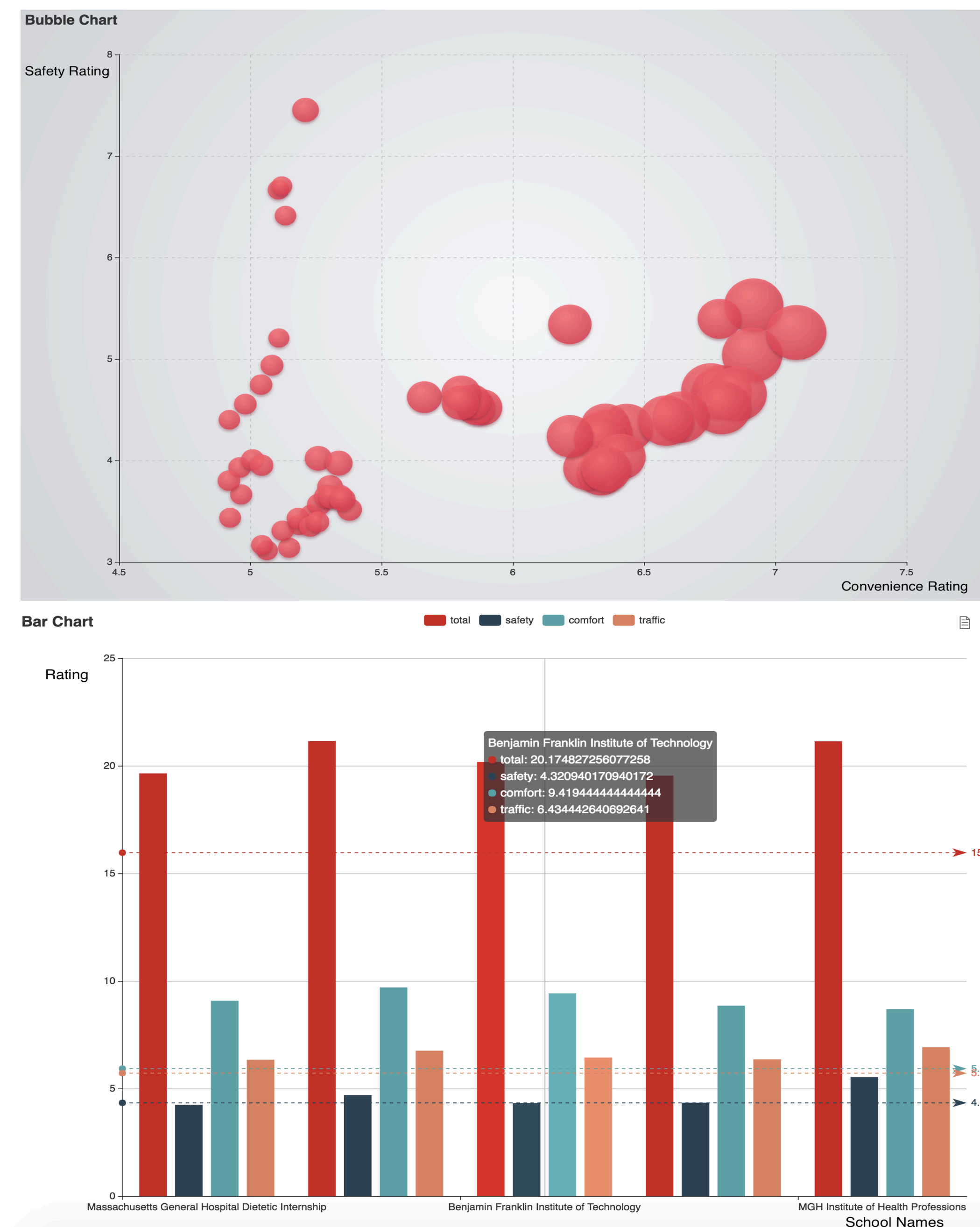


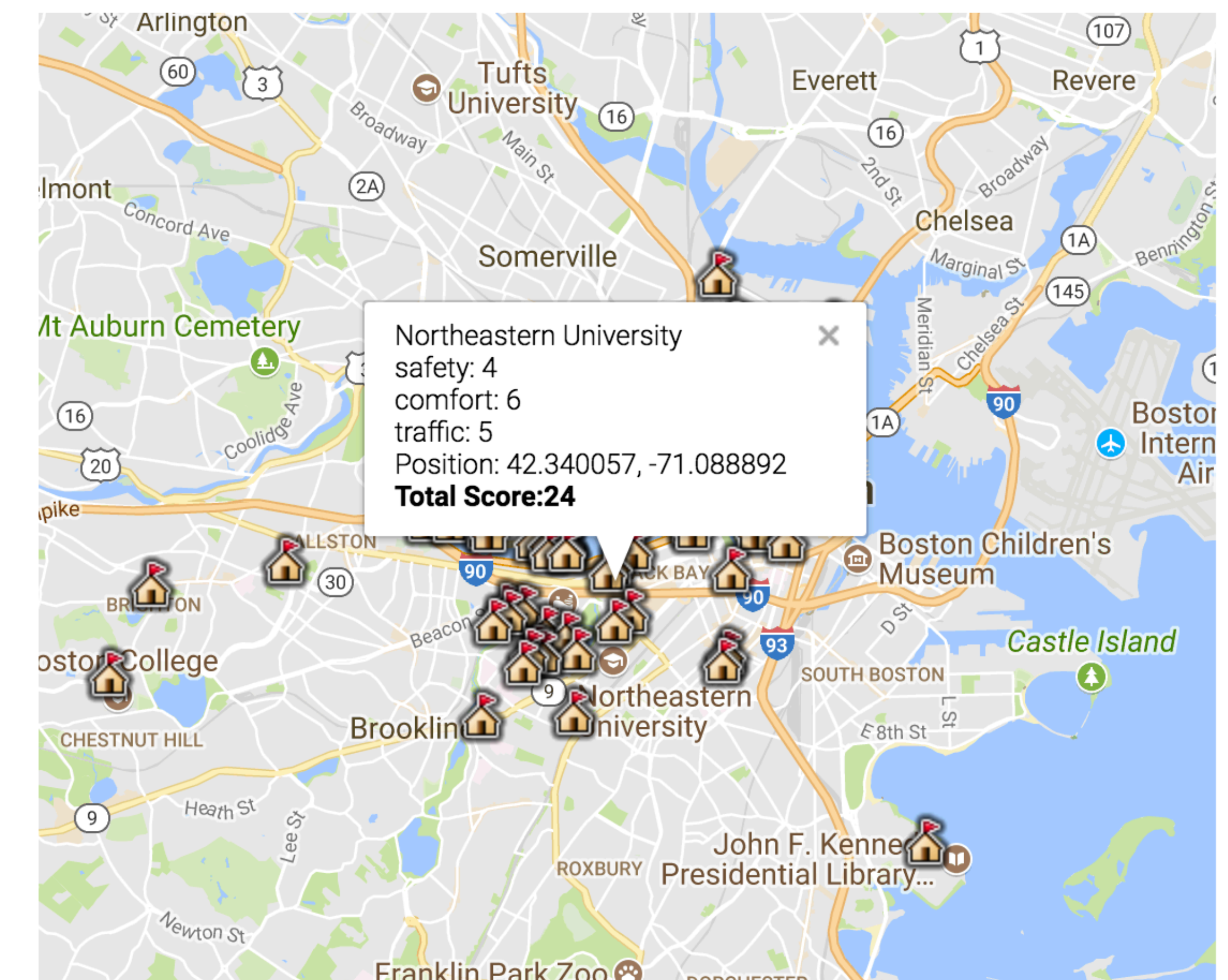
Objective

Since Boston is a quite densely populated area in US, the quality of life is very important to everyone. We are exploring the rating of living around the schools in Boston by calculating the safety rate, the comfort rate, and the convenience rate. Our objective is to use k-mean to find the area that needs a hospital the most. Our safety rate will include data from crime, crash and hospitals. Our comfort rate will include data from entertainment and restaurants. Our convenience rate will include data from crash, hubway, traffic signals and MBTA.

Data Analysis



Visualization



Tools and Data Sets

Tools:

Python, MongoDB

Data Sets:

- ✓ Boston Crash Accidents
- ✓ MBTA T-Stops
- ✓ Hubway Stations
- ✓ Colleges and Universities
- ✓ Restaurants
- ✓ Crime Incidents
- ✓ Entertainments
- ✓ Traffic Signals

Process

- ✓ Extracting coordinates from all data sets
- ✓ Relating school coordinates to the data sets coordinates by finding the number of incidents or accidents or places within 2 miles from school
- ✓ Doing the statistics analysis to rate Safety, Comfort and Convenience
- ✓ Using k-means to find the optimal hospital location to improve the rating of the area by performing product -> select -> remove reverse duplicate -> project -> select -> minimum algorithm

Future Works

In the future, we can make it better by using more detailed data sets. For example, we could take more data sets for each rating scale. We could also improve our scoring system by making a survey system to ask users for their detailed preferences.

Explanations

Data Analysis:

- Safety vs Convenience: x-axis is convenience rate, y-axis is safety rate, the area of bubble is the score of the area.
- Rating vs Schools: x-axis is schools, y-axis is scores. The bar is the scores for total, safety, comfort and convenience respectively.

Visualization:

- It shows the schools with scores in a content box after asking users to input their own preference for rankings of the three specific ratings, safety, comfort and convenience.