DATA SCIENCE (UCS548)

DASHBOARD

Property Value Analyzer

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Submitted To:
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July 2022 – December 2022

Main Dataset

	Host_Id	Host_Since	Name	Neighbourhood	Property_Type	Room_Type	Zipcode	Beds	Number_of_Records	Number_Of_Reviews	Price	Review_Scores_Rating
2	500	26-06-2008	Gorgeous 1 BR with Private Balcony	Manhattan	Apartment	Entire home/apt	10024	3	1	0	199	
3	500	26-06-2008	Trendy Times Square Loft	Manhattan	Apartment	Private room	10036	3	1	39	549	96
4	1039	25-07-2008	Big Greenpoint 1BD w/ Skyline View	Brooklyn	Apartment	Entire home/apt	11222	1	1	4	149	100
5	1783	12-08-2008	Amazing Also	Manhattan	Apartment	Entire home/apt	10004	1	1	9	250	100
6	2078	15-08-2008	Colorful, quiet, & near the subway!	Brooklyn	Apartment	Private room	11201	1	1	80	90	94
7	2339	20-08-2008	East Village Cocoon: 2 Bedroom Flat	Manhattan	Apartment	Entire home/apt	10009	2	1	95	270	90
8	2339	20-08-2008	Lovely 2 Bedroom East Village Nest	Manhattan	Apartment	Entire home/apt	10009	2	1	23	290	96
9	2571	27-08-2008	THE PUTNAM	Brooklyn	Apartment	Entire home/apt	11221	2	1	14	170	98
10	2758	06-09-2008	Stay at Chez Chic budget room #1	Manhattan	Apartment	Private room	10026	2	1	120	59	93
11	2758	06-09-2008	Stay at Chez Chic budget Room #2	Manhattan	Apartment	Private room	10026	2	1	81	49	91
12	2787	07-09-2008	Renovated and spacious townhome	Brooklyn	House	Private room	11223	1	1	0	68	
13	2845	09-09-2008	Midtown Castle	Manhattan	Apartment	Entire home/apt	10018	1	1	17	285	97
14	2881	10-09-2008	Newly renovated historic brownstone	Brooklyn	Apartment	Private room	11216	1	1	32	75	95
15	2965	14-09-2008	Large Bedroom in 3-bedroom Apt.	Manhattan	Apartment	Private room	10025	1	1	52	145	99
16	3211	25-09-2008	Elegant NYC, 10mins to Manhattan!	Queens	Apartment	Private room	11106	1	1	3	100	93
17	3227	26-09-2008	Priv Apt,Garden,BBQ,A/C,BigTV,for 4	Manhattan	Apartment	Entire home/apt	10001	3	1	171	150	85
18	3226	26-09-2008	Great 3 Bed Apt Tribeca / Soho	Manhattan	Apartment	Entire home/apt	10013	3	1	0	700	
19	3226	26-09-2008	Huge Room Soho LOFT off WBroadway	Manhattan	Apartment	Private room	10013	1	1	9	125	86
20	3226	26-09-2008	Master Room Soho LOFT off WBroadway	Manhattan	Apartment	Private room	10013	1	1	0	175	
21	3415	02-10-2008	Beautiful Furnished Master Bedroom	Queens	House	Private room	11365	1	1	0	90	
22	3563	10-10-2008	16' x 11' Furnished BR with Balcony	Brooklyn	Apartment	Private room	11220	1	1	1	40	100
23	3647	14-10-2008	Conveniently Queens with Two Rooms	Queens	Apartment	Entire home/apt	11373	1	1	4	89	93
24	3647	14-10-2008	Quality Cozy Studio Next to Subway	Queens	Apartment	Entire home/apt	11373	1	1	16	95	94
25	3647	14-10-2008	Queens Quality Convenient Apartment	Queens	Apartment	Entire home/apt	11373	2	1	9	99	100
26	3867	29-10-2008	1 Bedroom Apartment in Chinatown!	Manhattan	Apartment	Entire home/apt	10002	1	1	19	149	93
27	3867	29-10-2008	3 bedroom apartment in Chinatown!	Manhattan	Apartment	Entire home/apt	10038	4	1	2	499	80
28	3867	29-10-2008	Private bedroom in spacious loft!	Manhattan	Apartment	Private room	10038	4	1	0	99	
29	3867	29-10-2008	Share a bedroom in a huge Apartment	Manhattan	Apartment	Shared room	10038	1	1	0	99	
30	3867	29-10-2008	Share a bedroom in a huge Apartment	Manhattan	Apartment	Shared room	10038	1	1	0	99	
31	4177	09-11-2008	++ Brooklyn Penthouse Guestroom ++	Brooklyn	Apartment	Private room	11206	1	1	16	125	94
32	4267	12-11-2008	Robin's Nest on the fabulous UWS	Manhattan	Apartment	Entire home/apt	10024	2	1	28	170	88
33	4267	12-11-2008	Airy Room on the fabulous UWS	Manhattan	Apartment	Private room	10024	1	1	62	120	92

