

# PROJECT Tutorial

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## LOCAL BUSINESS ANALYSIS

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### Objectives

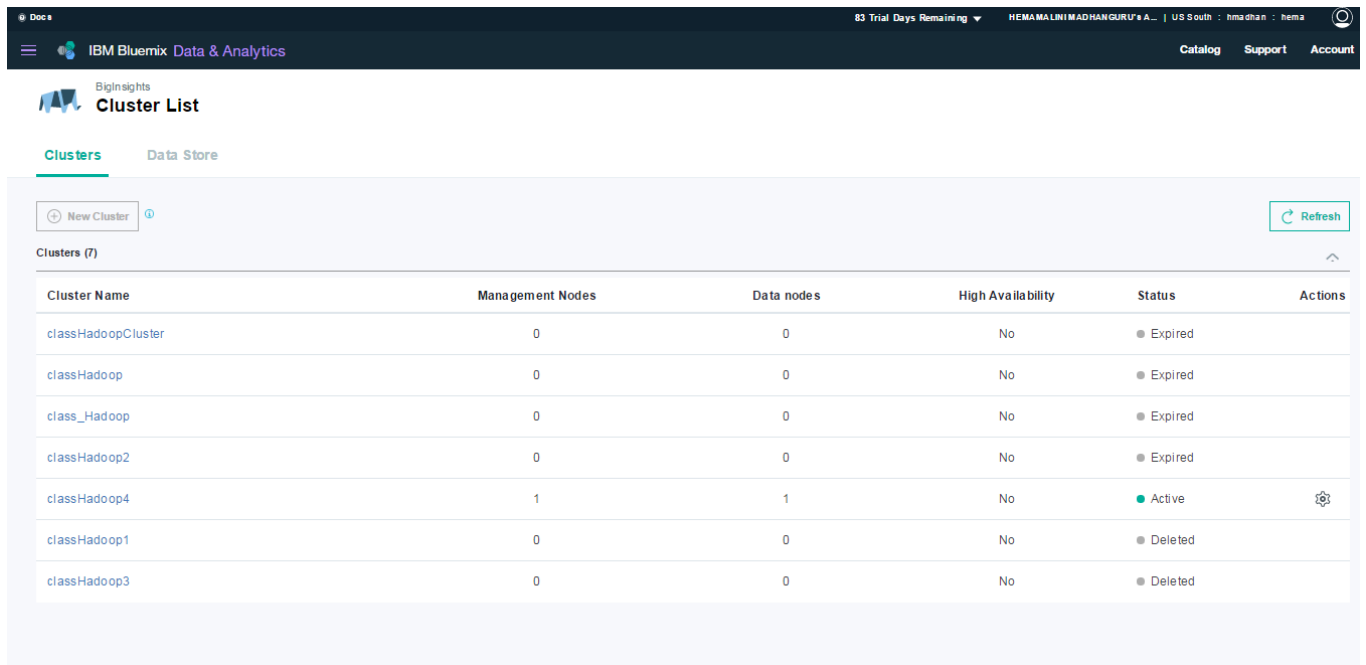
In this hands-on lab, you will learn how to:

- Analyze Yelp data set
- Create and upload the data to cluster using Big Insights
- Usage of Hive QL and PIG commands to perform the analysis
- Visualize data using Excel Power View and Tableau

### Exercise 1: Create and upload the data to cluster

- 1) Download the data file (yelp\_raw\_fall\_2016.csv) from S3  
([https://s3.amazonaws.com/hipicdatasets/yelp\\_raw\\_fall\\_2016.csv](https://s3.amazonaws.com/hipicdatasets/yelp_raw_fall_2016.csv))
- 2) Sign into your Bluemix account and select Big Insights for Apache Hadoop under services.
- 3) Open the IBM Big Insights and click on create cluster.
- 4) Give the cluster name and required credentials and click create cluster

The created cluster will be shown in active status as follows:



IBM Bluemix Data & Analytics

Cluster List

Clusters (7)

Cluster Name	Management Nodes	Data nodes	High Availability	Status	Actions
classHadoopCluster	0	0	No	Expired	
classHadoop	0	0	No	Expired	
class_Hadoop	0	0	No	Expired	
classHadoop2	0	0	No	Expired	
classHadoop4	1	1	No	Active	
classHadoop1	0	0	No	Deleted	
classHadoop3	0	0	No	Deleted	

5) The file can be uploaded into Hadoop using the following commands:

```
-bash-4.1$ hdfs dfs -mkdir Project
-bash-4.1$ hdfs dfs -mkdir Project/Business
-bash-4.1$ hdfs dfs -mkdir Project/Reviews
-bash-4.1$ ls
Local_Bussiness2016.csv  midPart1      pig_1479933415551.log  reviews.csv
lost+found              midPart1.tgz  products.java
-bash-4.1$ hdfs dfs -put Local_Bussiness2016.csv Project/Business
-bash-4.1$ hdfs dfs -put reviews.csv Project/Reviews
-bash-4.1$ hdfs dfs -ls
Found 4 items
drwx----- - hmadhan hdfs      0 2016-11-24 06:00 .Trash
drwx----- - hmadhan hdfs      0 2016-11-24 03:38 .staging
drwxr-xr-x - hmadhan hdfs      0 2016-11-29 07:27 Project
drwxr-xr-x - hmadhan hdfs      0 2016-11-24 02:11 dualcore
-bash-4.1$ hdfs dfs -ls /user/hmadhan/Project
Found 2 items
drwxr-xr-x - hmadhan hdfs      0 2016-11-29 07:45 /user/hmadhan/Project/Business
drwxr-xr-x - hmadhan hdfs      0 2016-11-29 07:46 /user/hmadhan/Project/Reviews
```

**NOTE:** Save the path after uploading, which should be used later

6) Import reviews.csv file from the link

(<https://docs.google.com/uc?id=0B9kspRX6SWaaMIRvREQ3NmUxOE0&export=download>)

## Exercise 2: Create tables for importing files

The following commands are done in Hive QL to create master tables and view the files:

## 1) BUSINESS TABLE

```
DROP TABLE IF EXISTS biz;
CREATE EXTERNAL TABLE IF NOT EXISTS biz(
business_id string,
full_address string,
Friday_close String,
Friday_open String,
Tuesday_close String,
Tuesday_open String,
Thursday_close String,
Thursday_open String,
Sunday_close String,
Sunday_open String,
Saturday_close String,
Saturday_open String,
Wednesday_close String,
Wednesday_open String,
Monday_close String,
Monday_open String,
categories_001 String,
categories_002 String,
categories_003 String,
categories_004 String,
categories_005 String,
categories_006 String,
categories_007 String,
categories_008 String,
categories_009 String,
categories_010 String,
city String,
review_count Int,
name String,
longitude Double,
latitude Double,
neighborhoods_001 String,
neighborhoods_002 String,
neighborhoods_003 String,
state String,
stars Double,
Accepts_Insurance Boolean,
coloring Boolean,
africanamerican Boolean,
curly Boolean,
perms Boolean,
kids Boolean,
extensions Boolean,
asian Boolean,
straightperms Boolean,
By_Appointment_Only Boolean,
Happy_Hour Boolean,
Take_out Boolean,
```

Drive\_Thru Boolean,  
Good\_For\_dessert Boolean,  
Good\_For\_latenight Boolean,  
Good\_For\_lunch Boolean,  
Good\_For\_dinner Boolean,  
Good\_For\_brunch Boolean,  
Good\_For\_breakfast Boolean,  
Caters Boolean,  
BYOB Boolean,  
Corkage Boolean,  
Noise\_Level String,  
Takes\_Reservations Boolean,  
Dietary\_Restrictions\_dairy\_free Boolean,  
Dietary\_Restrictions\_gluten\_free Boolean,  
Dietary\_Restrictions\_vegan Boolean,  
Dietary\_Restrictions\_kosher Boolean,  
Dietary\_Restrictions\_halal Boolean,  
Dietary\_Restrictions\_soy\_free Boolean,  
Dietary\_Restrictions\_vegetarian Boolean,  
Delivery Boolean,  
Dogs\_Allowed Boolean,  
Coat\_Check Boolean,  
Smoking String,  
Ambience\_romantic Boolean,  
Ambience\_intimate Boolean,  
Ambience\_classy Boolean,  
Ambience\_hipster Boolean,  
Ambience\_divey Boolean,  
Ambience\_touristy Boolean,  
Ambience\_trendy Boolean,  
Ambience\_upscale Boolean,  
Ambience\_casual Boolean,  
Parking\_garage Boolean,  
Parking\_street Boolean,  
Parking\_validated Boolean,  
Parking\_lot Boolean,  
Parking\_valet Boolean,  
Ages\_Allowed Boolean,  
Wheelchair\_Accessible Boolean,  
Open24Hours Boolean,  
Music\_dj Boolean,  
Music\_background\_music Boolean,  
Music\_jukebox Boolean,  
Music\_live Boolean,  
Music\_video Boolean,  
Music\_karaoke Boolean,  
Has\_TV Boolean,  
Outdoor\_Seating Boolean,  
Attire String,  
Alcohol Boolean,  
Waiter\_Service Boolean,  
Wi\_Fi String,  
Order\_at\_Counter Boolean,  
Accepts\_Credit\_Cards Boolean,

```

BYOB_Corkage String,
Good_for_Kids Boolean,
Good_For_Groups Boolean,
Price_Range Int,
Good_For_Dancing Boolean,
type String)
ROW FORMAT DELIMITED FIELDS TERMINATED BY ',' STORED AS TEXTFILE
LOCATION '/user/hmadhan/Project/Business/' TBLPROPERTIES
('skip.header.line.count'='1');

