

### 3.6 Test your food search engine (10 pts)

After finishing all the above functions, the next thing we are interested in is to test our food search engine by some requests from users. Suppose Alice has the following requirements:

1. Find all restaurants which has Japanese food in 'Sha Tin' district with price-range \$50-200.
2. Rank the filtered restaurants by their rating(the higher the better) and break ties by their bad reviews ratio of bad reviews(the lower the better).

Get all the URL of restaurants

```
scrapy runspider openrice_urls_spider.py
scrapy runspider openrice_spider.py -o openrice_data.json -t json
```

```
https://www.openrice.com/en/hongkong/r-new-in-point-sha-tin-hong-kong-style-food-stall-noodles-r18315
https://www.openrice.com/en/hongkong/r-kung-tak-lam-shanghai-vegetarian-cuisine-sha-tin-shanghai-vegetarian-r37039
https://www.openrice.com/en/hongkong/r-italian-tomato-sha-tin-italian-cake-r19947
https://www.openrice.com/en/hongkong/r-elephant-grounds-sha-tin-international-ice-cream-yogurt-r541052
https://www.openrice.com/en/hongkong/r-mos-burger-sha-tin-japanese-hamburger-r489839
https://www.openrice.com/en/hongkong/r-gourmet-corner-sha-tin-western-bakery-r22242
https://www.openrice.com/en/hongkong/r-basic-medical-sciences-building-snack-bar-sha-tin-hong-kong-style-r23040
https://www.openrice.com/en/hongkong/r-ocean-empire-food-shop-sha-tin-hong-kong-style-congee-r6378
https://www.openrice.com/en/hongkong/r-sweet-coco-sha-tin-hong-kong-style-dessert-r169951
https://www.openrice.com/en/hongkong/r-la-terrazza-caffe-sha-tin-western-dessert-r137849
https://www.openrice.com/en/hongkong/r-delifrance-sha-tin-french-salad-r18193
https://www.openrice.com/en/hongkong/r-tak-hing-restaurant-sha-tin-hong-kong-style-r5740
https://www.openrice.com/en/hongkong/r-hui-lau-shan-sha-tin-hong-kong-style-dessert-r17942
https://www.openrice.com/en/hongkong/r-craps-cafe-sha-tin-american-hamburger-r446216
https://www.openrice.com/en/hongkong/r-shatin-inn-restaurant-sha-tin-indonesian-r23550
https://www.openrice.com/en/hongkong/r-%E8%AD%9A%E4%BB%94%E9%9B%B2%E5%8D%97%E7%B1%B3%E7%B7%9A-sha-tin-yunnan-noodles-rice-noodles-r32024
https://www.openrice.com/en/hongkong/r-tai-hing-sha-tin-hong-kong-style-chinese-bbq-r14195
https://www.openrice.com/en/hongkong/r-trusty-congee-king-sha-tin-hong-kong-style-congee-r490184
https://www.openrice.com/en/hongkong/r-das-gute-sha-tin-western-bakery-r23529
https://www.openrice.com/en/hongkong/r-golden-lilies-banquet-sha-tin-guangdong-r490021
https://www.openrice.com/en/hongkong/r-sak-sit-thai-restaurant-sha-tin-thai-r97801
https://www.openrice.com/en/hongkong/r-carnival-bar-sha-tin-western-meatless-menu-r2866
https://www.openrice.com/en/hongkong/r-ti-amo%E6%89%8B%E4%BD%9C-sha-tin-japanese-pizza-r452562
https://www.openrice.com/en/hongkong/r-%E5%90%B3%E5%B8%AB%E5%BA%9C-fo-tan-hakka-r451916
https://www.openrice.com/en/hongkong/r-cafe-cafe-sha-tin-western-all-day-breakfast-r517187
https://www.openrice.com/en/hongkong/r-%E5%98%89%E9%A6%99%E6%B1%95%E9%A0%AD%E9%AD%9A%E6%97%A6%E7%B2%89%E9%BA%B5%E5%AE%B6-sha-tin-chiu-chow-noodles-rice-noodles-r12139
https://www.openrice.com/en/hongkong/r-mcdonalds-sha-tin-american-hamburger-r2185
https://www.openrice.com/en/hongkong/r-dragon-delight-sha-tin-guangdong-hot-pot-r191016
```