Data Pre-processing

```r
library(readxl)
Data <- read_excel("AirBnb_tutorial_Data.xlsx")

Data
View(Data)

#track id is made primary key
file1 <- Data[ , c(1:4)]
file2 <- Data[ , c(1,4:7)]
file3 <- Data[ , c(7:10)]
file4 <- Data[ , c(7,9:11)]
file5 <- Data[ , c(1,12)]

View(file1)
View(file2)
View(file3)
View(file4)
View(file5)

#feature reduction i.e. removing unnecessary columns
file4 <- subset(file4, select = - Number_of_Records)
file4

#finding number of NAs in the columns
colSums(is.na(file1))
colSums(is.na(file2))
colSums(is.na(file3))
colSums(is.na(file4))
colSums(is.na(file5))
```

```r
#removing rows having Zipcode and Property_Type equal to NAs
file2 <- file2[!is.na(file2$Property_Type), ]
file2 <- file2[!is.na(file2$Zipcode), ]

file3 <- file3[!is.na(file3$Zipcode), ]
file4 <- file4[!is.na(file4$Zipcode), ]

#replacing NAs in the beds and Reviews Ratings With their Mean
beds <- file3$Beds[!is.na(file3$Beds)]
mean_bed = mean(beds)
file3$Beds[is.na(file3$Beds)] <- ceiling(mean_bed)

Ratings <- file5$Review_Scores_Rating[!is.na(file5$Review_Scores_Rating)]
mean_Rating <- mean(Ratings)
file5$Review_Scores_Rating[is.na(file5$Review_Scores_Rating)] <- ceiling(mean_Rating)

#After Preprocessing
colSums(is.na(file1))
colSums(is.na(file2))
colSums(is.na(file3))
colSums(is.na(file4))
colSums(is.na(file5))

#writing the datasets into csv files
write.csv(file1,"file1.csv", row.names = TRUE)
write.csv(file2,"file2.csv", row.names = TRUE)
write.csv(file3,"file3.csv", row.names = TRUE)
write.csv(file4,"file4.csv", row.names = TRUE)
write.csv(file5,"file5.csv", row.names = TRUE)

read.csv("file1.csv")
read.csv("file2.csv")
read.csv("file3.csv")
read.csv("file4.csv")
read.csv("file5.csv")
```

Output :

```
> #finding number of NAs in the columns
> colSums(is.na(file1))
     Host_Id     Host_Since               Name Neighbourhood
           0              0                  0             0
> colSums(is.na(file2))
     Host_Id Neighbourhood Property_Type      Room_Type       Zipcode
           0             0             3              0           134
> colSums(is.na(file3))
        Zipcode                Beds Number_of_Records Number_Of_Reviews
            134                  85                 0                 0
> colSums(is.na(file4))
        Zipcode Number_Of_Reviews              Price
            134                 0                  0
> colSums(is.na(file5))
        Host_Id Review_Scores_Rating
              0                 8317
```

After-Preprocessing :

```
> #After Preprocessing
> colSums(is.na(file1))
     Host_Id     Host_Since               Name Neighbourhood
           0              0                  0             0
> colSums(is.na(file2))
     Host_Id Neighbourhood Property_Type      Room_Type       Zipcode
           0             0             0              0             0
> colSums(is.na(file3))
        Zipcode                Beds Number_of_Records Number_Of_Reviews
              0                   0                 0                 0
> colSums(is.na(file4))
        Zipcode Number_Of_Reviews              Price
              0                 0                  0
> colSums(is.na(file5))
        Host_Id Review_Scores_Rating
              0                 0
```

After Splitting the Main Excel File, we have generated 5 csv files.