```

```

hive> select * from biz limit 10;
OK
ad7FFTzCmqQBm2H9_VVtkQ 6645 W Badura Ave Ste 140 Spring Valley Las Vegas; NV 89118 17:00:00 9:00:00 17:00:00
7:00:00 9:00:00 17:00:00 9:00:00 Accessories Fashion Shopping Shoe Stores Swimwear
Saleyla -115.23699 36.060723 Spring Valley NV 5.0 NULL NULL NULL NULL NULL NULL
ULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL
ULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL false false fa
ULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL true true NU
F-HBLqU3Kvs891kQ5CjLBQ 420 S Mill Ave Suite 105 Tempe; AZ 85281 23:00:00 10:00:00 21:00:00 10:00:00
9:00:00 11:00:00 23:00:00 10:00:00 21:00:00 10:00:00 21:00:00 10:00:00 Ac
s & Beauty Supply Beauty & Spas Tempe 15 Lotions & Potions -1
Z 3.5 NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL false NULL NULL NULL NU
ULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL
ULL NULL NULL NULL NULL false false false false false NULL NULL NULL NULL NULL NULL
ULL NULL NULL NULL NULL true NULL NULL 2 NULL business
Qd43edttaiwCuSAF3jULRW 1426 S Tryon St South End Charlotte; NC 28203 18:00:00 10:00:00 18:00:00 10
7:00:00 13:00:00 17:00:00 10:00:00 18:00:00 10:00:00 18:00:00 10:00:00 Ac
res Jewelry Charlotte 4 Shu Salon -80.856083 35.216533
C 4.0 NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL false NULL NULL NULL NU
ULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL
ULL NULL NULL NULL NULL false false false true false NULL NULL NULL NULL NULL NULL
ULL NULL NULL NULL NULL true NULL NULL 2 NULL business
goorin-bros-pasadena
ies Hats hats Pasadena NULL Goorin Bros. -118.15143
.5 NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NU
ULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NU
ULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NU
ULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NU
just-box-alhambra-3
ies Hobby Shops hobbyshops alhambra NULL Just Box
.0 NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NU
ULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NU
ULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NULL NU

```

## 2) REVIEWS TABLE

```

hive> DROP TABLE IF EXISTS reviews;
OK
Time taken: 8.893 seconds
hive> CREATE EXTERNAL TABLE IF NOT EXISTS reviews(funny int, useful int, cool int, userid string, rev
iewid string, stars int, reviewday date, type string, businessid string, comment string)
> ROW FORMAT DELIMITED FIELDS TERMINATED BY ',' STORED AS TEXTFILE LOCATION '/user/hmadhan/Project/Reviews' TBLPROPERT
IES ('skip.header.line.count'='1');
OK
Time taken: 3.489 seconds

```

```
hive> select * from reviews limit 10;
OK
0      1      0      J00ekBTvoMoiUMsEqzs_Ww  gg1clLMQfz37EBaFfeQNEA  1      2014-05-03      review  wyqwO4ZqZyRR6pGklp
er. Not only is the Las Vegas airport location crooked but so is the corporate office. I had a prepaid reservation booked
the car I informed them that the credit card that I used to pay for the reservation had been cancelled due to fraudulent a
presented to them. I was informed that because I did not have the original card that the reservation is not valid. Even th
months earlier and the replacement card issued by the credit card company for security they would not honor my reservation
a ""walk up"" at double the rate I had already Paid! I told them I was not willing to pay double and they informed me the
as very rude and said he was going to call security if I did not leave the counter while I was trying to reach the corpora
orporate office and they are as crooked as this location. They are not willing to refund my money that the charged to my c
company can get away with not honoring your pre-paid reservation and then no give you your money back when you refuse to
nt of credit card that goes on this is not an isolated incident.--Instead of having a little compassion they try to bend y
1      4      1      eZzv9rFvT9ETUa_bXdf5wg  SVVZwWC2xCFqRogKYfaGNg  1      2014-05-15      review  wyqwO4ZqZyRR6pGklp
attempting to rent a car from them. ----I made a pre-paid reservation on a debit card. Long story short
0      2      0      bq5ilsRhF7kHqbs0Jce4yg  ODJoap02eaEjIonryvnhpQ  1      2014-05-15      review  wyqwO4ZqZyRR6pGklp
""pay"" for your car rental but then when you get there you find out that there is an additional 25 dollar per day fee. So
r ""canceling"" your car rental or paying the $25/day fee. It is a complete joke. Do not rent from this car rental place.
0      2      0      d3jZgRWSYZA6u6-_Q0CJAA  tVn6ER-048qK9l04FgVa9g  1      2014-05-15      review  wyqwO4ZqZyRR6pGklp
ented tons of cars and never had them do this. Don't rent from them unless you want to pay double what you agreed to. Doub
e."" No. Go to a legitimate rental place where the prices are the prices."
0      0      0      hc-8ax0bpNPEWAVx8toPFw  dzlamcj8crvlozfKSk_EBA  1      2014-05-19      review  wyqwO4ZqZyRR6pGklp
rent a car without a proof of residency .Guy at the counter asked me to show him an electricity bill that would match the
th me
0      0      0      qMOqG6m9strqoFqenF9lPg  iSb_ZNs0WPo28RbkUC6Wrg  1      2014-05-22      review  wyqwO4ZqZyRR6pGklp
0      0      0      KVibIbPsixtxYSRIGXR4Ig  NZ4BaTq3wMdldPmVJzZ84Q  1      2014-05-23      review  wyqwO4ZqZyRR6pGklp
I needed to go on a last minute trip to San Diego today due to his mother being sick. We reserved our Van online through
When we got there to pick up our reservation they told us our car type wasnt guaranteed... ok fine. They told us if we
sedona then it would be an extra 10 bucks a day. I said hell no
0      1      1      VELpWw7xaOOG1luo5NqdiA  UBOOddKjLaFmMI03EzW3Hg  1      2014-05-26      review  wyqwO4ZqZyRR6pGklp
e hand !!!! bait and switch !!! I was supposed to be charge $49 and when it came down to it I was charged $375!!! Here is
any car company I have ever rented from. As for Marcel
0      2      0      d7_LFbdCABDTWgYcmwMMQ  H66W3JygoYAVpc0XxwsURA  1      2014-05-31      review  wyqwO4ZqZyRR6pGklp
lhr just to be told I needed a utility bill (I'm local) to be able to rent a car! Bad customer service! If I could put Zer
```

3) The command for downloading dictionary is shown below:

```
ary.tsv.1$ wget -O dictionary.tsv https://s3.amazonaws.com/hipicdatasets/diction
--2016-11-29 09:15:36-- https://s3.amazonaws.com/hipicdatasets/dictionary.tsv
Resolving s3.amazonaws.com... 52.216.225.107
Connecting to s3.amazonaws.com|52.216.225.107|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 308921 (302K) [text/tab-separated-values]
Saving to: "dictionary.tsv"

100%[=====>] 308,921 --.-K/s in 0.09s

2016-11-29 09:15:36 (3.41 MB/s) - "dictionary.tsv" saved [308921/308921]
```

4) Similarly a table for dictionary is created and the values are populated

```
hive> CREATE EXTERNAL TABLE IF NOT EXISTS dictionary (
> type string,
> length int,
> word string,
> pos string,
> stemmed string,
> polarity string )
ROW FORMAT DELIMITED
FIELDS TERMINATED BY '\t'
STORED AS TEXTFILE
LOCATION '/user/hmadhan/Project/Dictionary';
```

```
hive> select * from dictionary limit 10;
OK
weaksubjj      1      abandoned      adj      n      negative
weaksubjj      1      abandonment      noun      n      negative
weaksubjj      1      abandon verb      y      negative
strongsubjj    1      abase verb      y      negative
strongsubjj    1      abasement      anypos    y      negative
strongsubjj    1      abash verb      y      negative
weaksubjj      1      abate verb      y      negative
weaksubjj      1      abdicate      verb      y      negative
strongsubjj    1      aberration      adj      n      negative
strongsubjj    1      aberration      noun      n      negative
Time taken: 0.116 seconds, Fetched: 10 row(s)
```

5) Review analysis table is created and the values are reviewed:

```
DROP TABLE IF EXISTS review_analysis;
create external table if not exists review_analysis(
funny int,useful int,cool int,userid string,reviewid string,stars
int,businessid string,
sentiment string)
ROW FORMAT DELIMITED
FIELDS TERMINATED BY ','
STORED AS TEXTFILE
LOCATION '/user/hmadhan/Project/sentiment_analysis';

insert overwrite table review_analysis
select
funny,useful,cool,userid,reviews.reviewid,stars,review_sentiment_biz.busin
essid,
sentiment from reviews join review_sentiment_biz on
reviews.businessid=review_sentiment_biz.businessid and
reviews.reviewid=review_sentiment_biz.reviewid;
```

```
hive> select * from review_analysis limit 10;
OK
0      1      0      J00ekBTvoMoiUMsEqzs_Ww      gg1clLMQfz37EBAfFeQNEA      1      wyqw04ZqZyRR6pGklpTBrA      positive
1      4      1      eZzv9rFvT9ETUa_bXdf5wg      SVVZwWC2xCFqRogKYfaGNg      1      wyqw04ZqZyRR6pGklpTBrA      positive
0      2      0      bq5ilsRhF7kHqbs0Jce4yg      ODJoaP02eaEjIonryvnhpQ      1      wyqw04ZqZyRR6pGklpTBrA      positive
0      2      0      d3jZgRWSYZA6u6-_Q0CJAA      tVn6ER-048qK9l04FgVa9g      1      wyqw04ZqZyRR6pGklpTBrA      neutral
0      0      0      hc-8ax0bpNPEWAVx8toPFw      dzlamcj8crvlozfKSk_EBA      1      wyqw04ZqZyRR6pGklpTBrA      positive
0      0      0      qMOqG6m9strgoFqenF9lPg      iSb_ZNs0WPo28RbkUC6Wrg      1      wyqw04ZqZyRR6pGklpTBrA      neutral
0      0      0      KVibIbPsixtxYSRIGXR4Ig      NZ4BaTq3wMdlDpmVJzZ84Q      1      wyqw04ZqZyRR6pGklpTBrA      negative
0      1      1      VELpWw7xa0OG1luo5NQdiA      UB0OddKjLaFmMI03EzW3Hg      1      wyqw04ZqZyRR6pGklpTBrA      negative
0      2      0      d7_LFbdCABDTwGjYcmwMMQ      H66W3JygOyAVpC0XxwsURA      1      wyqw04ZqZyRR6pGklpTBrA      positive
0      2      0      b6OqyZiVpleqtrZ-y7h0ug      e_ffa8LdbcSzlgvCybdZrQ      1      wyqw04ZqZyRR6pGklpTBrA      neutral
Time taken: 0.081 seconds, Fetched: 10 row(s)
```

6) Tables are created for each category in the business table and the values are populated:

#### (i) EDUCATION

```
DROP TABLE IF EXISTS Education;
create EXTERNAL TABLE IF NOT EXISTS Education(
business_id string,
categories_001 String,
city String,
name String,
stars Double,
review_count int)
```

```
ROW FORMAT DELIMITED FIELDS TERMINATED BY ',' STORED AS TEXTFILE LOCATION
'/user/hmadhan/Business/Education';
```

```
insert overwrite table Education
select business_id, categories_001, city, name , stars, review_count
from biz
where
categories_001=='Adult Education'
or categories_001=='Art Schools'
or categories_001=='Barre Classes'
or categories_001=='Cardio Classes'
or categories_001=='Career Counseling'
or categories_001=='Childbirth Education'
or categories_001=='Colleges & Universities'
or categories_001=='Cooking Schools'
or categories_001=='Cosmetology Schools'
or categories_001=='CPR Classes'
or categories_001=='Cycling Classes'
or categories_001=='Dance Schools'
or categories_001=='Driving Schools'
or categories_001=='Education'
or categories_001=='Educational ServicesElementary Schools'
or categories_001=='Elementary Schools'
or categories_001=='First Aid Classes'
or categories_001=='Golf Lessons'
or categories_001=='Libraries'
or categories_001=='library'
or categories_001=='Massage Schools'
or categories_001=='Middle Schools & High Schools'
or categories_001=='Newspapers & Magazines'
or categories_001=='Parenting Classes'
or categories_001=='Pet Training'
or categories_001=='Pole Dancing Classes'
or categories_001=='Preschools'
or categories_001=='Private Tutors'
or categories_001=='Swimming Lessons/Schools'
or categories_001=='Tutoring Centers'
or categories_001=='university'
or categories_001=='University Housing'
or categories_001=='Used Bookstore'
```

```
hive> select * from Education limit 10;
OK
mMSIJUyvnh0mXQBcj8T-yQ Adult Education Las Vegas Nevada School of Massage Therapy 2.5 10
el-monte-rosemead-adult-school-el-monte Adult Education El monte El Monte-Rosemead Adult School 3.0 NULL
new-horizons-computer-learning-centers-burbank-4 Adult Education burbank New Horizons Computer Learning Centers 5.
0 NULL
baldwin-park-adult-education-computer-and-network-training-baldwin-park Adult Education baldwin park Baldwin Park Adult
Education - Computer and Network Training 3.5 NULL
downey-adult-school-downey-3 Adult Education downey Downey Adult School 3.5 NULL
toastmasters-club-587-downey-2 Adult Education downey Toastmasters Club 587 5.0 NULL
4T6CsZE4BSTM2FCEOJkWMg Art Schools Montr_al Au Papier Japonais 4.5 8
6-C75pMHTs1ni6MimMaX-g Art Schools Las Vegas Social Paintbrush 4.5 11
6q4UCDeSOami_nWKge8z3w Art Schools Scottsdale Ursula's Piano Lesson Studio 5.0 5
6SomDsOz9QY5TiPwVhu4lw Art Schools Las Vegas Berns Music School 3.5 3
Time taken: 0.084 seconds, Fetched: 10 row(s)
```



## (ii) ENTERTAINMENT

```
DROP TABLE IF EXISTS Entertainment;
create EXTERNAL TABLE IF NOT EXISTS Entertainment(
business_id string,
categories_001 String,
city String,
name String,
stars Double,
review_count int)
ROW FORMAT DELIMITED FIELDS TERMINATED BY ',' STORED AS TEXTFILE LOCATION
'/user/hmadhan/Business/Entertainment';
insert overwrite table Entertainment
select business_id, categories_001, city, name , stars, review_count
from biz
where
categories_001=='Active Life'
or categories_001=='Adult'
or categories_001=='Adult Entertainment'
or categories_001=='Amusement Parks'
or categories_001=='amusement_park'
or categories_001=='Archery'
or categories_001=='Art Galleries'
or categories_001=='art_gallery'
or categories_001=='Arts & Entertainment'
or categories_001=='Beaches'
or categories_001=='Bingo Halls'
or categories_001=='Bowling'
or categories_001=='bowling_alley'
or categories_001=='casino'
or categories_001=='Casinos'
or categories_001=='Cinema'
or categories_001=='Comedy Clubs'
or categories_001=='Comic Books'
or categories_001=='Country Clubs'
or categories_001=='Country Dance Halls'
or categories_001=='Dance Clubs'
or categories_001=='Day Camps'
or categories_001=='Go Karts'
or categories_001=='Golf'
or categories_001=='Hiking'
or categories_001=='Karaoke'
or categories_001=='Kids Activities'
or categories_001=='Leisure Centers'
or categories_001=='Magicians'
or categories_001=='movie_theater'
or categories_001=='museum'
or categories_001=='Museums'
or categories_001=='night_club'
or categories_001=='Nightlife'
or categories_001=='Opera & Ballet'
or categories_001=='Paintball'
or categories_001=='Recreation Centers'
or categories_001=='Resorts'
```

```

or categories_001=='Scuba Diving'
or categories_001=='Social Clubs'
or categories_001=='Tennis'
or categories_001=='zoo'
or categories_001=='Zoos';

```

```
hive> select * from Entertainment limit 10;
```

```

OK
szJVgpRqcISuzdLfUfEW Active Life Scottsdale Fiddlesticks Family Fun Park 3.5 3
0bPPbUg00lAwEZ7DR9fHg Active Life Phoenix Lee's ATA Martial Arts 5.0 4
1QQZuf4zZOyFCvXc0o6Vg Active Life Scottsdale Chaparral Off Leash Area 4.5 144
1Z2Zj5eotjc2peYxrGZLw Active Life Peoria Go Sail Arizona 5.0 3
2m5TaARSkFcq3QlO-YBmw Active Life Goodyear Monroy Training 5.0 3
2uA9B6jgtrQFaY0FIEwhQ Active Life Huntersville Huntersville Family Fitness & Aquatics 3.5 10
4PneR-GyiyMyNlwQ37V-w Active Life Phoenix LA Fitness 2.5 16
8pNViFb5KglecXM4j23ia Active Life Tempe Sumits Yoga Tempe 4.5 5
8tUKyMRMMtIYSlac04egg Active Life Karlsruhe Schiffsrestaurant Vater Rhein 4.5 4
APW9Ll4uzlxANoSontL5Q Active Life Henderson Soccer Zone 4.0 6
Time taken: 0.06 seconds, Fetched: 10 row(s)

```

### (iii) FOOD

```

DROP TABLE IF EXISTS Food;
create EXTERNAL TABLE IF NOT EXISTS Food(
business_id string,
categories_001 String,
city String,
name String,
stars Double,
review_count int)
ROW FORMAT DELIMITED FIELDS TERMINATED BY ',' STORED AS TEXTFILE LOCATION
'/user/hmadhan/Business/Food';

```

```

insert overwrite table Food
select business_id, categories_001, city, name , stars, review_count
from biz
where
categories_001 == 'Wine Bars'
or categories_001 == 'Vietnamese'
or categories_001 == 'vegetarian'
or categories_001 == 'vegan'
or categories_001 == 'Turkish'
or categories_001 == 'Thai'
or categories_001 == 'Tex-Mex'
or categories_001 == 'Tea Rooms'
or categories_001 == 'Tapas/Small Plates'
or categories_001=='Tapas Bars'
or categories_001=='Taiwanese'
or categories_001=='Szechuan'
or categories_001=='Sushi Bars'
or categories_001=='Steakhouses'
or categories_001=='Soup'
or categories_001=='Soul Food'
or categories_001=='Seafood'
or categories_001=='Sandwiches'
or categories_001=='Salad'
or categories_001=='Russian'

```

or categories\_001=='Restaurants'  
or categories\_001=='restaurant'  
or categories\_001=='Pubs'  
or categories\_001=='Pretzels'  
or categories\_001=='Portuguese'  
or categories\_001=='Pizza'  
or categories\_001=='Pakistani'  
or categories\_001=='Nightlife'  
or categories\_001=='night\_club'  
or categories\_001=='Moroccan'  
or categories\_001=='Mongolian'  
or categories\_001=='Modern European'  
or categories\_001=='Middle Eastern'  
or categories\_001=='Mexican'  
or categories\_001=='Mediterranean'  
or categories\_001=='meal\_takeaway'  
or categories\_001=='Live/Raw Food'  
or categories\_001=='liquor\_store'  
or categories\_001=='Lebanese'  
or categories\_001=='Kosher'  
or categories\_001=='Korean'  
or categories\_001=='Kebab'  
or categories\_001=='Juice Bars & Smoothies'  
or categories\_001=='Japanese'  
or categories\_001=='Italian'  
or categories\_001=='Irish'  
or categories\_001=='Indian'  
or categories\_001=='Ice Cream & Frozen Yogurt'  
or categories\_001=='Hot Dogs'  
or categories\_001=='Hawaiian'  
or categories\_001=='Greek'  
or categories\_001=='German'  
or categories\_001=='Gay Bars'  
or categories\_001=='Gastropubs'  
or categories\_001=='French'  
or categories\_001=='Food Trucks'  
or categories\_001=='Food Stands'  
or categories\_001=='Food Court'  
or categories\_001=='Food'  
or categories\_001=='Fast Food'  
or categories\_001=='Ethiopian'  
or categories\_001=='Donuts'  
or categories\_001=='Diners'  
or categories\_001=='Dim Sum'  
or categories\_001=='Desserts'  
or categories\_001=='Cuban'  
or categories\_001=='Creperies'  
or categories\_001=='Comfort Food'  
or categories\_001=='Coffee & Tea'  
or categories\_001=='Chinese'  
or categories\_001=='Chicken Wings'  
or categories\_001=='Cheesesteaks'  
or categories\_001=='Cheese Shops'  
or categories\_001=='Champagne Bars'

```

or categories_001=='Caribbean'
or categories_001=='Canadian (New)'
or categories_001=='Cajun/Creole'
or categories_001=='Cafes'
or categories_001=='cafe'
or categories_001=='Burgers'
or categories_001=='Buffets'
or categories_001=='British'
or categories_001=='Breakfast & Brunch'
or categories_001=='Brasseries'
or categories_001=='Bistros'
or categories_001=='Belgian'
or categories_001=='Beer Garden'
or categories_001=='Bars'
or categories_001=='Bangladeshi'
or categories_001=='Bakeries'
or categories_001=='Asian Fusion'
or categories_001=='American (Traditional)'
or categories_001=='American (New)'
or categories_001=='African';

