

LIFE QUALITY OF LIVING PLACE IN NYC

Team: VivaNYC



SUMMARY

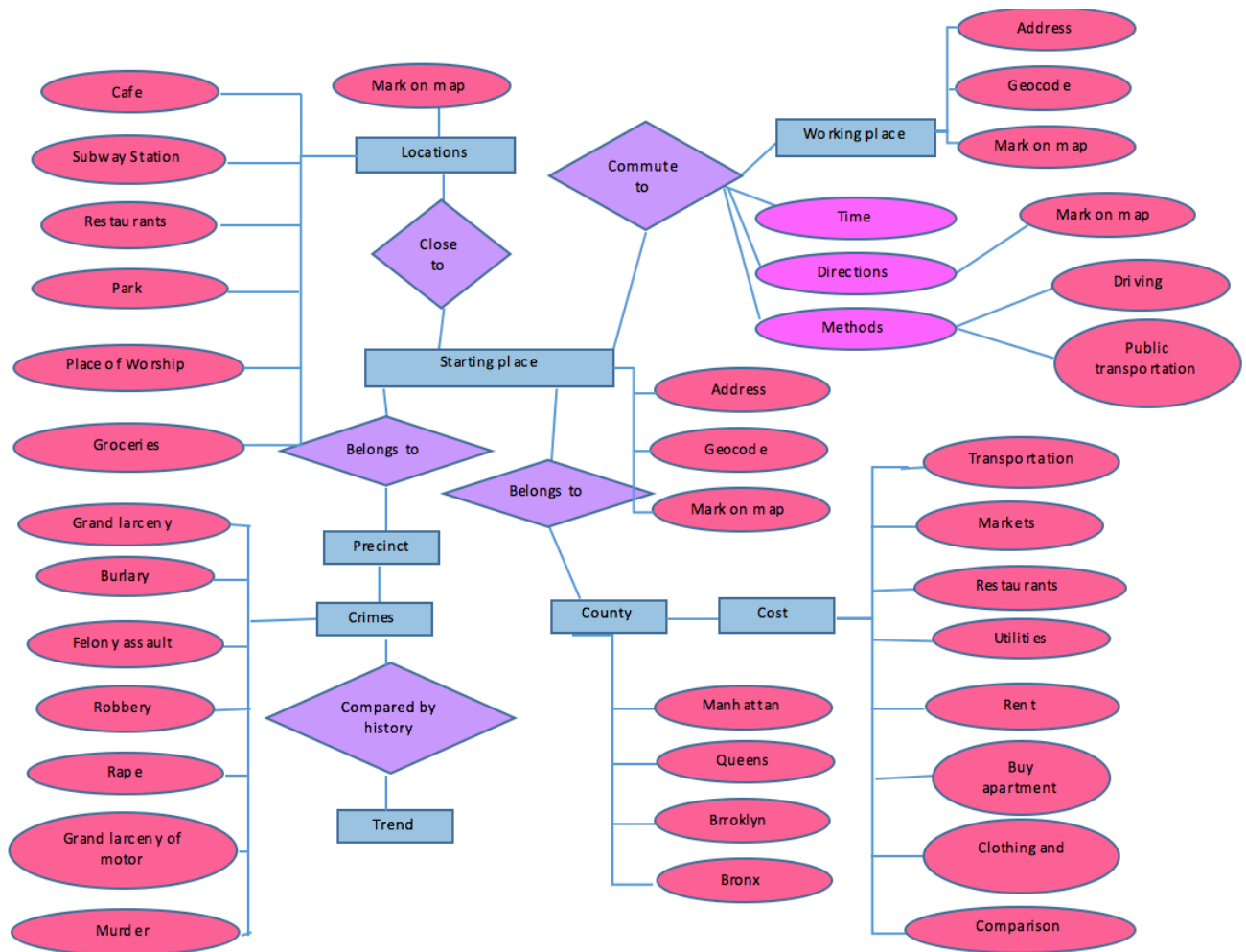
Our project is a website we build which can provide multi-dimensional information about the living places users searched. The four main parts are the duration from this place to work, nearby facilities (e.g. cafes, restaurants, parks), cost of living in the district and crime rate and its trend in the area. Each part has sufficient content for users to choose to look at. In our project, we use both the content we learned in class and what we learned by ourselves through internet, including regular expression, BeautifulSoup, Json, django, google map API, urllib, numpy, matplotlib, sql.