Set filter\_data

```
search = Food_Search_Engine("openrice_data.json")
#filter_data = {'name': ['Chan Kun Kee', 'PizzaExpress'], 'name_cor
filter_data = {'district': 'Sha Tin', 'price-range': '50-100'}
search.filter(filter_data)
rank_data = [1, 0, -0.02, -1]
search.rank(rank_data)
#search.find_similar()
search.print_query_result()
```

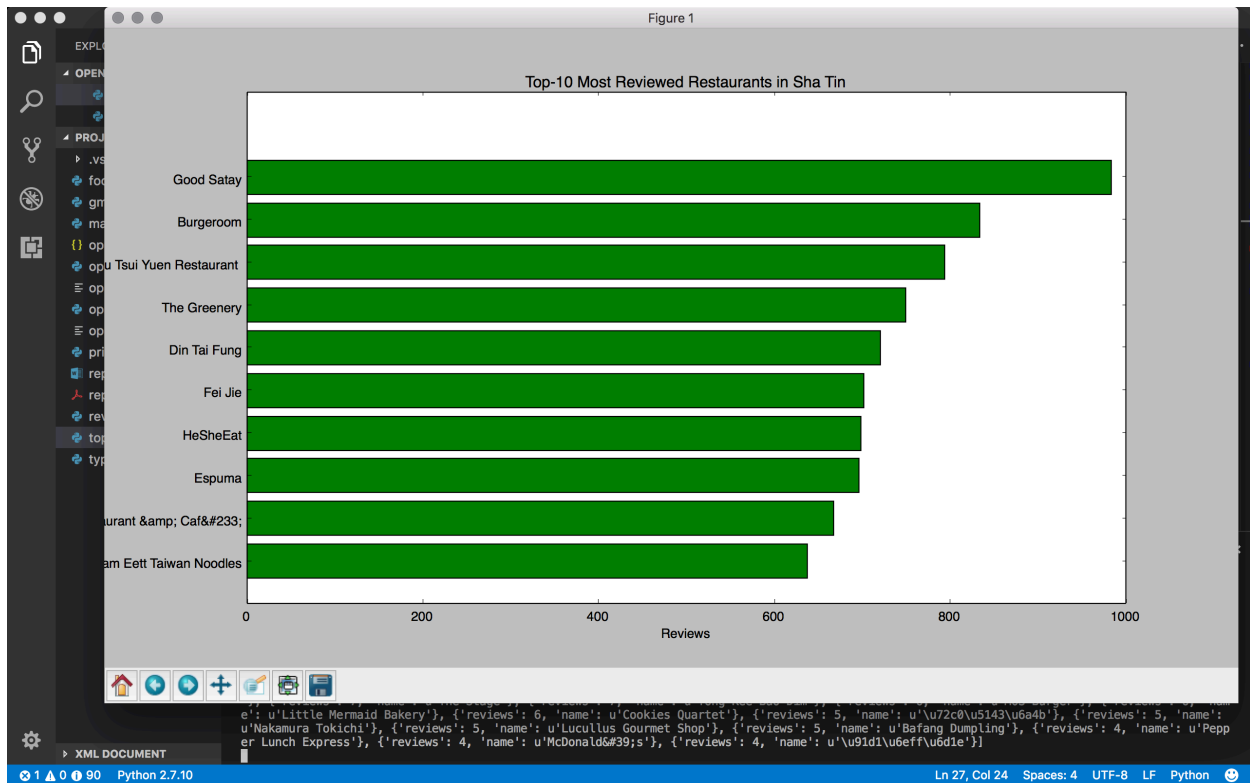
Results after ranking

```
[{'rating': 3, 'name': 'Kung Tak Lam Shanghai Vegetarian Cuisine', 'district': 'Sha Tin', 'cuisine': 'Shanghai', 'url': 'https://www.openrice.com/en/hongkong/r-kung-tak-lam-shanghai-vegetarian-cuisine-sha-tin-shanghai-vegetarian-r37039', 'reviews': [17, 18, 5], 'address': [22.381386, 114.18875], 'price-range': '$101-200'}, {'rating': 3, 'name': 'D&#233;lifrance', 'district': 'Sha Tin', 'cuisine': 'French', 'url': 'https://www.openrice.com/en/hongkong/r-delifrance-sha-tin-french-salad-r18193', 'reviews': [16, 18, 11], 'address': [22.379338, 114.18686], 'price-range': '$51-100'}, {'rating': 3, 'name': 'D&#233;lifrance', 'district': 'Sha Tin', 'cuisine': 'French', 'url': 'https://www.openrice.com/en/hongkong/r-delifrance-sha-tin-french-salad-r18193', 'reviews': [16, 18, 11], 'address': [22.379338, 114.18686], 'price-range': '$51-100'}, {'rating': 3, 'name': 'D&#233;lifrance', 'district': 'Sha Tin', 'cuisine': 'French', 'url': 'https://www.openrice.com/en/hongkong/r-delifrance-sha-tin-french-salad-r18193', 'reviews': [16, 18, 11], 'address': [22.379338, 114.18686], 'price-range': '$51-100'}, {'rating': 3, 'name': 