```

```

hive> select * from Food limit 10;
OK
67I_MPG5CQFuEbX4T44fQw African Glendale Zanzibar African Restaurant 2.5 7
FujnmNjFpU5WQC1Nqd7ahg African Charlotte Floyd's Restaurant II 2.5 11
mWTFbL-ilQiQ9iQwPnViQw African Phoenix Love Cuisine 4.5 87
VhhEhn4XlaxmRPkuL3Wg0w African Edinburgh Morocco Walima 4.0 4
vNL25b0Lj3822_H1aT3bA African Montr al La Goulette 4.0 6
revolutionario-north-african-tacos-los-angeles African Los angeles Revolutionario: North African Tacos 4.5 NU
LL
the-briks-los-angeles-2 African Los angeles The Briks 4.0 NULL
_4_Qn9WZVwofeaqjgQG22w American (New) Charlotte Fahrenheit 3.0 264
EdSQOkATuCtZ5y5A2m0rw American (New) Phoenix Arby's 3.0 5
fcEpuDbiTB4o9wLJ-egTA American (New) Henderson Grand Caf_ 2.5 89
Time taken: 0.082 seconds, Fetched: 10 row(s)

```

#### (iv) MEDICAL

```

DROP TABLE IF EXISTS Medical;
create EXTERNAL TABLE IF NOT EXISTS Medical(
business_id string,
categories_001 String,
city String,
name String,
stars Double,
review_count int)
ROW FORMAT DELIMITED FIELDS TERMINATED BY ',' STORED AS TEXTFILE LOCATION
'/user/hmadhan/Business/Medical';

```

```

insert overwrite table Medical
select business_id, categories_001, city, name , stars, review_count
from biz
where
categories_001=='Acupuncture'
or categories_001=='Allergists'
or categories_001=='Anesthesiologists'

```

or categories\_001=='Cardio Classes'  
or categories\_001=='Cardiologists'  
or categories\_001=='Childbirth Education'  
or categories\_001=='Cosmetic Dentists'  
or categories\_001=='Cosmetic Surgeons'  
or categories\_001=='Counseling & Mental Health'  
or categories\_001=='CPR Classes'  
or categories\_001=='dentist'  
or categories\_001=='Dentists'  
or categories\_001=='Dermatologists'  
or categories\_001=='Diagnostic Imaging'  
or categories\_001=='Diagnostic Services'  
or categories\_001=='Dialysis Clinics'  
or categories\_001=='doctor'  
or categories\_001=='Doctors'  
or categories\_001=='Ear Nose & Throat'  
or categories\_001=='Endocrinologists'  
or categories\_001=='Endodontists'  
or categories\_001=='Fertility'  
or categories\_001=='First Aid Classes'  
or categories\_001=='Gastroenterologist'  
or categories\_001=='General Dentistry'  
or categories\_001=='health'  
or categories\_001=='Health & Medical'  
or categories\_001=='Health Markets'  
or categories\_001=='hospital'  
or categories\_001=='Hospitals'  
or categories\_001=='Medical Centers'  
or categories\_001=='Medical Spas'  
or categories\_001=='Medical Supplies'  
or categories\_001=='Medical Transportation'  
or categories\_001=='Neurologist'  
or categories\_001=='Nurse Practitioner'  
or categories\_001=='Nutritionists'  
or categories\_001=='Obstetricians & Gynecologists'  
or categories\_001=='Oncologist'  
or categories\_001=='Ophthalmologists'  
or categories\_001=='Optometrists'  
or categories\_001=='Oral Surgeons'  
or categories\_001=='Orthodontists'  
or categories\_001=='Orthopedists'  
or categories\_001=='Orthotics'  
or categories\_001=='Osteopathic Physicians'  
or categories\_001=='Pediatric Dentists'  
or categories\_001=='Pediatricians'  
or categories\_001=='Periodontists'  
or categories\_001=='pharmacy'  
or categories\_001=='Physical Therapy'  
or categories\_001=='physiotherapist'  
or categories\_001=='PodiatristsProctologists'  
or categories\_001=='Prosthodontists'  
or categories\_001=='Psychologists'  
or categories\_001=='Radiologists'  
or categories\_001=='Rheumatologists'

```

or categories_001=='Speech Therapists'
or categories_001=='Spine Surgeons'
or categories_001=='Surgeons'
or categories_001=='Urologists'
or categories_001=='Vitamins & Supplements';

```

```

hive> select * from Medical limit 10;
OK
pgG5sNH7C6EUZs6MqQOvg  Acupuncture  Gilbert Prosperity Health  5.0  4
_VYlQs19eR0K0FTbACrxBA  Acupuncture  Charlotte Omni Wellness Center  3.5  3
_x4hVsOORIJmqjMMx_MZRA  Acupuncture  Las Vegas Setsuko H Sage; OMD  5.0  5
01a4YOjiBbPUBxvgX6F7VQ  Acupuncture  Pittsburgh Chinese Acupuncture & Herbs Center LLC  5.0  3
08DRbWJGN_s29gXi3qNroA  Acupuncture  Scottsdale The Anti-Aging Spot  5.0  6
0JXEak05-7FJ7de2_27FvQ  Acupuncture  Charlotte Charlotte Community Acupuncture  4.0  5
1fe_QMLI4okKcpJRFaFfkG  Acupuncture  Scottsdale Innova Acupuncture  5.0  3
1MJV-Jq2xzHfKAaiOSixbw  Acupuncture  Las Vegas Wuxin Healing Arts  3.0  3
2B2u6nxHrED_C0s_g-cnsg  Acupuncture  Phoenix Smith Chiropractic Center At Arrowhead  4.5  3
2vmDSfIgDSnVUoPjzgEOCQ  Acupuncture  Scottsdale Victoria Mogilner Total Rejuvenation Center  2.0  4
Time taken: 0.069 seconds, Fetched: 10 row(s)

```

## (v) SERVICES

```

DROP TABLE IF EXISTS Services;
create EXTERNAL TABLE IF NOT EXISTS Services(
business_id string,
categories_001 String,
city String,
name String,
stars Double,
review_count int)
ROW FORMAT DELIMITED FIELDS TERMINATED BY ',' STORED AS TEXTFILE LOCATION
'/user/hmadhan/Business/Services';

```

```

insert overwrite table Services
select business_id, categories_001, city, name , stars, review_count
from biz
where
categories_001=='Air Duct Cleaning'
or categories_001=='Aircraft Repairs'
or categories_001=='Appliances & Repair'
or categories_001=='Appraisal Services'
or categories_001=='Aquarium Services'
or categories_001=='Auto Customization'
or categories_001=='Auto Detailing'
or categories_001=='Auto Glass Services'
or categories_001=='Bike Rentals'
or categories_001=='Bike Repair/Maintenance'
or categories_001=='Blow Dry/Out Services'
or categories_001=='Car Brokers'
or categories_001=='Car Rental'
or categories_001=='Car Stereo Installation'
or categories_001=='Car Wash'
or categories_001=='car_rental'
or categories_001=='car_repair'
or categories_001=='car_wash'
or categories_001=='Carpet Cleaning'
or categories_001=='Carpet Installation'

```

or categories\_001=='Chimney Sweeps'  
or categories\_001=='Commercial Truck Repair'  
or categories\_001=='Community Service/Non-Profit'  
or categories\_001=='Countertop Installation'  
or categories\_001=='Couriers & Delivery Services'  
or categories\_001=='Demolition Services'  
or categories\_001=='Door Sales/Installation'  
or categories\_001=='Drywall Installation & Repair'  
or categories\_001=='Event Photography'  
or categories\_001=='Event Planning & Services'  
or categories\_001=='Eyelash Service'  
or categories\_001=='Farm Equipment Repair'  
or categories\_001=='Financial Advising'  
or categories\_001=='Financial Services'  
or categories\_001=='Fire Departments'  
or categories\_001=='Fire Protection Services'  
or categories\_001=='Fireplace Services'  
or categories\_001=='Food Delivery Services'  
or categories\_001=='Funeral Services & Cemeteries'  
or categories\_001=='Garage Door Services'  
or categories\_001=='Gas & Service Stations'  
or categories\_001=='Gutter Services'  
or categories\_001=='Home Cleaning'  
or categories\_001=='Home Services'  
or categories\_001=='Home Theatre Installation'  
or categories\_001=='Home Window Tinting'  
or categories\_001=='House Sitters'  
or categories\_001=='Insulation Installation'  
or categories\_001=='IT Services & Computer Repair'  
or categories\_001=='Jewelry Repair'  
or categories\_001=='Junk Removal & Hauling'  
or categories\_001=='Keys & Locksmiths'  
or categories\_001=='Legal Services'  
or categories\_001=='Lice Services'  
or categories\_001=='Local Services'  
or categories\_001=='meal\_delivery'  
or categories\_001=='Mobile Phone Repair'  
or categories\_001=='Mortgage Brokers'  
or categories\_001=='Motorcycle Repair'  
or categories\_001=='Musical Instrument Services'  
or categories\_001=='Party & Event Planning'  
or categories\_001=='Payroll Services'  
or categories\_001=='Pest Control'  
or categories\_001=='Pet Boarding/Pet Sitting'  
or categories\_001=='Pet Groomers'  
or categories\_001=='Photography Stores & Services'  
or categories\_001=='Piano Services'  
or categories\_001=='plumber'  
or categories\_001=='Plumbing'  
or categories\_001=='Pool & Hot Tub Service'  
or categories\_001=='Printing Services'  
or categories\_001=='Private Investigation'  
or categories\_001=='Private Tutors'  
or categories\_001=='Professional Services'

```

or categories_001=='Public Services & Government'
or categories_001=='Public Transportation'
or categories_001=='Real Estate Services'
or categories_001=='real_estate_agency'
or categories_001=='Refinishing Services'
or categories_001=='Security Services'
or categories_001=='Shoe Repair'
or categories_001=='Shredding Services'
or categories_001=='Solar Installation'
or categories_001=='Tax Services'
or categories_001=='Television Service Providers'
or categories_001=='Threading Services'
or categories_001=='Translation Services'
or categories_001=='Transmission Repair'
or categories_001=='Travel Services'
or categories_001=='Tree Services'
or categories_001=='Vacation Rental Agents'
or categories_001=='Valet Services'
or categories_001=='Watch Repair'
or categories_001=='Water Delivery'
or categories_001=='Water Heater Installation/Repair'
or categories_001=='Water Purification Services'
or categories_001=='Wedding Planning'
or categories_001=='Window Washing'
or categories_001=='Windows Installation'
or categories_001=='Windshield Installation & Repair';

```

```

hive> select * from Services limit 10;
OK
alhambra-comfort-ac-alhambra-2 Air Duct Cleaning alhambra Alhambra Comfort AC 5.0 NULL
rodeo-air-duct-cleaning-beverly-hills-2 Air Duct Cleaning Beverly hills Rodeo Air Duct Cleaning 5.0 NULL
aircraft-ground-support-el-monte Aircraft Repairs El monte Aircraft Ground Support 5.0 NULL
repair-twist-of-pasadena-pasadena-4 Appliances & Repair Pasadena Repair Twist of Pasadena 5.0 NU
LL
pasadena-appliance-guy-pasadena-2 Appliances & Repair Pasadena Pasadena Appliance Guy 5.0 NULL
repairbest-appliance-repair-pasadena-2 Appliances & Repair Pasadena Repairbest Appliance Repair 4.5 NU
LL
alexs-appliance-repair-alhambra Appliances & Repair alhambra Alex's Appliance Repair 5.0 NULL
america-technicians-alhambra Appliances & Repair alhambra America Technicians 4.5 NULL
garvey-appliances-el-monte Appliances & Repair El monte Garvey Appliances 4.0 NULL
moms-appliance-repairs-el-monte Appliances & Repair El monte Mom's Appliance Repairs 5.0 NULL
Time taken: 0.031 seconds, Fetched: 10 row(s)

```

## (vi) SHOPPING

```

DROP TABLE IF EXISTS Shopping;
create EXTERNAL TABLE IF NOT EXISTS Shopping(
business_id string,
categories_001 String,
city String,
name String,
stars Double,
review_count int)
ROW FORMAT DELIMITED FIELDS TERMINATED BY ',' STORED AS TEXTFILE LOCATION
'/user/hmadhan/Business/Shopping';

```

```

insert overwrite table Shopping
select business_id, categories_001, city, name , stars, review_count

```



```

from biz
where
categories_001=='Appliances'
or categories_001=='Bespoke Clothing'
or categories_001=='bicycle_store'
or categories_001=='Body Shops'
or categories_001=='book_store'
or categories_001=='Bookstores'
or categories_001=='clothing_store'
or categories_001=='Costumes'
or categories_001=='Department Stores'
or categories_001=='department_store'
or categories_001=='Dive Shops'
or categories_001=='electronics_store'
or categories_001=='Fabric Stores'
or categories_001=='Flowers & Gifts'
or categories_001=='furniture_store'
or categories_001=='Gift Shops'
or categories_001=='Guitar Stores'
or categories_001=='Head Shops'
or categories_001=='home_goods_store'
or categories_001=='Outlet Stores'
or categories_001=='Paint Stores'
or categories_001=='Pawn Shops'
or categories_001=='Pet Stores'
or categories_001=='pet_store'
or categories_001=='Piano Stores'
or categories_001=='Pop-up Shops'
or categories_001=='Shoe Stores'
or categories_001=='shoe_store'
or categories_001=='Shopping'
or categories_001=='Shopping Centers'
or categories_001=='shopping_mall'
or categories_001=='Souvenir Shops'
or categories_001=='Surf Shop'
or categories_001=='Thrift Stores'
or categories_001=='Tobacco Shops'
or categories_001=='Toy Stores'
or categories_001=='Trophy Shops'
or categories_001=='Vape Shops';

```

```

hive> select * from Shopping limit 10;
OK
TgITBcOoarnIcMA82iKzMQ Appliances Chandler The Great Indoors 3.5 10
the-home-depot-alhambra-2 Appliances alhambra The Home Depot 3.0 NULL
sears-home-appliance-showroom-alhambra-2 Appliances alhambra Sears Home Appliance Showroom 2.5 NU
LL
1234buy-com-el-monte-2 Appliances El monte 1234buy.com 5.0 NULL
san-yang-pai-co-san-gabriel Appliances San gabriel San Yang Pai Co 3.0 NULL
bay-cities-kitchens-and-appliances-beverly-hills Appliances Beverly hills Bay Cities Kitchens & Appliances 4
.5 NULL
action-sales-monterey-park-2 Appliances Monterey park Action Sales 4.5 NULL
savon-appliances-burbank Appliances burbank Savon Appliances 4.5 NULL
warehouse-discount-center-burbank Appliances burbank Warehouse Discount Center 4.0 NULL
johnstone-supply-of-baldwin-park-baldwin-park Appliances baldwin park Johnstone Supply of Baldwin Park 3.
0 NULL
Time taken: 0.072 seconds, Fetched: 10 row(s)

```

## Exercise 3: Hive QL commands to perform the analysis

1) To show the cities which have been rated five stars in the different categories:

### EDUCATION

```
select business_id, city, name, stars, review_count
from Education
where stars=5
group by business_id, city, name, stars, review_count
order by review_count desc
limit 10;
```

```
mMSIJUyvnh0mXQBcj8T-yQ Adult Education Las Vegas Nevada School of Massage Therapy 10 2.5
el-monte-rosemead-adult-school-el-monte Adult Education El monte El Monte-Rosemead Adult School NULL 3.0
new-horizons-computer-learning-centers-burbank-4 Adult Education burbank New Horizons Computer Learning Centers NU
LL 5.0
baldwin-park-adult-education-computer-and-network-training-baldwin-park Adult Education baldwin park Baldwin Park Adult
Education - Computer and Network Training NULL 3.5
downey-adult-school-downey-3 Adult Education downey Downey Adult School NULL 3.5
toastmasters-club-587-downey-2 Adult Education downey Toastmasters Club 587 NULL 5.0
4T6CsZE4BSTM2FCE0JkWMg Art Schools Montr al Au Papier Japonais 8 4.5
6-C75pMHTs1ni6MimMaX-g Art Schools Las Vegas Social Paintbrush 11 4.5
6q4UCDeSOami_nWKge8z3w Art Schools Scottsdale Ursula's Piano Lesson Studio 5 5.0
6SomDsOz9QY5TiPwVhu4lw Art Schools Las Vegas Berns Music School 3 3.5
Time taken: 1.678 seconds, Fetched: 10 row(s)
```

### ENTERTAINMENT

```
select business_id, city, name, stars, review_count
from Entertainment
where stars=5
group by business_id, city, name, stars, review_count
order by review_count desc
limit 10;
```

```
szJVgpRqcISuzdLfUfEw Active Life Scottsdale Fiddlesticks Family Fun Park 3 3.5
0bPPbUg001AwEZ7DR9fHg Active Life Phoenix Lee's ATA Martial Arts 4 5.0
1QQZuf4zZ0yFCvXc0o6Vg Active Life Scottsdale Chaparral Off Leash Area 144 4.5
1Z2Zj5eotjc2peYxrGZLW Active Life Peoria Go Sail Arizona 3 5.0
2m5TaARSkFcq3Q10-YBmw Active Life Goodyear Monroy Training 3 5.0
2uA9B6jgtrQFaY0FIEwhQ Active Life Huntersville Huntersville Family Fitness & Aquatics 10 3.5
4PneR-GyiymyNlwQ37V-w Active Life Phoenix LA Fitness 16 2.5
8pNViFb5KglecXM4j231A Active Life Tempe Sumits Yoga Tempe 5 4.5
8tUKyMRMMt1YSlac04egg Active Life Karlsruhe Schiffsrestaurant Vater Rhein 4 4.5
APW9Ll4uzlxANoSontL5Q Active Life Henderson Soccer Zone 6 4.0
Time taken: 3.585 seconds, Fetched: 10 row(s)
```

### FOOD AND DRINKS

```
select business_id, city, name, stars, review_count
from Food
where stars=5
group by business_id, city, name, stars, review_count
order by review_count desc
limit 10;
```

```

67I_MPG5CQFuEbX4T44fQw African Glendale Zanzibar African Restaurant 2.5 7
FujnmNjFpU5WQC1Nqd7ahg African Charlotte Floyd's Restaurant II 2.5 11
mWTfBbL-1lQIQ9iQwPnViQw African Phoenix Love Cuisine 4.5 87
VhhEhn4XlaxmRPkuL3Wg0w African Edinburgh Morocco Walima 4.0 4
vNL25b0LJj38Z2_HlAT3ba African Montr_al La Goulette 4.0 6
revolutionario-north-african-tacos-los-angeles African Los angeles Revolutionario: North African Tacos 4.5 NU
LL
the-briks-los-angeles-2 African Los angeles The Briks 4.0 NULL
4_Qn9WZVwofeaqjgQG2Zw American (New) Charlotte Fahrenheit 3.0 264
EdSQOkATuCTz5y5A2m0rw American (New) Phoenix Arby's 3.0 5
fcEpubiTB4o9wLJ-egTA American (New) Henderson Grand Caf_ 2.5 89
Time taken: 26.683 seconds, Fetched: 10 row(s)

```

## MEDICAL

```

select business_id, city, name, stars, review_count
from Medical
where stars=5
group by business_id, city, name, stars, review_count
order by review_count desc
limit 10;

```

```

pgG5sNH7C6EUZs6MqQOvg Acupuncture Gilbert Prosperity Health 4 5.0
VYlQs19eR0K0FTbACrxBA Acupuncture Charlotte Omni Wellness Center 3 3.5
x4hVsoORIjmgjMMx_MZRA Acupuncture Las Vegas Setsuko H Sage; OMD 5 5.0
01a4Y0jiBbPUBxvgX6F7VQ Acupuncture Pittsburgh Chinese Acupuncture & Herbs Center LLC 3 5.0
08DRbWJGN_s29gXi3qNroA Acupuncture Scottsdale The Anti-Aging Spot 6 5.0
0JXEak05-7FJ7de2_27FvQ Acupuncture Charlotte Charlotte Community Acupuncture 5 4.0
1fE_QMLI4okKcpJRFaFffkg Acupuncture Scottsdale Innova Acupuncture 3 5.0
1MjV-Jq2xzhfKAaiOSixbw Acupuncture Las Vegas Wuxin Healing Arts 3 3.0
2B2u6nxHrED_C0s_g-cnsg Acupuncture Phoenix Smith Chiropractic Center At Arrowhead 3 4.5
2vmDSfigDSnVUoPjzgE0CQ Acupuncture Scottsdale Victoria Mogilner Total Rejuvenation Center 4 2.0
Time taken: 4.811 seconds, Fetched: 10 row(s)