1. File.csv

	Host_Id	Host_Since	Name	Neighbourhood
1	500	26-06-2008	Gorgeous 1 BR with Private Balcony	Manhattan
2	500	26-06-2008	Trendy Times Square Loft	Manhattan
3	1039	25-07-2008	Big Greenpoint 1BD w/ Skyline View	Brooklyn
4	1783	12-08-2008	Amazing Also	Manhattan
5	2078	15-08-2008	Colorful, quiet, & near the subway!	Brooklyn
6	2339	20-08-2008	East Village Cocoon: 2 Bedroom Flat	Manhattan
7	2339	20-08-2008	Lovely 2 Bedroom East Village Nest	Manhattan
8	2571	27-08-2008	THE PUTNAM	Brooklyn
9	2758	06-09-2008	Stay at Chez Chic budget room #1	Manhattan
10	2758	06-09-2008	Stay at Chez Chic budget Room #2	Manhattan
11	2787	07-09-2008	Renovated and spacious townhome	Brooklyn
12	2845	09-09-2008	Midtown Castle	Manhattan
13	2881	10-09-2008	Newly renovated historic brownstone	Brooklyn
14	2965	14-09-2008	Large Bedroom in 3-bedroom Apt.	Manhattan
15	3211	25-09-2008	Elegant NYC, 10mins to Manhattan!	Queens
16	3227	26-09-2008	Priv Apt,Garden,BBQ,A/C,BigTV,for 4	Manhattan
17	3226	26-09-2008	Great 3 Bed Apt Tribeca / Soho	Manhattan
18	3226	26-09-2008	Huge Room Soho LOFT off WBroadway	Manhattan
19	3226	26-09-2008	Master Room Soho LOFT off WBroadway	Manhattan
20	3415	02-10-2008	Beautiful Furnished Master Bedroom	Queens
21	3563	10-10-2008	16' x 11' Furnished BR with Balcony	Brooklyn
22	3647	14-10-2008	Conveniently Queens with Two Rooms	Queens
23	3647	14-10-2008	Quality Cozy Studio Next to Subway	Queens
24	3647	14-10-2008	Queens Quality Convenient Apartment	Queens
25	3867	29-10-2008	1 Bedroom Apartment in Chinatown!	Manhattan
26	3867	29-10-2008	3 bedroom apartment in Chinatown!	Manhattan
27	3867	29-10-2008	Private bedroom in spacious loft!	Manhattan
28	3867	29-10-2008	Share a bedroom in a huge Apartment	Manhattan
29	3867	29-10-2008	Share a bedroom in a huge Apartment	Manhattan
30	4177	09-11-2008	++ Brooklyn Penthouse Guestroom ++	Brooklyn
31	4267	12-11-2008	Robin's Nest on the fabulous UWS	Manhattan
32	4267	12-11-2008	Airy Room on the fabulous UWS	Manhattan
33	4396	19-11-2008	Large Room, Amazing E. Village Apt	Manhattan

2. File2.csv

	Host_Id	Neighbourhood	Property_Type	Room_Type	Zipcode
1	500	Manhattan	Apartment	Entire home/apt	10024
2	500	Manhattan	Apartment	Private room	10036
3	1039	Brooklyn	Apartment	Entire home/apt	11222
4	1783	Manhattan	Apartment	Entire home/apt	10004
5	2078	Brooklyn	Apartment	Private room	11201
6	2339	Manhattan	Apartment	Entire home/apt	10009
7	2339	Manhattan	Apartment	Entire home/apt	10009
8	2571	Brooklyn	Apartment	Entire home/apt	11221
9	2758	Manhattan	Apartment	Private room	10026
10	2758	Manhattan	Apartment	Private room	10026
11	2787	Brooklyn	House	Private room	11223
12	2845	Manhattan	Apartment	Entire home/apt	10018
13	2881	Brooklyn	Apartment	Private room	11216
14	2965	Manhattan	Apartment	Private room	10025
15	3211	Queens	Apartment	Private room	11106
16	3227	Manhattan	Apartment	Entire home/apt	10001
17	3226	Manhattan	Apartment	Entire home/apt	10013
18	3226	Manhattan	Apartment	Private room	10013
19	3226	Manhattan	Apartment	Private room	10013
20	3415	Queens	House	Private room	11365
21	3563	Brooklyn	Apartment	Private room	11220
22	3647	Queens	Apartment	Entire home/apt	11373
23	3647	Queens	Apartment	Entire home/apt	11373
24	3647	Queens	Apartment	Entire home/apt	11373
25	3867	Manhattan	Apartment	Entire home/apt	10002
26	3867	Manhattan	Apartment	Entire home/apt	10038
27	3867	Manhattan	Apartment	Private room	10038
28	3867	Manhattan	Apartment	Shared room	10038
29	3867	Manhattan	Apartment	Shared room	10038
30	4177	Brooklyn	Apartment	Private room	11206
31	4267	Manhattan	Apartment	Entire home/apt	10024
32	4267	Manhattan	Apartment	Private room	10024
33	4396	Manhattan	Apartment	Private room	10009

3. File3.csv

	Zipcode	Beds	Number_Of_Reviews
1	10024	3	0
2	10036	3	39
3	11222	1	4
4	10004	1	9
5	11201	1	80
6	10009	2	95
7	10009	2	23
8	11221	2	14
9	10026	2	120
10	10026	2	81
11	11223	1	0
12	10018	1	17
13	11216	1	32
14	10025	1	52
15	11106	1	3
16	10001	3	171
17	10013	3	0
18	10013	1	9
19	10013	1	0
20	11365	1	0
21	11220	1	1
22	11373	1	4
23	11373	1	16
24	11373	2	9
25	10002	1	19
26	10038	4	2
27	10038	4	0
28	10038	1	0
29	10038	1	0
30	11206	1	16
31	10024	2	28