PROJECT REPORT

1: SOMETHING INTERESTING ABOUT OUR PROJECT

Our project is very useful for people who want to choose the living place in New York. Our interesting part is that the website we build can provide multi-dimensional information about the living places users searched. If you are considering a place to live, we can tell you the duration from this place to work, nearby facilities (e.g. cafes, restaurants, parks), cost of living in the district and crime rate and its trend in the area. Unlike google map or yelp, we take every aspect into consideration, including cost, safety, transportation and convenience, and show results intuitively to help people make a decision. Besides, our data are from the reliable and real source, for example crime data is from official website NYPD. Thus, the result can be adapted for real use in users' life.

2.ER DIAGRAM



3: STORY OF OUR TEAM

We had a very good time in teamwork. Everyone tried their best to finish their own part and is very supportive to other team members. After the course of this semester, we used web crawling to collect web information about the cost of living in New York City from website. Some of the difficulties we have is the usage of the regular expression and use web elements/tables/strings to locate the exact data we need for the project. With the experience of google finance web-crawling assignment and some examples found on the internet, those problems were fixed by us. To modify the data in excel, we use sql to simplify the process. To analyze the data, we adopted numpy and draw picture using matplotlib.

Also, we are very creative during the process. Even though we all have no background in programming before we took the python course this semester, we are willing to learn all the skills that can help improve our project. In order to get approximate travel time from target place to working place and detailed information of nearby facilities, we decided to try google map API. As none of us had previous experience of JavaScript, we had to spend much time on a trivial problem such as writing a query in url. We use regular expression to extract the desired information. Another problem is how to get the corresponding precinct if we input an address. Even though we can choose to just calculate a overall crime level in Manhattan or Queen, we want the most precise result and it's good for users to know exactly the situation of the specific precinct they live in instead of a big area. The problem is very difficult to solve because there are 123 precincts but no specific information of the area in official website. We tried a few methods and finally decided to use google map API to locate nearby specific precinct. This is the best way that we can find and it turned out that it works. Another creative but also challenging part is that we want to design a user-friendly interface to input information and display all the results. We talked about this with professor and he recommended Django. We learnt some knowledge of html from similar examples on website and modified programs to accommodate our demand. This worked for most of our problems and we learnt structure of a webpage as well as how to pass parameters between website and python program while doing the project. After days of struggle, we finally accomplished it and displayed directions and place markers on the dynamic Google map on our webpage.

4: RESULT OF OUR PROJECT

Our project is a website for people who want to get information about the living place he wants to choose. The website will output different result depending on the input address. We have both web scraping information and own original analysis in the output. We include some screen shot in the appendix to show the result.

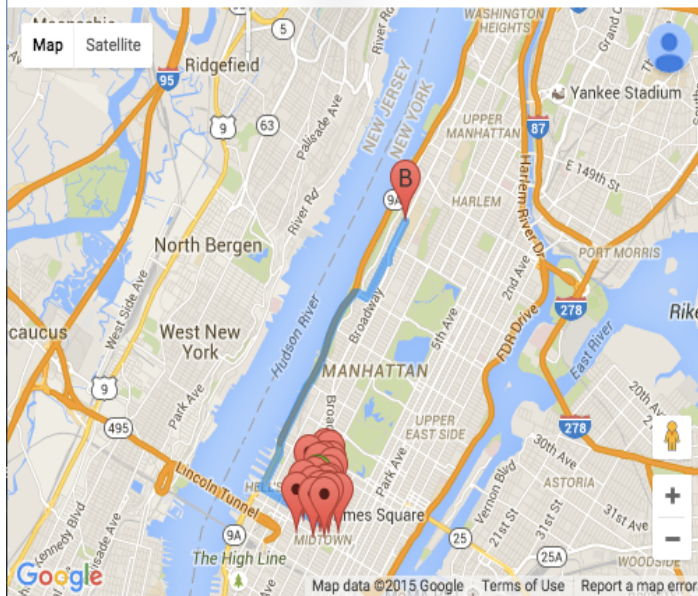
APPENDIX:

1.TEST INSTRUCTIONS

1. Change the directory for dataforPCT.csv and piechart.csv (3 in total) in views.py (in folder geolocation_app) to your own directory. If everything is done but the website page showing error, try to reload it.
2. If you don't have a key for Google maps API, you can test with the following key : AIzaSyDCjmYC7qeeWuMD0I2_4HxcXrzs8U84d3c.
3. If you want to apply your own key, ensure to open the following Google Maps API: Directions, Geocode, JavaScript and Places.
4. Use cmd *python manage.py runserver* to get Starting development server at <http://127.0.0.1:8000/>
5. You can test the program with different address. Usually it's stable and valid because we use google API, if breakdown happen, which is rarely,it was due to the precinct converter not the coding problem in our project and thus we have no solution.
6. Test wisely in case run out of quotas in API.