'D&#233;lifrance', 'district': 'Sha Tin', 'cuisine': 'French', 'url': 'https://www.openrice.com/en/hongkong/r-delifrance-sha-tin-french-salad-r18193', 'reviews': [16, 18, 11], 'address': [22.379338, 114.18686], 'price-range': '$51-100'}, {'rating': 3, 'name': 'D&#233;lifrance', 'district': 'Sha Tin', 'cuisine': 'French', 'url': 'https://www.openrice.com/en/hongkong/r-delifrance-sha-tin-french-salad-r18193', 'reviews': [16, 18, 11], 'address': [22.379338, 114.18686], 'price-range': '$51-100'}, {'rating': 3, 'name': 'D&#233;lifrance', 'district': 'Sha Tin', 'cuisine': 'French', 'url': 'https://www.openrice.com/en/hongkong/r-delifrance-sha-tin-french-salad-r18193', 'reviews': [16, 18, 11], 'address': [22.379338, 114.18686], 'price-range': '$51-100'}, {'rating': 3, 'name': 'D&#233;lifrance', 'district': 'Sha Tin', 'cuisine': 'French', 'url': 'https://www.openrice.com/en/hongkong/r-delifrance-sha-tin-french-salad-r18193', 'reviews': [16, 18, 11], 'address': [22.379338, 114.18686], 'price-range': '$51-100'}, {'rating': 3, 'name': 'D&#233;lifrance', 'district': 'Sha Tin', 'cuisine': 'French', 'url': 'https://www.openrice.com/en/hongkong/r-delifrance-sha-tin-french-salad-r18193', 'reviews': [16, 18, 11], 'address': [22.379338, 114.18686], 'price-range': '$51-100'}, {'rating': 3, 'name': 'D&#233;lifrance', 'district': 'Sha Tin', 'cuisine': 'French', 'url': 'https://www.openrice.com/en/hongkong/r-delifrance-sha-tin-french-salad-r18193', 'reviews': [16, 18, 11], 'address': [22.379338, 114.18686], 'price-range': '$51-100'}]
```

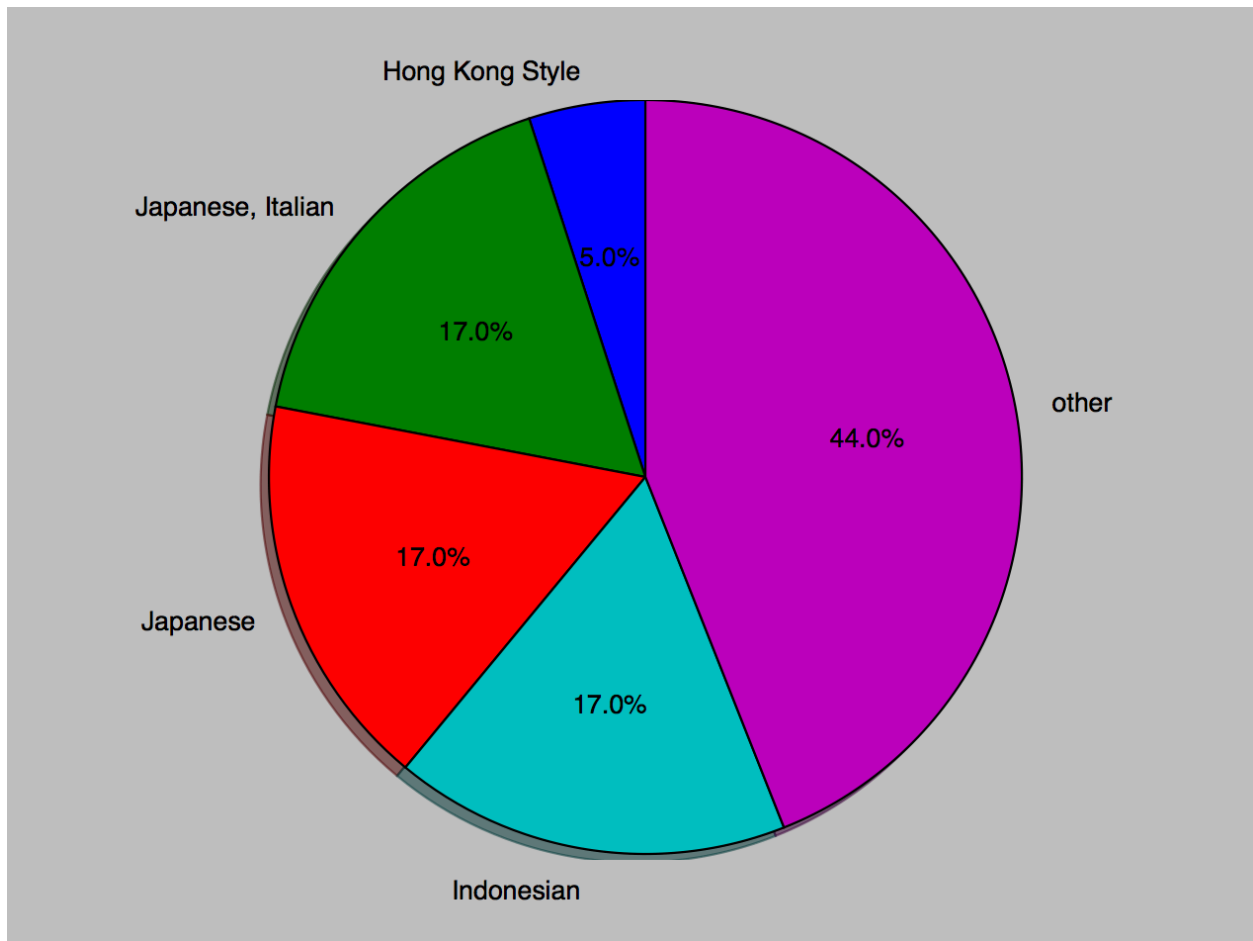
3. (optional) Find top-10 similar restaurants compared with the top-1 restaurant from the previous ranking result.

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## 4.1 Top-10 Most Reviewed Restaurants in Sha Tin (6 pts)

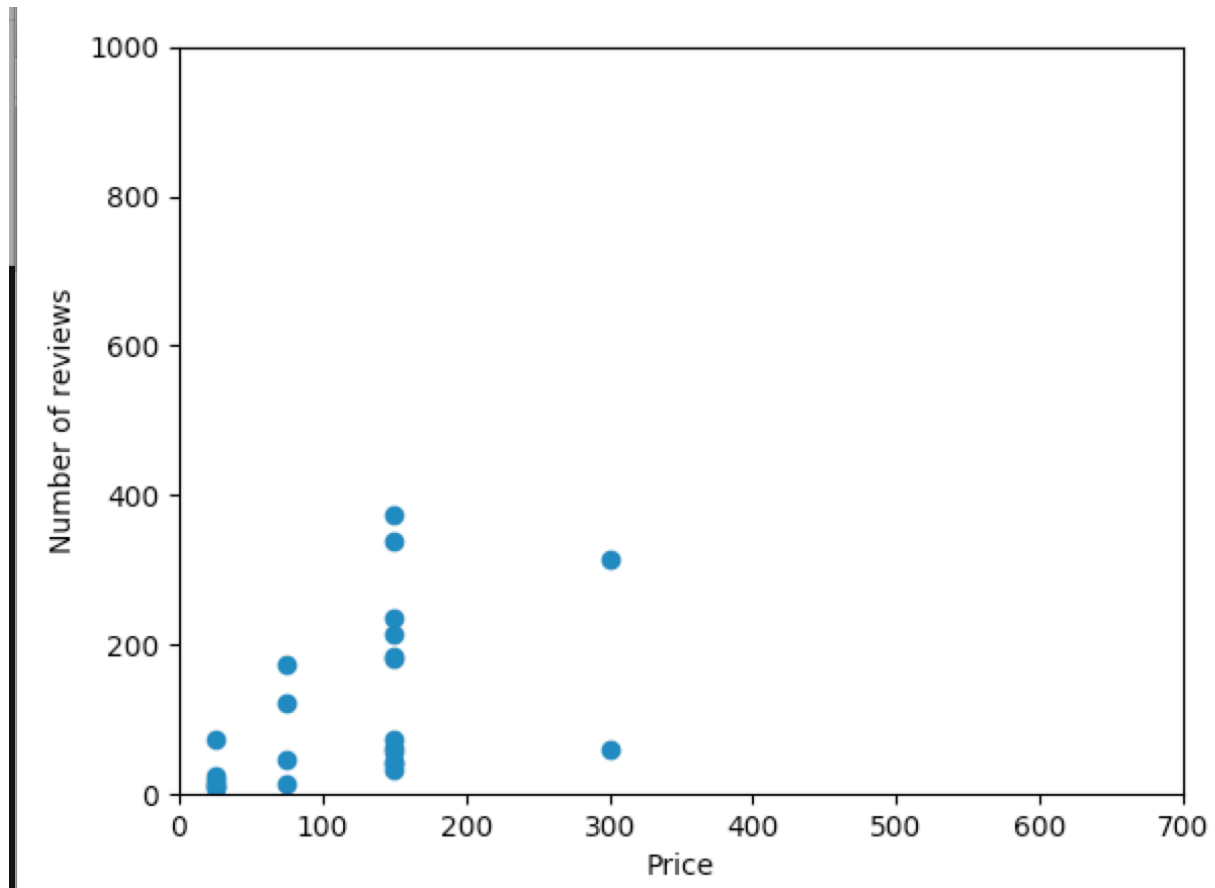


#### 4.2 The Distribution of Cuisine Types in Mong Kok (6 pts)



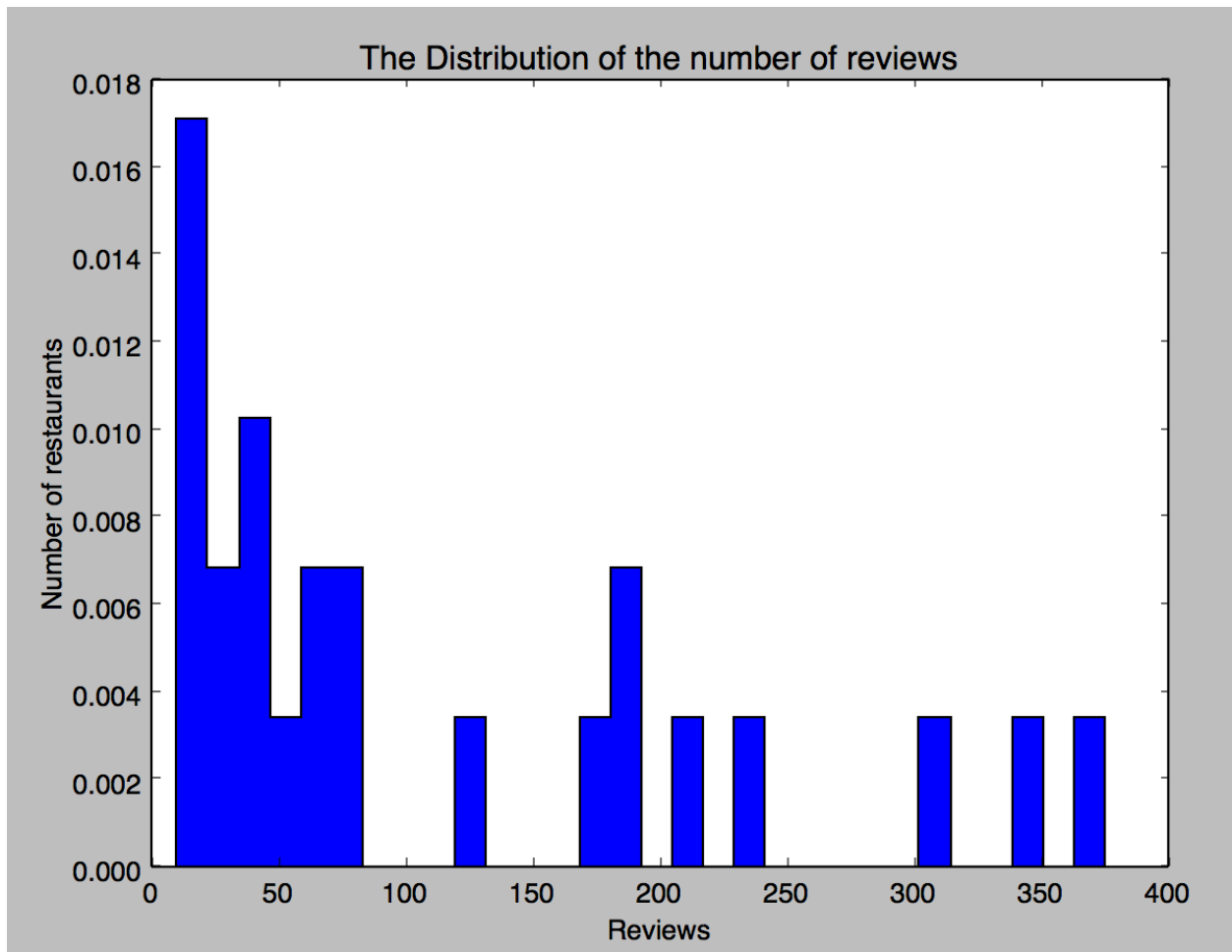
**The major styles are from other counties**