```

## SERVICES

```

select business_id, city, name, stars, review_count
from Services
where stars=5
group by business_id, city, name, stars, review_count
order by review_count desc
limit 12;

```

```

alhambra-comfort-ac-alhambra-2 Air Duct Cleaning alhambra Alhambra Comfort AC NULL 5.0
rodeo-air-duct-cleaning-beverly-hills-2 Air Duct Cleaning Beverly hills Rodeo Air Duct Cleaning NULL 5.0
aircraft-ground-support-el-monte Aircraft Repairs El monte Aircraft Ground Support NULL 5.0
repair-twist-of-pasadena-pasadena-4 Appliances & Repair Pasadena Repair Twist of Pasadena NULL 5
0
pasadena-appliance-guy-pasadena-2 Appliances & Repair Pasadena Pasadena Appliance Guy NULL 5.0
repairbest-appliance-repair-pasadena-2 Appliances & Repair Pasadena Repairbest Appliance Repair NULL 4
5
alexs-appliance-repair-alhambra Appliances & Repair alhambra Alex's Appliance Repair NULL 5.0
america-technicians-alhambra Appliances & Repair alhambra America Technicians NULL 4.5
garvey-appliances-el-monte Appliances & Repair El monte Garvey Appliances NULL 4.0
moms-appliance-repairs-el-monte Appliances & Repair El monte Mom's Appliance Repairs NULL 5.0
Time taken: 20.324 seconds, Fetched: 10 row(s)

```

## SHOPPING

```

select business_id, city, name, stars, review_count
from Shopping

```

```

where stars=5
group by business_id, city, name, stars, review_count
order by review_count desc
limit 10;

```

```

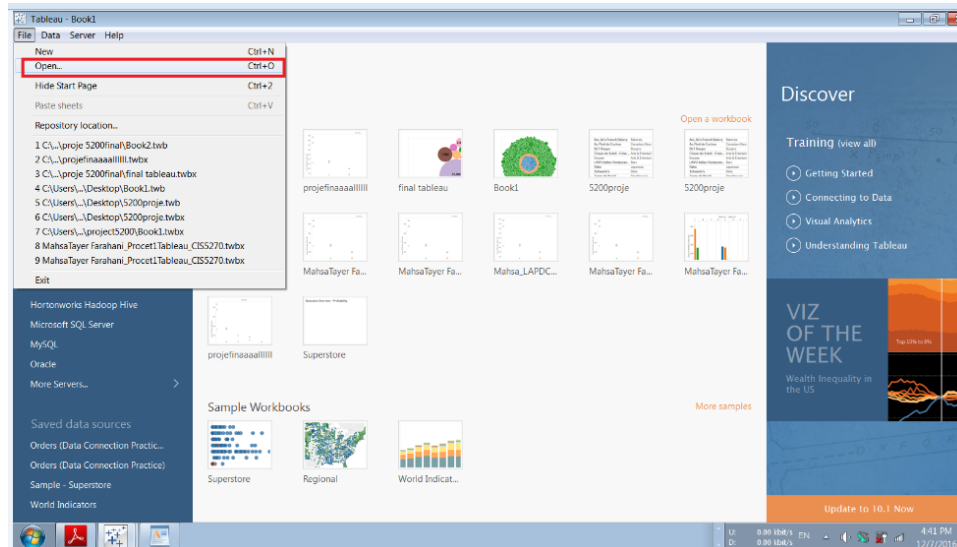
TgITBcOoarnIcMA82iKzMQ Appliances Chandler The Great Indoors 10 3.5
the-home-depot-alhambra-2 Appliances alhambra The Home Depot NULL 3.0
sears-home-appliance-showroom-alhambra-2 Appliances alhambra Sears Home Appliance Showroom NULL 2.5
1234buy-com-el-monte-2 Appliances El monte 1234buy.com NULL 5.0
san-yang-pai-co-san-gabriel Appliances San gabriel San Yang Pai Co NULL 3.0
bay-cities-kitchens-and-appliances-beverly-hills Appliances Beverly hills Bay Cities Kitchens & Appliances N
ULL 4.5
action-sales-monterey-park-2 Appliances Monterey park Action Sales NULL 4.5
savon-appliances-burbank Appliances burbank Savon Appliances NULL 4.5
warehouse-discount-center-burbank Appliances burbank Warehouse Discount Center NULL 4.0
johnstone-supply-of-baldwin-park-baldwin-park Appliances baldwin park Johnstone Supply of Baldwin Park NU
LL 3.0
Time taken: 3.88 seconds, Fetched: 10 row(s)

```

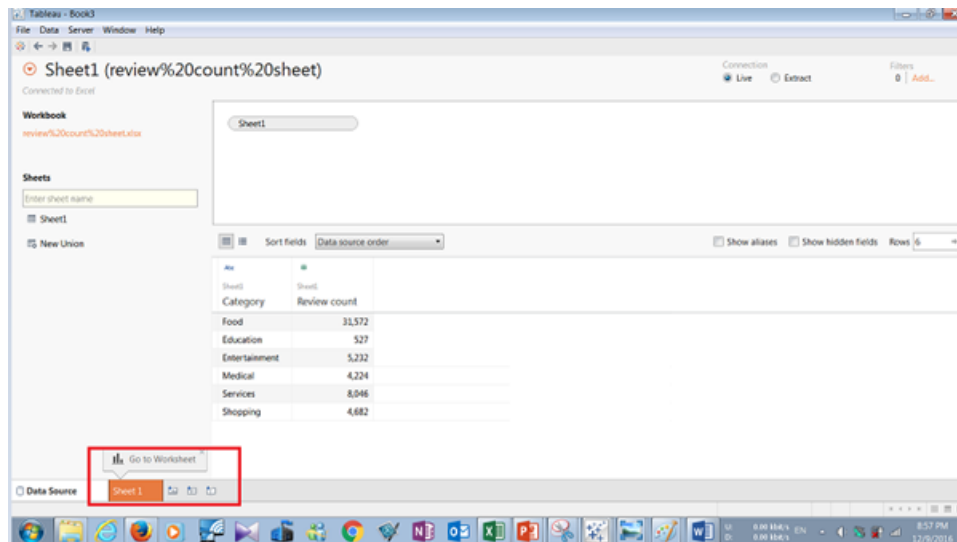
## Exercise 5: Visualization

percentage of review counts of for different types of business

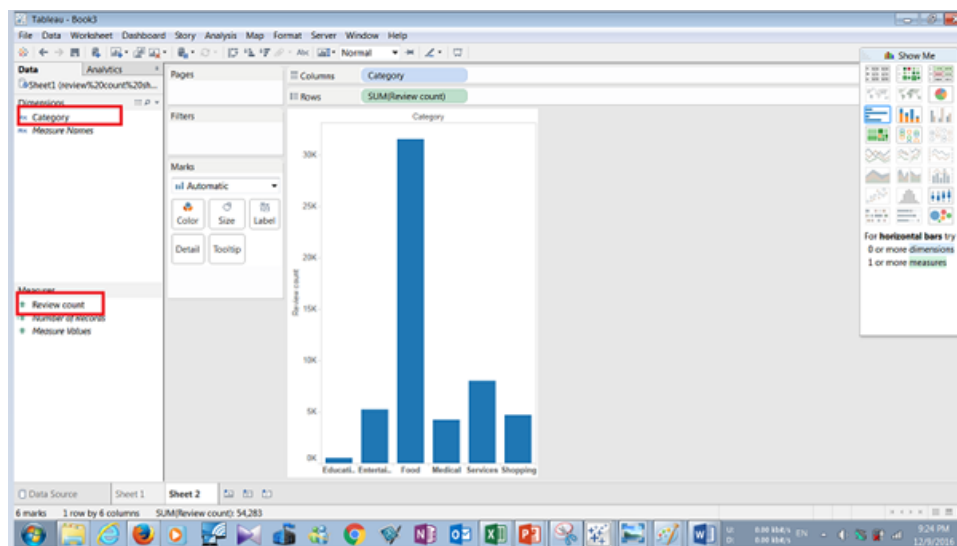
1) open tableau in the top right open file and select your excel sheet.



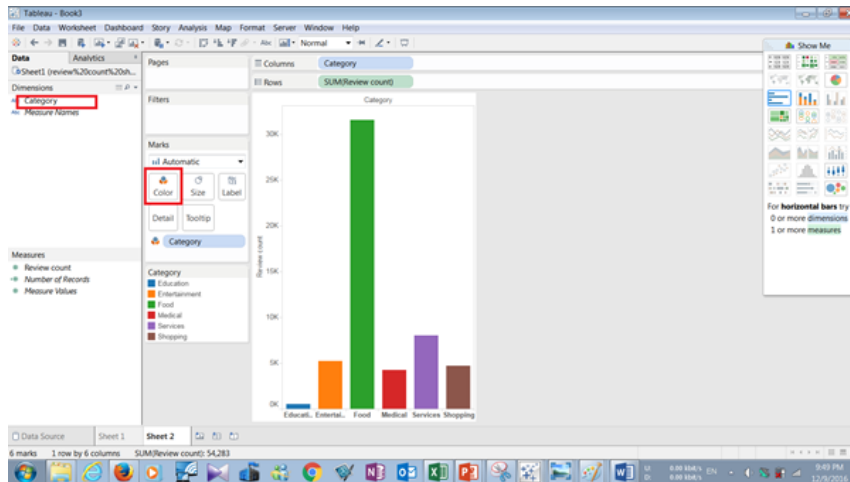
2) go to worksheet.



3)drag category from dimension into the column and review count into the row.