4. File4.csv

	Zipcode	Number_Of_Reviews	Price
1	10024	0	199
2	10036	39	549
3	11222	4	149
4	10004	9	250
5	11201	80	90
6	10009	95	270
7	10009	23	290
8	11221	14	170
9	10026	120	59
10	10026	81	49
11	11223	0	68
12	10018	17	285
13	11216	32	75
14	10025	52	145
15	11106	3	100
16	10001	171	150
17	10013	0	700
18	10013	9	125
19	10013	0	175
20	11365	0	90
21	11220	1	40
22	11373	4	89
23	11373	16	95
24	11373	9	99
25	10002	19	149
26	10038	2	499
27	10038	0	99
28	10038	0	99
29	10038	0	99
30	11206	16	125
31	10024	28	170

5. File5.csv

	Host_Id	Review_Scores_Rating
1	500	92
2	500	96
3	1039	100
4	1783	100
5	2078	94
6	2339	90
7	2339	96
8	2571	98
9	2758	93
10	2758	91
11	2787	92
12	2845	97
13	2881	95
14	2965	99
15	3211	93
16	3227	85
17	3226	92
18	3226	86
19	3226	92
20	3415	92
21	3563	100
22	3647	93
23	3647	94
24	3647	100
25	3867	93
26	3867	80
27	3867	92
28	3867	92
29	3867	92
30	4177	94
31	4267	88

DashBoard

Property Value Analyzer DashBoard

Select Property Type: (All)

Select Year: (All)

Select Room Type: (All)

Top Regions Wise Ratings

Region	Rating
Brooklyn	92.2
Manhattan	91.8
Bronx	91.8
Queens	91.4
Staten Island	91.2

Average Prices as per Years

Year	Price
2008	160.3
2009	168.1
2010	166.4
2011	164.8
2012	164.4
2013	164.1
2014	163.7
2015	163.6

Regions with Bed Availability For Room Type

Region	Entire home/apt	Private room	Shared room
Manhattan	42.3K	40.6K	26.2K
Brooklyn	40.4K	31.2K	18.0K
Queens	26.1K	22.8K	
Bronx			
Staten Island			

Legend:
- Shared room
- Private room
- Entire home/apt

Average Price Of Properties in New York

Legend: Apartment, Bed & Bre.., Boat, Bungalow, Cabin, Camper/RV, Castle, Chalet, Condomin.., Dorm, House, Hut, Lighthouse, Loft, Other, Other

Bubbles labeled: Hut, Cabin, Villa, Dorm, Boat, Other, Loft

Review Score Ratings In Different Areas

Areas: Bronx, Brooklyn, Manhattan, Queens, Staten Island

Y-axis: Number Of Reviews

Average Prices Based On ZipCode

© 2022 Mapbox © OpenStreetMap

Avg. Price: 40 — 1,500

Merging of Csv Files in Tableu

#	#	📅	Abc	Abc
file1.csv	file1.csv	file1.csv	file1.csv	file1.csv
F1	Host Id	Host Since	Name	Neighbourhood1
1	500	26-06-2008	Gorgeous 1 BR with Private B…	Manhattan
2	500	26-06-2008	Trendy Times Square Loft	Manhattan
3	1039	25-07-2008	Big Greenpoint 1BD w/ Skyli…	Brooklyn
4	1783	12-08-2008	Amazing Also	Manhattan
5	2078	15-08-2008	Colorful, quiet, & near the su…	Brooklyn
6	2339	20-08-2008	East Village Cocoon: 2 Bedro…	Manhattan
7	2339	20-08-2008	Lovely 2 Bedroom East Villag	Manhattan

file1.csv ▼   5 fields 30472 rows   100 →

Name
file1.csv

Fields

Type	Field Name	Physical Table	Remote Fie…
#	F1	file1.csv	F1
#	Host Id	file1.csv	Host_Id
📅	Host Since	file1.csv	Host_Since

Filters:

Edit Data Source Filters   ✕

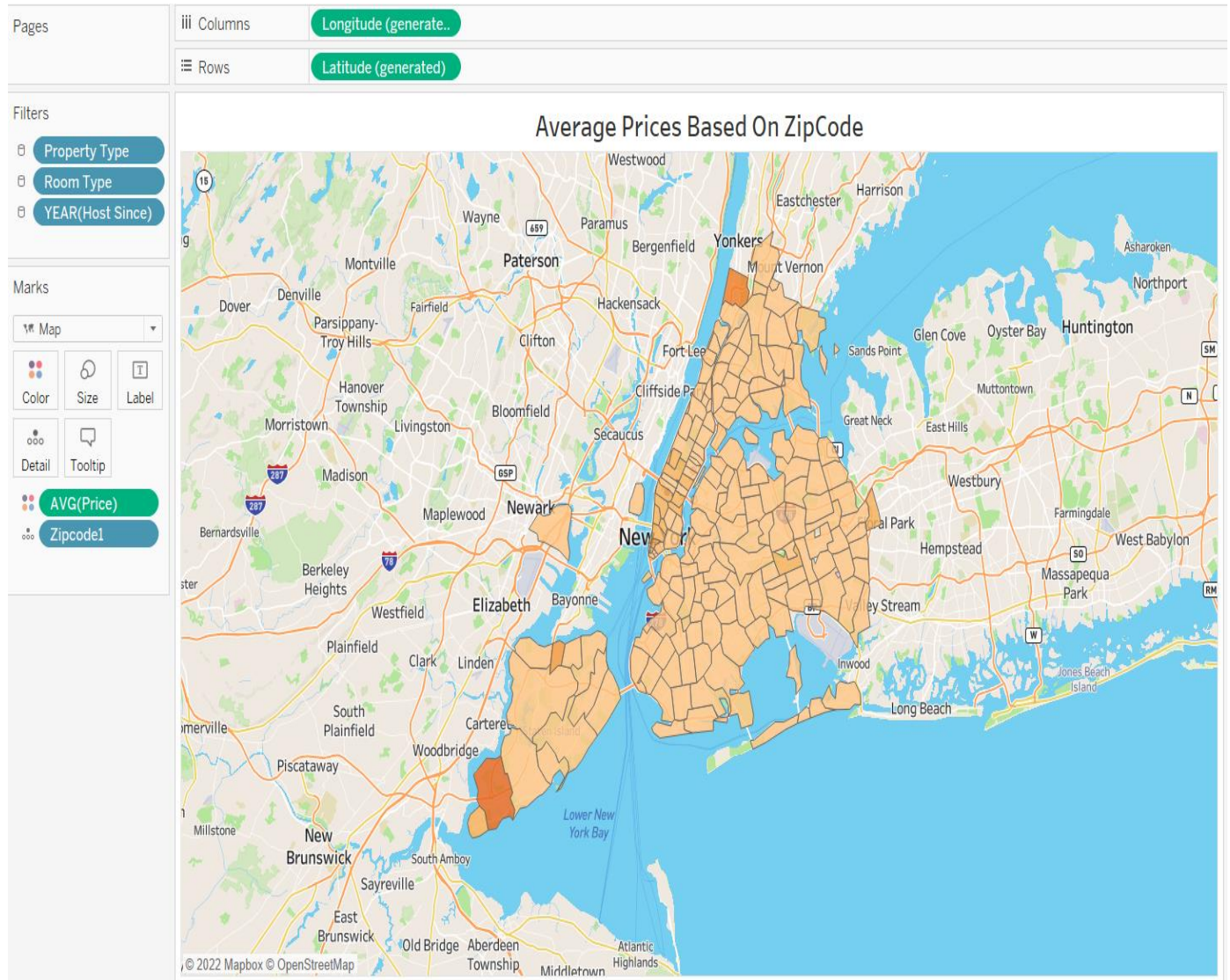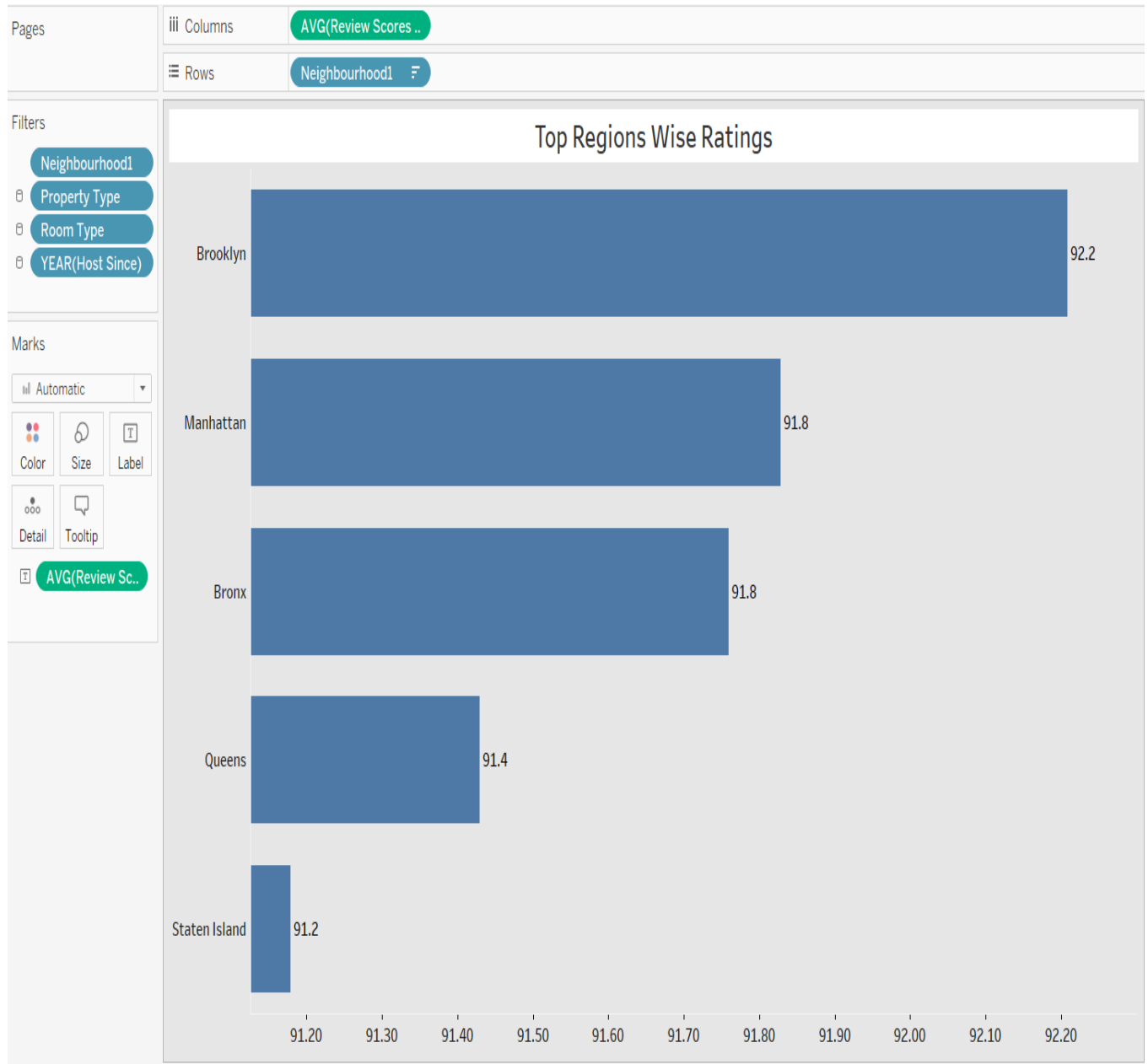| Filter	Details
Room Type	keeps multiple members
Price	ranges from 10 to 10,000
Property Type	keeps multiple members
Year of Host Since	excludes no members
Number Of Reviews	ranges from 0 to 257

Add...   Edit...   Remove
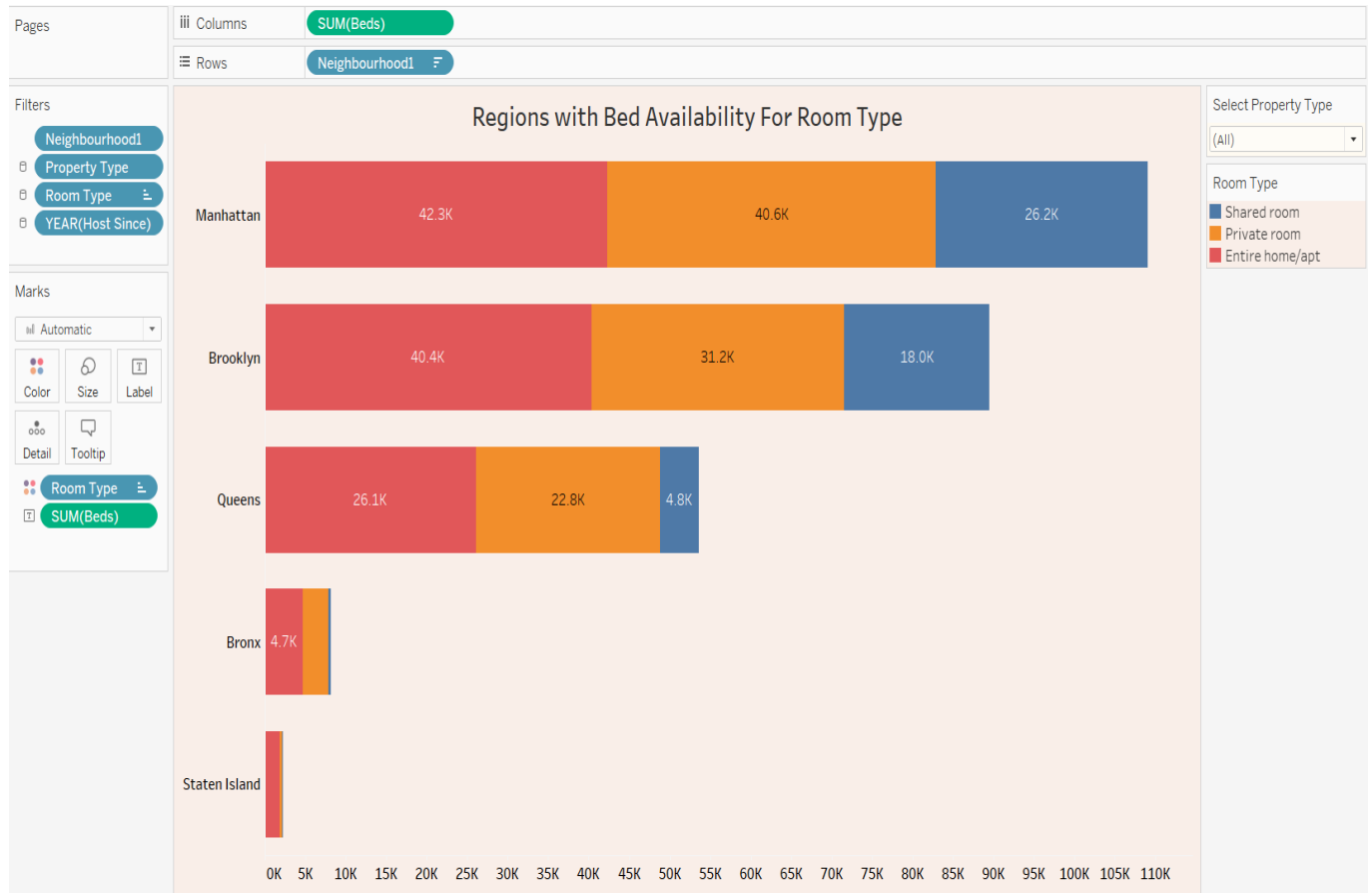
OK   Cancel

Queries

1. Average Prices Based on ZipCode

2. Top Regions Wise Ratings

3. Regions with Bed Availability For Room Type

Regions with Bed Availability For Room Type

Manhattan: Entire home/apt 42.3K, Private room 40.6K, Shared room 26.2K
