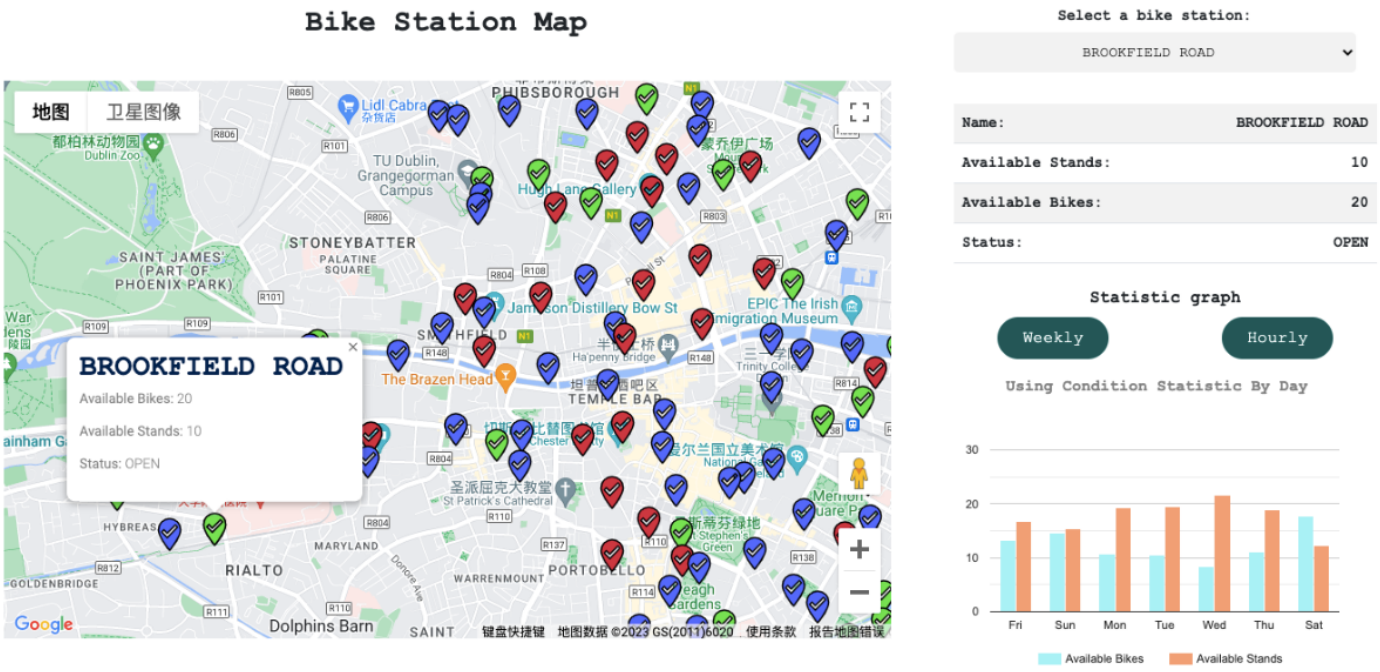
交互式地图：用户可以点击地图上的点获取更多信息。
过滤器：用户可以选择查看不同时间段的数据，包括查看特定区域的数据。
详细信息窗口：当用户点击地图上的某一点时，会出现一个包含该区域更多详细信息的弹出窗口。

How will the user interact with our app?

- if it is a heat map, on clicking a point on the map, how do we map that location to the location that we have in our dataset so that we can show the details.

-If it is a location marker map, we might need to bring the coordinates for locations from backend API.

Case 1:



Case 2:

Whether there will be drop downs for locations/search bars.