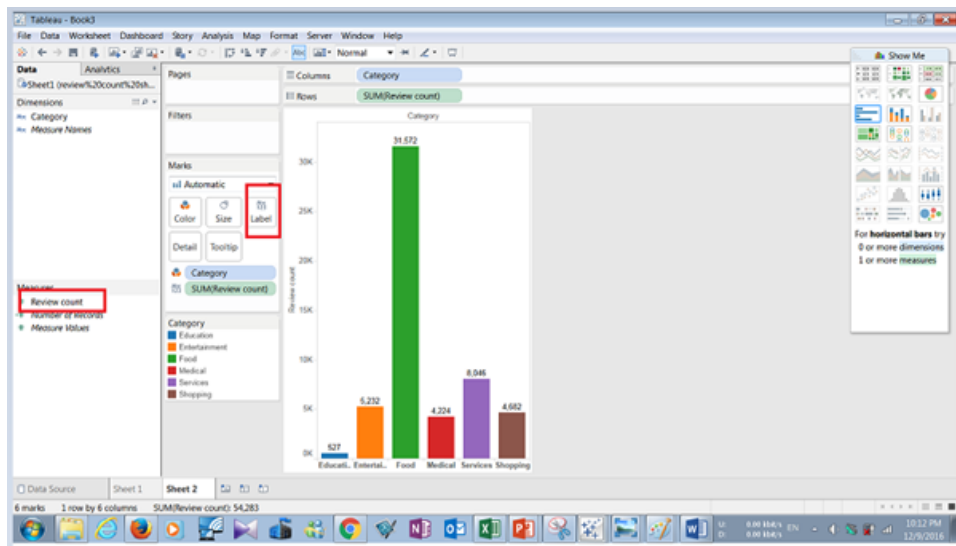


4)drag category into the color of marks box.

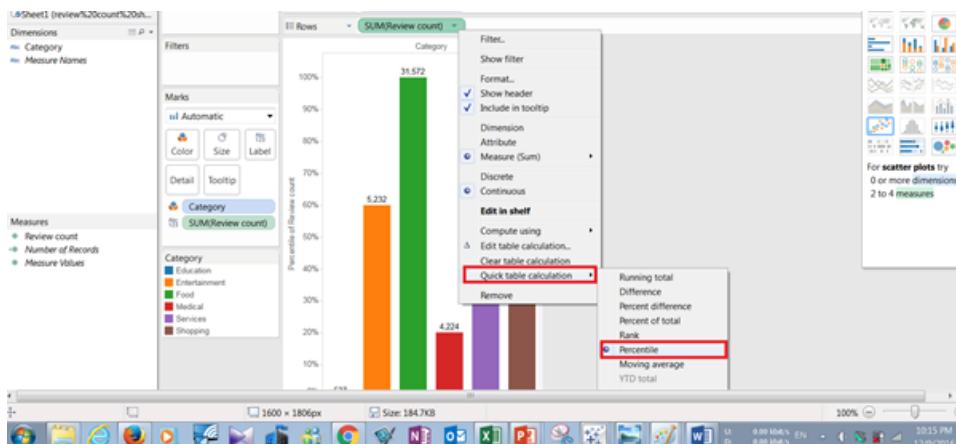


5)drag review count to the label of mark box in order to show the number of reviews for each category. As we can see that food has the highest nu

mber of reviews that is given by customers , after food services has the highest ,by contrast education has the lowest number of reviews among these categories.

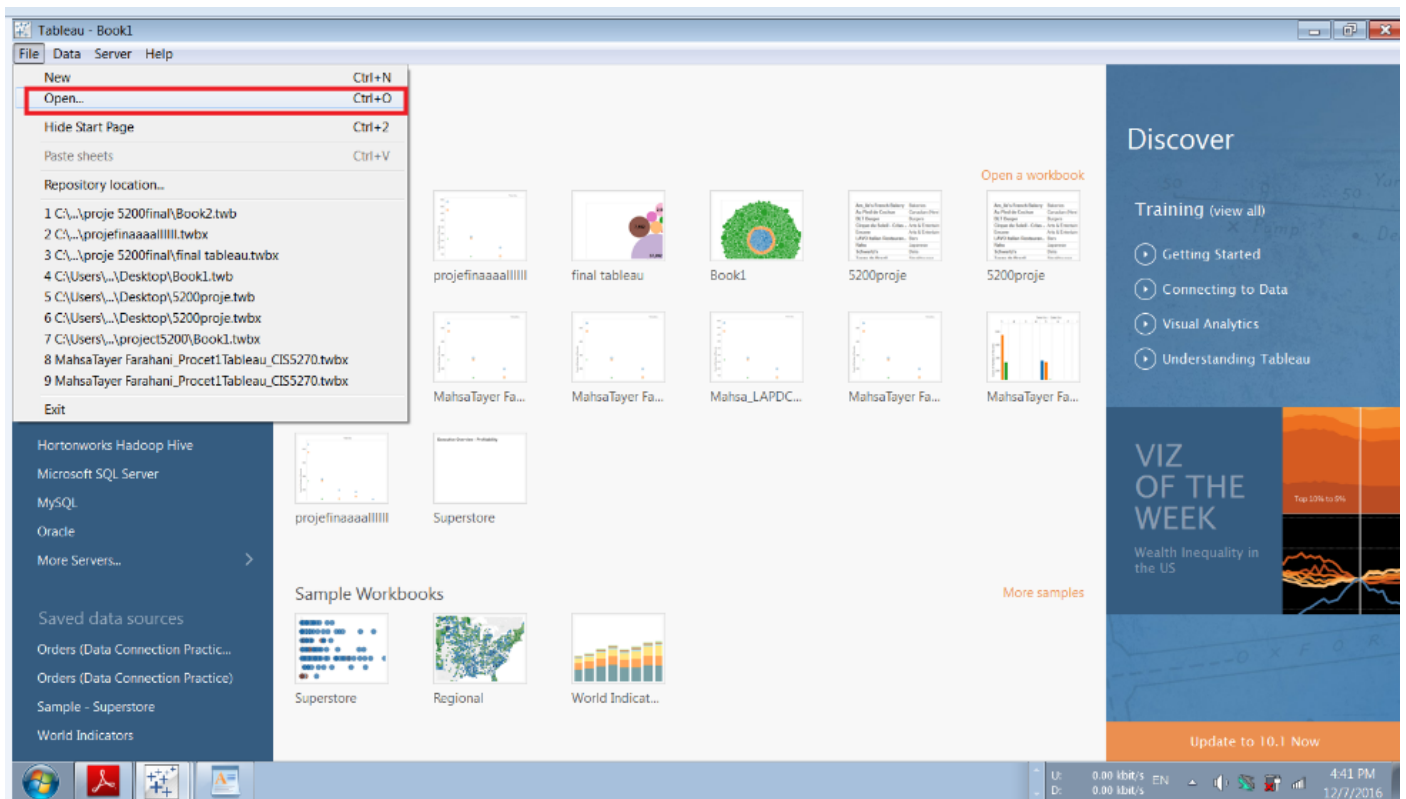


6) in order to show the number of reviews for each category in percentage, in the review count in row right click and from the quick table calculation select percentage. As it shows in this figure the number of review shows in percentage in the y axis.



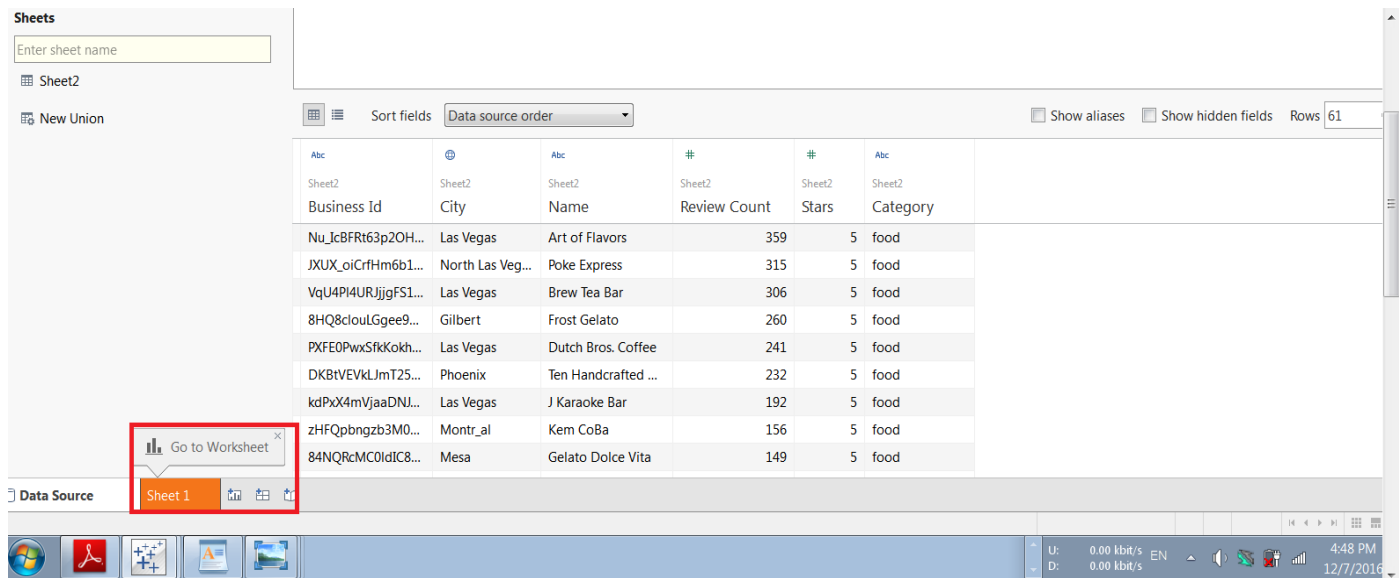
## TOP BUSINESSES IN THE SIX CATEGORIES

1) In order to visualize our dataset in Tableau we have to open our excel sheet in tableau. From file tab - choose open and brows the excel sheet