Brooklyn: Entire home/apt 40.4K, Private room 31.2K, Shared room 18.0K
Queens: Entire home/apt 26.1K, Private room 22.8K, Shared room 4.8K
Bronx: Entire home/apt 4.7K
Staten Island

Select Property Type: (All)

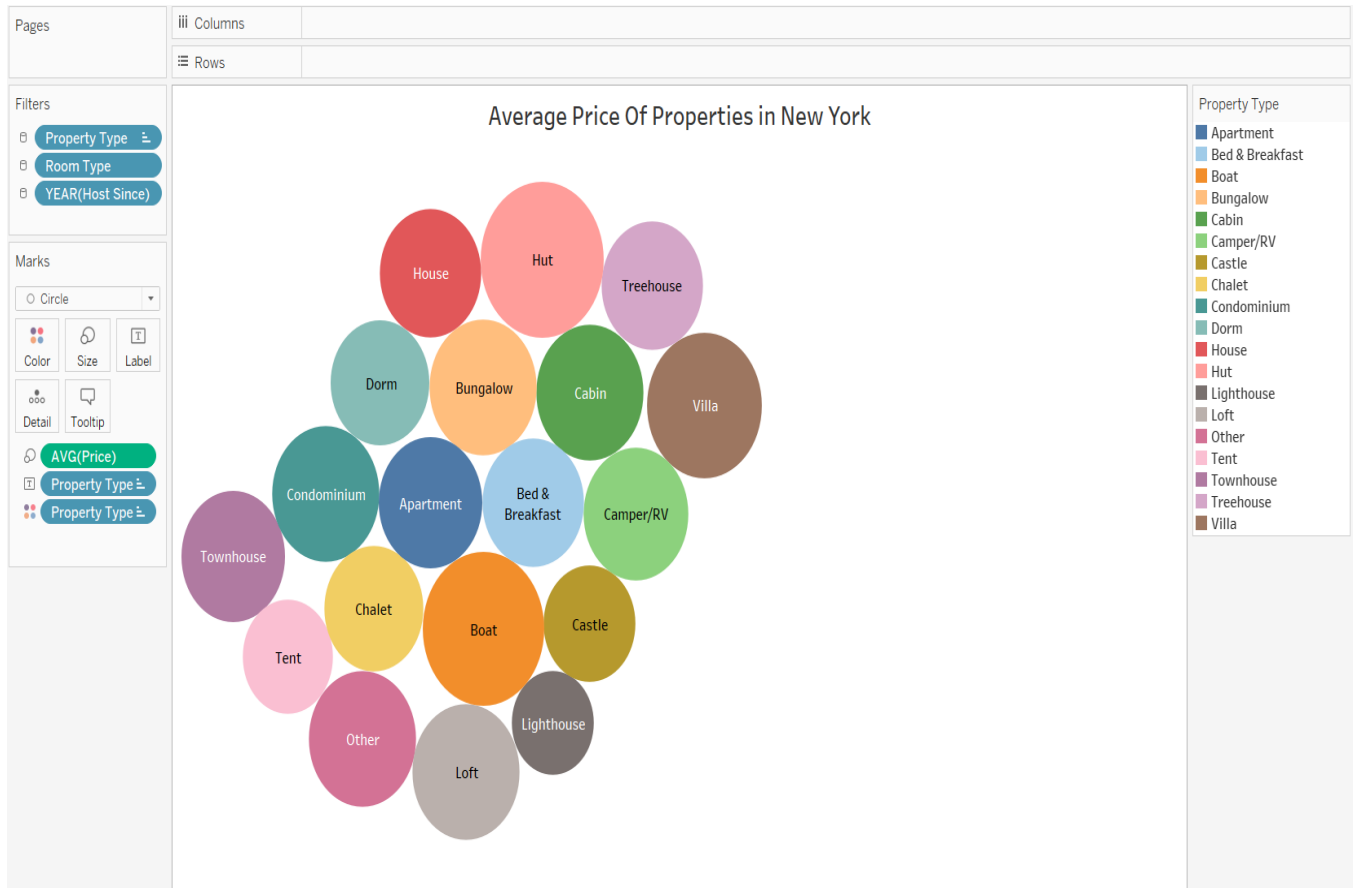Room Type
- Shared room
- Private room
- Entire home/apt