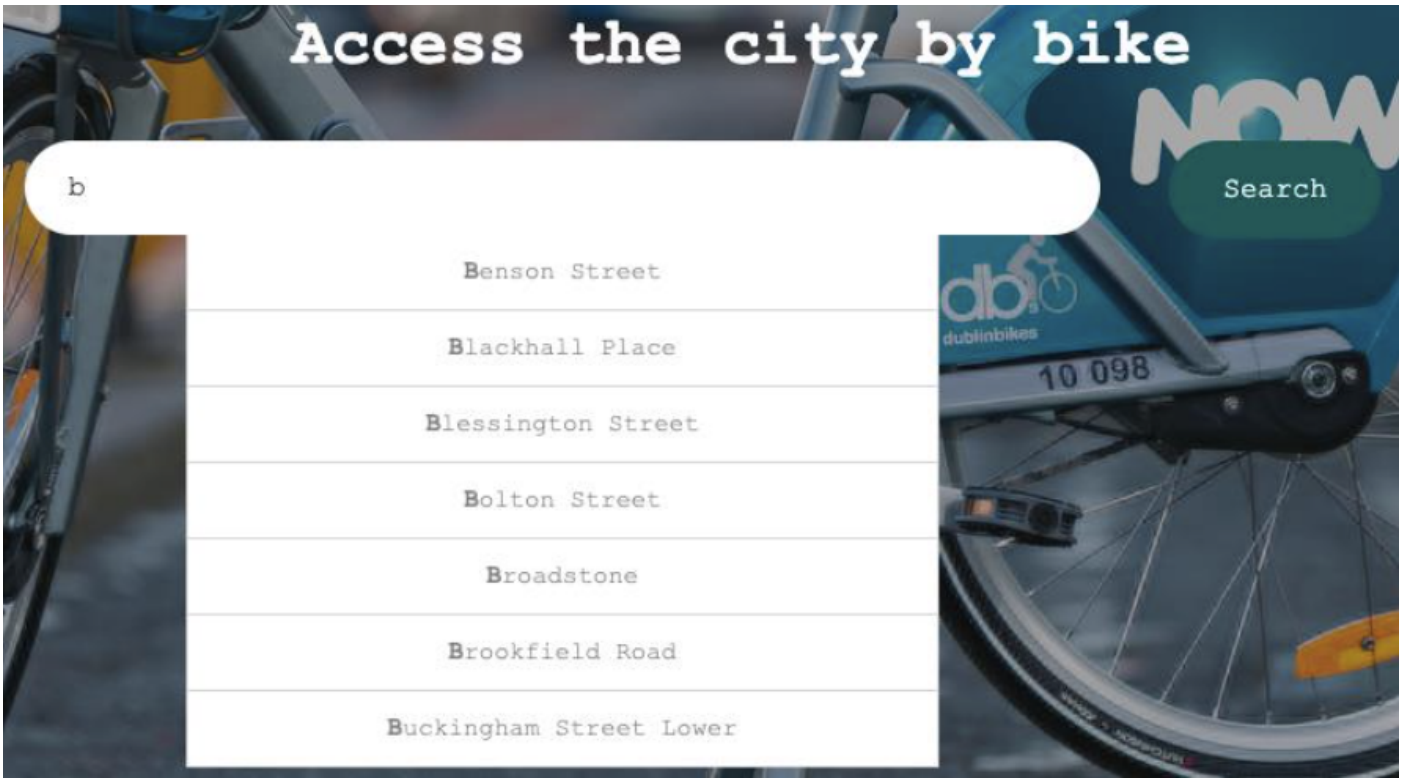
下拉菜单： 用户可以在下拉菜单中选择他们感兴趣的区域。这种方式非常紧凑，不会占用过多的屏幕空间。
Dropdown menu: Users can choose the area they are interested in from a dropdown menu. This method is compact and won't take up too much screen space.

搜索框： 用户可以通过输入区域的名字来搜索他们感兴趣的区域。这种方式非常灵活，用户可以很快找到他们想要的信息。
Search bar: Users can search for the area they are interested in by typing its name. This method is flexible, and users can quickly find the information they want.

点选按钮： 在页面上为每个区域设置一个点选按钮。这种方式的优点是一目了然，用户可以直接看到所有的选项。但可能会显得有点臃肿。
Radio buttons: Set up a radio button for each area on the page. The advantage of this method is that it's straightforward, and users can directly see all options. But it might appear a bit bulky.

下拉菜单+搜索框： 这可能是最佳的选择。用户可以在下拉菜单中看到所有的选项，也可以通过搜索框快速找到他们想要的区域。
Dropdown menu + Search bar: This might be the best choice. Users can see all options in the dropdown menu and can quickly find the area they want through the search bar.

Case：



What all data should be shown on UI.

Area name
Past rent fluctuations
Predicted housing prices
Taxi pick-up and drop-off counts and their percentage difference from the average

地区名称
过去的租金波动情况
预测的房价数据
出租车上下车数量和相对于平均值的百分比差

Are there multiple pages or is the whole app focused on single page?

Our application primarily focuses on one page. The map and filters will be displayed on the main page, and detailed information about areas will be shown in a pop-up window when the user clicks on the map.

我们的应用程序主要集中在一个页面上。地图和过滤器将在主页面上显示，而详细的区域信息将在用户点击地图后，以弹出窗口的形式展示。

Case: