team058-dbquest
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AirDnB: All-in-One Platform

1. **Project Summary:**

A one-stop portal for users seeking to explore or stay in NYC, offering detailed insights into AirBnB accommodations in neighborhoods based on safety, transportation options, and local amenities.

2. **Description of an application of your choice. State as clearly as possible what you want to do. What problem do you want to solve, etc.?**

We want to provide a seamless experience for those seeking to explore or stay in New York City with safety, convenience, and local amenities in mind through a web application. By integrating comprehensive data on Airbnb listings, crime statistics, Citibike and public transportation options, as well as local stores and restaurants, our platform will provide users with a one-stop portal for informed decision-making. We are addressing the challenge of users scattering to different sources to do their research by aggregating all this data.

Safety is a paramount concern for anyone staying in a new city. Our application will integrate up-to-date crime statistics by neighborhood, offering users a clear view of the safety landscape of New York City. This feature will enable users to make informed decisions about where they choose to stay, prioritizing their safety and peace of mind. To facilitate easy navigation around the city, our platform will provide comprehensive data on Citibike rental stations and public transportation options, including subway lines, bus routes, and their schedules.

3. **What would be a good creative component (technically challenging function) that can improve the functionality of your application? (What is something cool that you want to include? How are you planning to achieve it?)**

The creative component that we will be displaying on our application is a map that updates as you change how you want to filter the results. It will display a user's chosen amount of AirBnBs on a map based on what filters the user selects. For example, if the user wishes to see 25 AirBnbs in the safest neighborhoods, it will display 25 markers of different AirBnB locations that are ranked by safety.

We are planning to achieve it by using some sort of map API. Once we calculate the top AirBnBs by some metric for each filter option we choose later on, we will query a new table of these AirBnBs and graph markers on the map for each one.

4. **Usefulness. Explain as clearly as possible why your chosen application is useful. What are the basic functions of your web application? (What can users of this website do? Which simple and complex features are there?). Make sure to answer the following questions: Are there any similar websites/applications out there? If so, what are they, and how is yours different?**

The chosen application is useful because it allows potential visitors of the city to easily gauge the safety of their specific destination. New York City is vast with many boroughs, and there are no accessible applications currently available that would allow people to comprehensively understand and compare the safety of AirBnB sites. While people can cross-check crime rates with neighborhoods, it can be difficult to pinpoint a specific location (where they would actually stay), making it difficult to accurately gauge safety.

Our web application will allow users to specifically check bike routes, nearby restaurants, Citi bike locations, and crime rates by choosing their AirBnb location and applying the respective filters. Basic features include identifying AirBnBs by price and location, and more complex features would include applying different filters and putting these locations on a map. Our application ultimately addresses the need for a holistic platform that combines safety, accommodation, transportation, and local activity in one intuitive interface. Users can plan with confidence with access to up-to-date crime statistics and transportation schedules to make informed decisions.

5. **Realness. We want you to build a real application. So, make sure to locate real datasets. Describe your data sources (Where is the data from? In what format [csv, xls, txt,...], data size [cardinality and degree], what information does the data source capture?). It would be hard to satisfy stage 2 requirements with one dataset. Thus, we strongly recommend identifying at least two different data sources for your project.**

    a. AirBnBs in NYC:
        i. http://insideairbnb.com/get-the-data
        ii. Format: CSV
        iii. Cardinality: 39,720
        iv. Degree: 18
        v. AirBnB Information for NYC
    b. Crime in NYC:
        i. Data Source: City of New York Website https://data.cityofnewyork.us/Public-Safety/NYPD-Complaint-Data-Historic/qgea-i56i/data_preview
        ii. Format: CSV

iii. Cardinality: 8359721 entries
iv. Degree: 35

c. Restaurants in NYC:
   i. Data Source: City of New York Website https://data.cityofnewyork.us/Transportation/Open-Restaurant-Applications-Historic-/pitm-atqc/data_preview
   ii. Format: CSV
   iii. Cardinality: 14428 entries
   iv. Degree: 35
d. Citibike Locations in NYC:
   i. Data Source: https://www.kaggle.com/datasets/akkithetechie/new-york-city-bike-share-dataset
   ii. Format: CSV
   iii. Cardinality: 735502
   iv. Degree: 17
   v. CitiBike Ride History in NYC

6. **A detailed description of the functionality that your website offers. This is where you talk about what the website delivers. Talk about how a user would interact with the application (i.e., things that one could create, delete, update, or search for).**

The user can interact with the website by changing what filters they would like to use when searching for an AirBnb in New York City. They can also change how many of the top AirBnBs they would like to view when seeing the top recommendations. For example, if the user wishes to see 25 AirBnbs in the safest neighborhoods (using crime database), it will display 25 markers of different AirBnB locations that are ranked by safety.

The website offers a map that will allow users to visualize the AirBnBs in relation to whatever filter they placed.

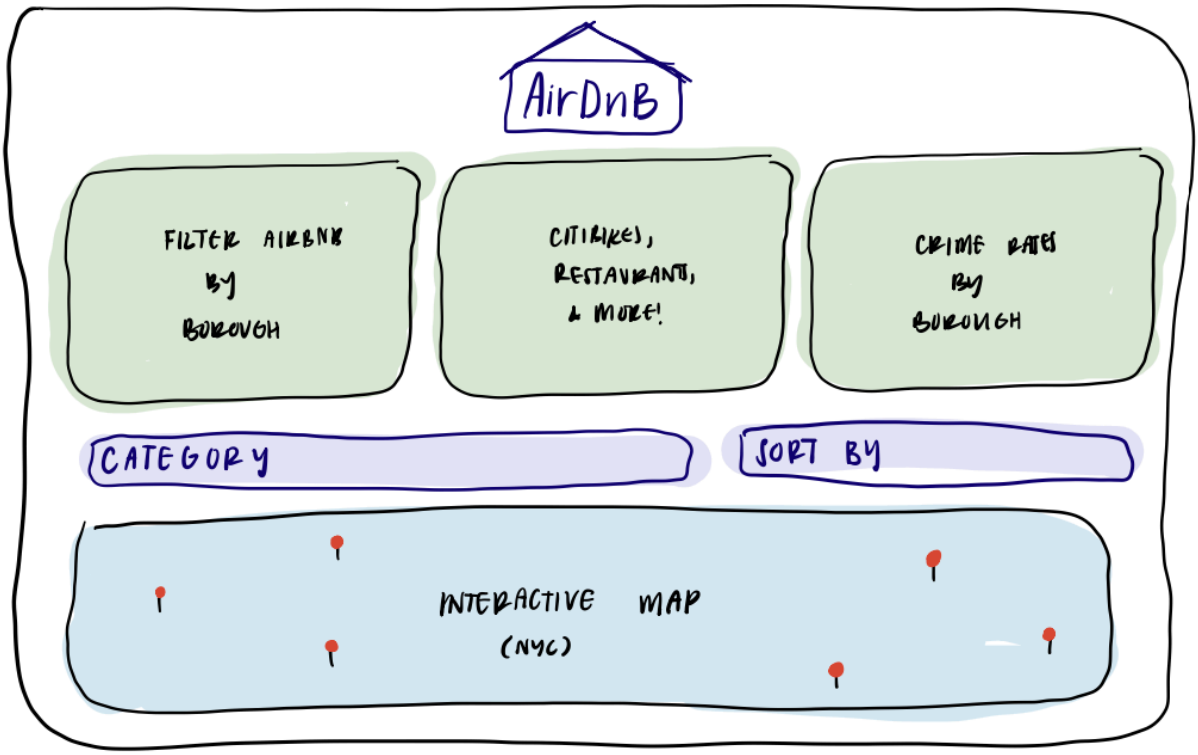
Customize Searches: Based on safety, transportation options, and proximity to amenities.
Interact with Dynamic Maps: Showcasing Airbnb listings, Citibike stations/paths, public transport options, and local businesses and update according to filters.

Data Integration:

- Airbnb Listings: Users can search and filter Airbnb options by price, location, amenities, and availability, making it easier to find the perfect stay.
- Crime Statistics: Updated crime data by neighborhood allows users to assess the safety of potential stays, ensuring peace of mind.

- Transportation Data: Detailed information on Citibike rental stations, subway lines, bus routes, and schedules helps users plan their travel within the city efficiently.
- Local Amenities: Information on nearby stores, restaurants, and attractions enables users to explore what each neighborhood has to offer.

a. A low-fidelity UI mockup: What do you imagine your final application's interface might look like? A PowerPoint slide or a pencil sketch on a piece of paper works!



b. Project Distribution:

i. Overall work will be shared throughout, but the parts below are what each person is responsible for

ii. Frontend:
   1. Ayushe Nagpal
      a. User Interface Design
   2. Reva Jethwani
      a. Dynamic Components

iii. Backend:
   1. Achintya Sanjay
      a. Creating functions for filtering options
      b. Building a relational database management system

2. Karan Shah
    a. Setting up SQL Database, joining different tables, producing map output table