2.SCREEN CAPTURE OF SAMPLE TEST

2.1 ROUTE(SHOW BOTH THE PICTURE AND THE INSTRUCTION TEXT)



Enter a search address: times square new york Enter your working place: columbia university new y

From 210 W 46th St, New York, NY 10036, USA to 2950 Broadway, New York, NY 10027, USA

Type of transportation:DRIVING

• Time to work: 19 mins

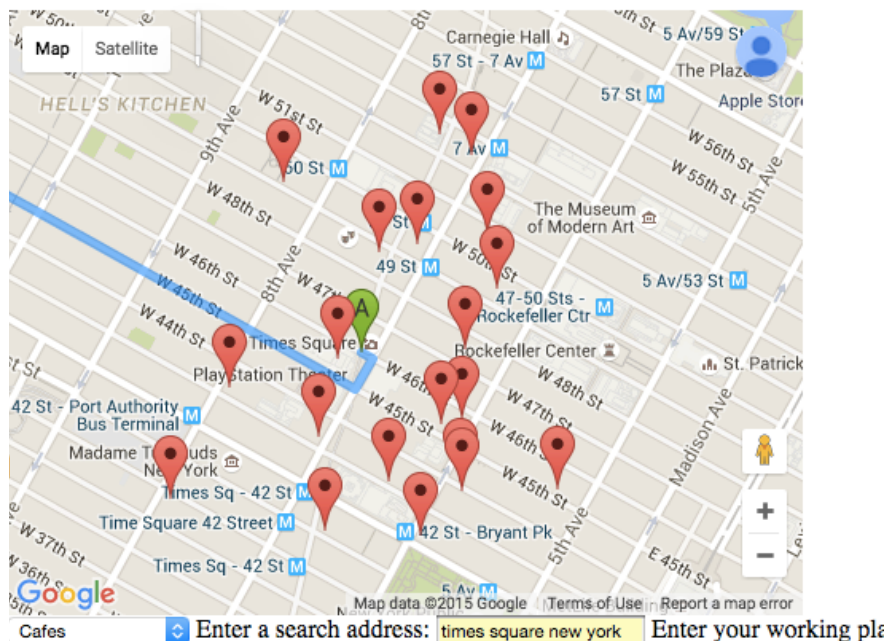
Steps:

- Head southeast on W 46th St toward 7th Ave (1 min)
- Turn right at the 1st cross street onto 7th Ave (1 min)
- Turn right onto W 45th St (7 mins)
- Turn right onto NY-9A N/12th AveContinue to follow NY-9A N (5 mins)
- Take the W 96th St exit (1 min)
- Continue onto W 96th St (1 min)
- Turn left onto West End Ave (3 mins)
- Turn right onto W 106th St/Duke Ellington Blvd (1 min)
- Turn left at the 1st cross street onto Broadway (3 mins)

2.2 NEARBY (BOTH TEXT AND LOCATION ON THE PICTURE)

Nearby cafe:

- Hard Rock Cafe, 1501 Broadway, New York
- The Red Flame, 67 West 44th Street #1, New York
- BXL Cafe, 125 West 43rd Street, New York
- Resette, 7 West 45th Street, New York
- Financier Patisserie, 1211 Avenue of the Americas, New York
- Piccolo Cafe, 274 West 40th Street, New York
- Starbucks, 1460 Broadway, New York
- Starbucks, 1100 Avenue of the Americas, New York
- Gregorys Coffee, 58 West 44th Street, New York
- Cafe Duke, 140 West 51st Street, New York
- Caffè Bene, 1611 Broadway, New York
- Crumbs Bake Shop, 1675 Broadway, New York
- Cafe Cranberry, 115 West 45th Street #1, New York
- Au Bon Pain, 1251 Avenue of the Americas, New York
- Starbucks, 1535 Broadway, New York
- 810 Deli Inc, 810 7th Avenue, New York
- Starbucks, 684 8th Avenue, New York
- Starbucks, 325 West 49th Street, New York
- Starbucks, 750 Seventh Avenue, New York
- Europa Cafe, 1177 Avenue of the Americas, New York