#### 4.3 Relationship Between Price and Popularity in Hong Kong (6 pts)



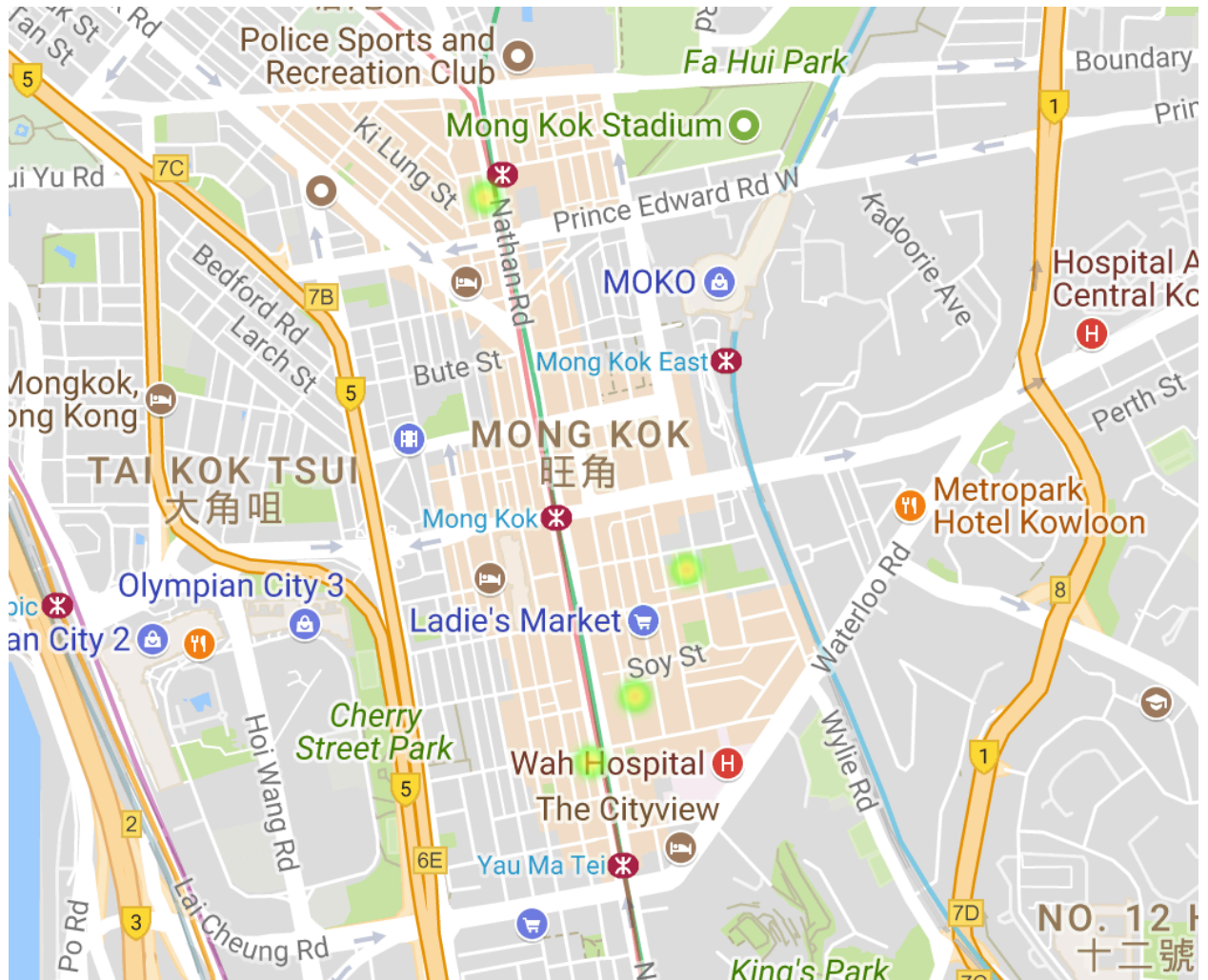
**The price below 200 is the major**

#### **4.4 The Distribution of the number of reviews in Tsim Sha Tsui (6 pts)**



Customers are not willing to give review.

### 5.1 Gmplot (10 pts)



From heat-map, Tsim Sha Tsui will be better because there is less competitor