4. Average Prices as per Years
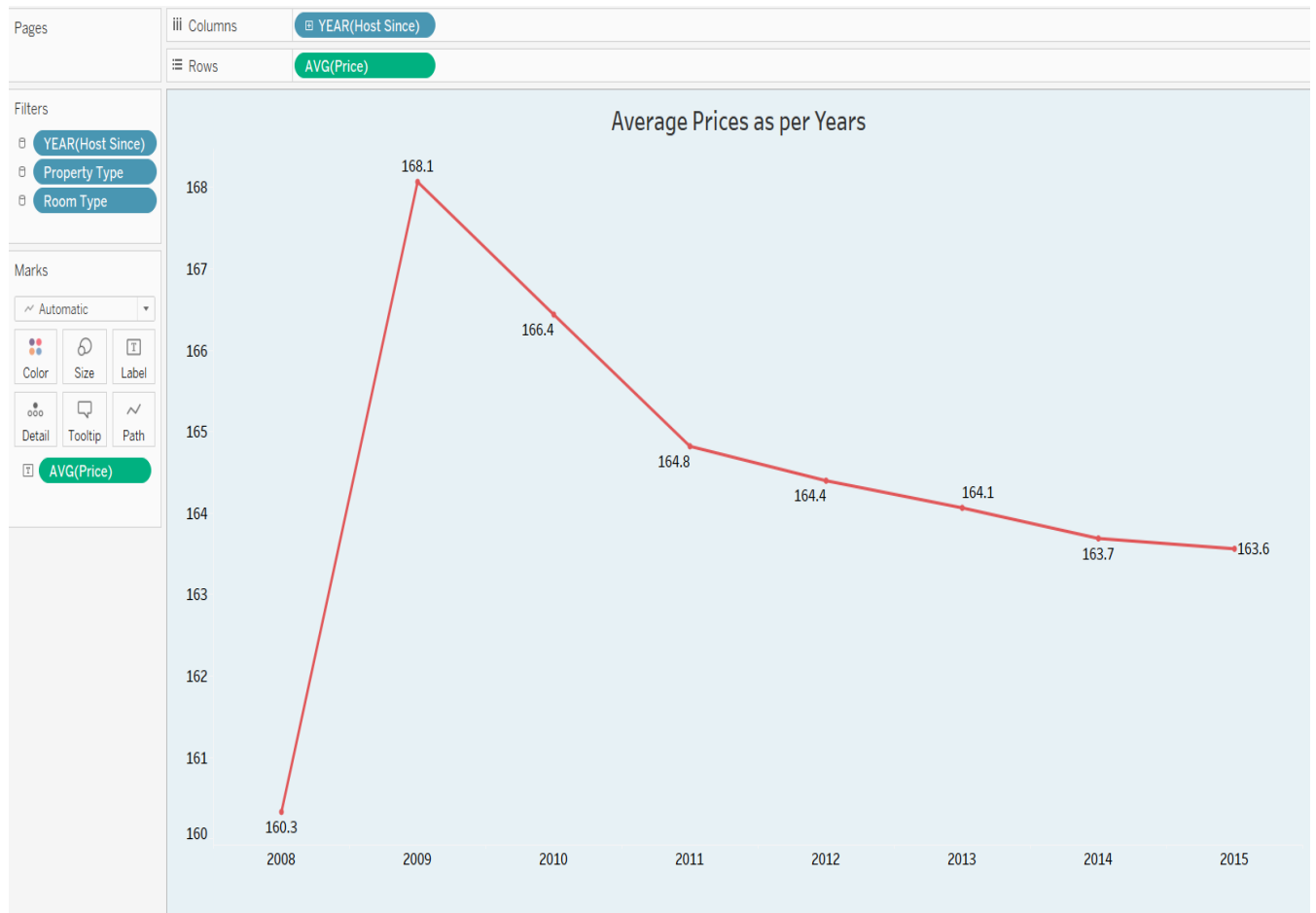
5. Average Price of Properties in NewYork

6. Review Score Ratings In Different Areas