2.3 COST AND COMPARISON (COMPARE THE DISTRICT CHOSEN WITH MANHATTAN)

Cost:

Manhattan Restaurants search

Cost of living in Manhattan:

Restaurants

- Meal, Inexpensive Restaurant: 18.00 \$
- Meal for 2 People, Mid-range Restaurant, Three-course: 80.00 \$
- McMeal at McDonalds (or Equivalent Combo Meal): 8.00 \$
- Domestic Beer (0.5 liter draught): 6.00 \$
- Imported Beer (0.33 liter bottle): 7.00 \$
- Cappuccino (regular): 4.20 \$
- Coke/Pepsi (0.33 liter bottle): 1.87 \$
- Water (0.33 liter bottle) : 1.63 \$

Cost:

Manhattan Restaurants search

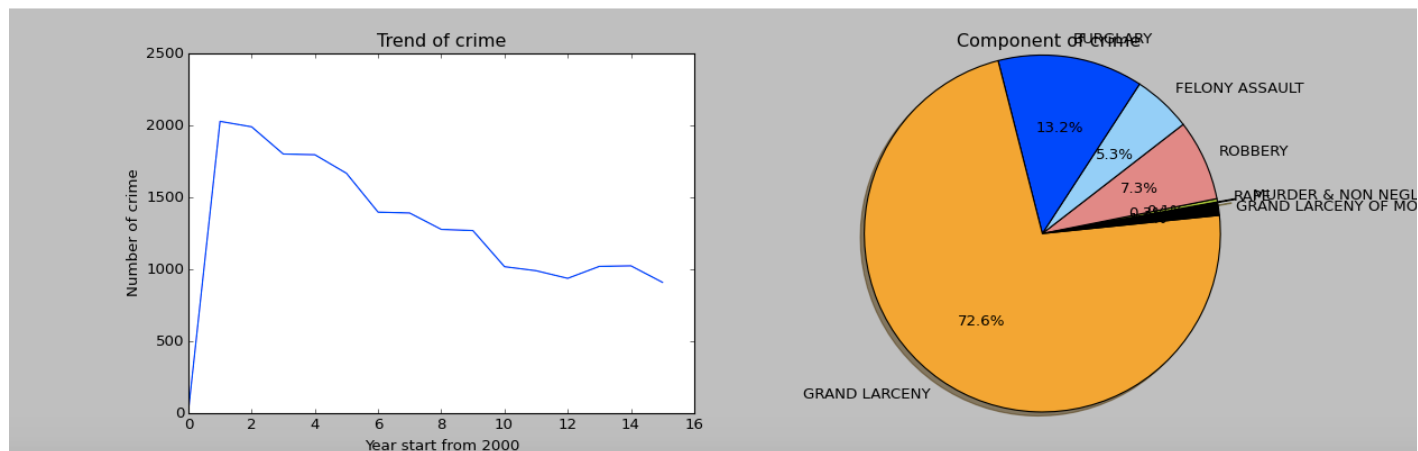
Cost of living in Brooklyn:

Comparison

- Cost of Living in Brooklyn compared with Manhattan:
- Indices Difference
-
- Consumer Prices in Brooklyn, NY are 14.22% lower than in Manhattan, NY
- Consumer Prices Including Rent in Brooklyn, NY are 15.75% lower than in Manhattan, NY
- Rent Prices in Brooklyn, NY are 17.39% lower than in Manhattan, NY
- Restaurant Prices in Brooklyn, NY are 10.54% lower than in Manhattan, NY
- Groceries Prices in Brooklyn, NY are 15.95% lower than in Manhattan, NY
- Local Purchasing Power in Brooklyn, NY is 15.97% higher than in Manhattan, NY

2.4 CRIME (OVERALL CONCLUSION AND DETAILED PICTURES)

Crime: This precinct is relatively unsafe



ACKNOWLEDGEMENTS

Thanks for the Professor and Teaching assistants. With your help and guidance, we really learned a lot in programming this semester and the best part you bring to us is that we have the passion to learn more in the future.