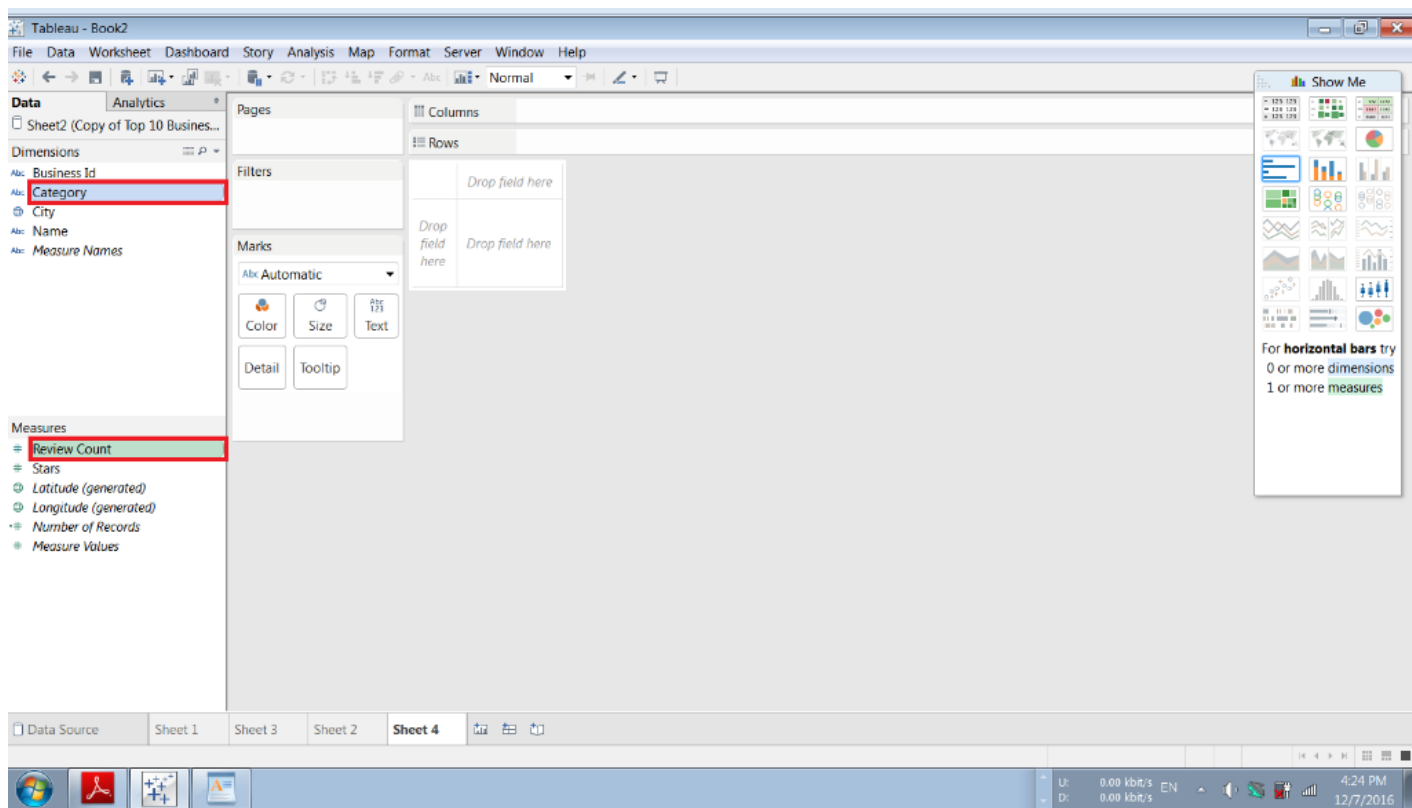


2) Go to work sheet

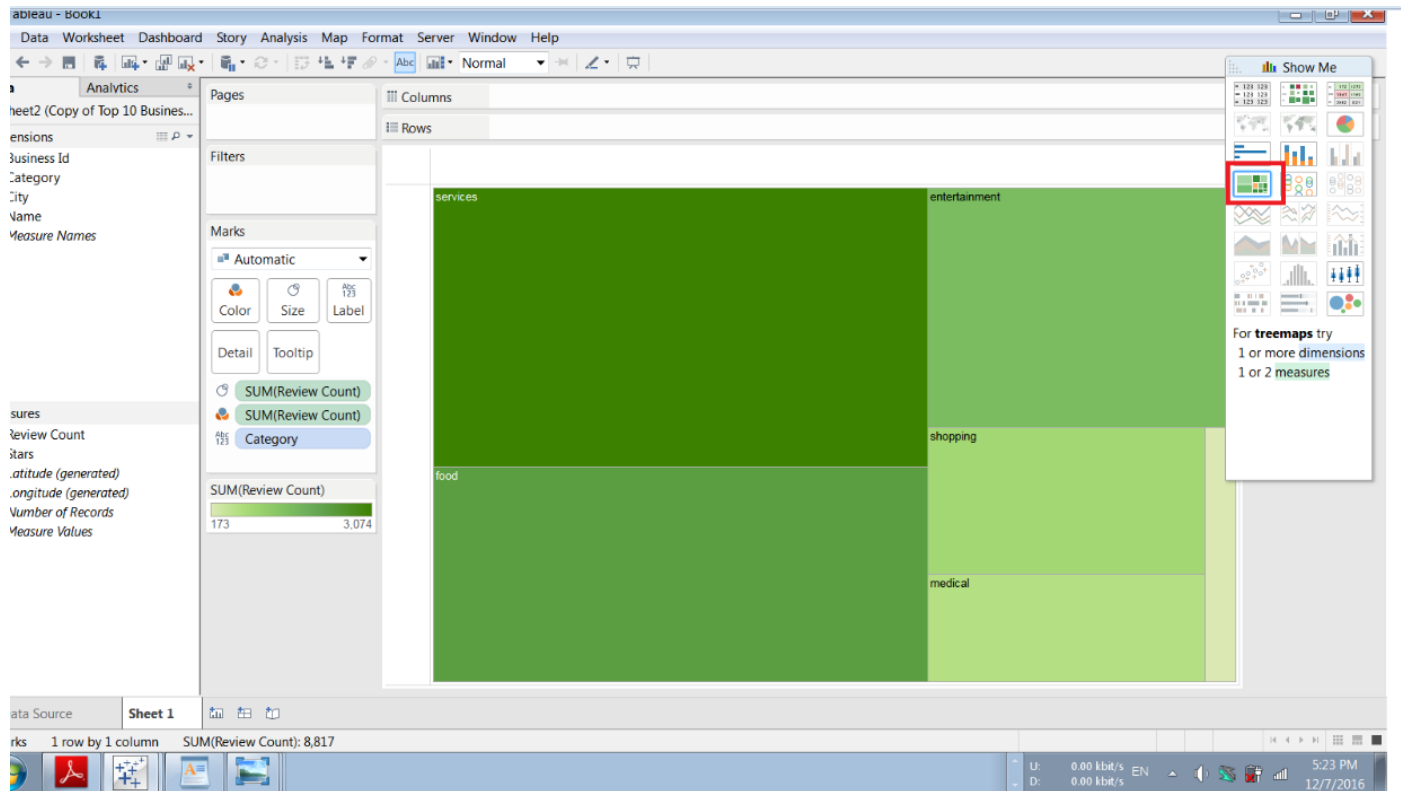




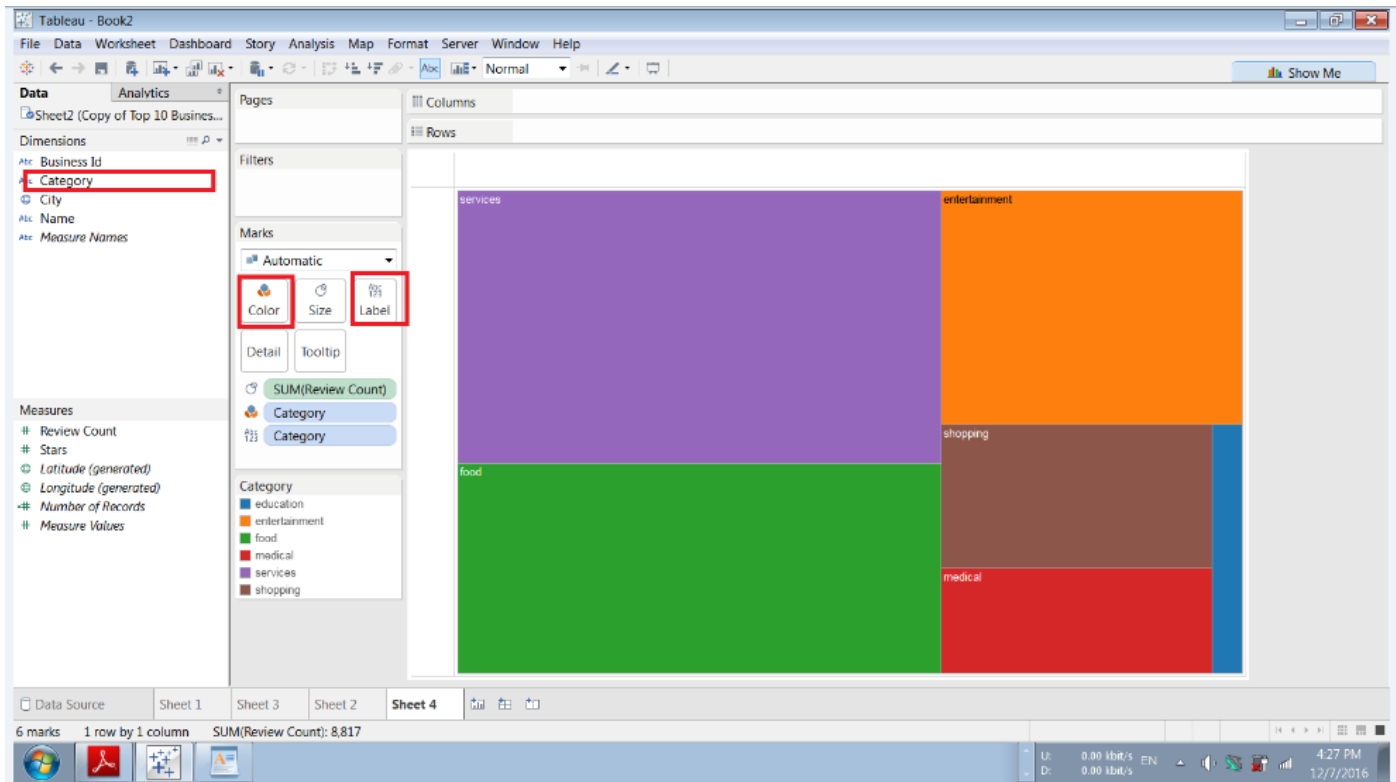
3) Select category from dimensions part and drag to columns and review count from measure and drag the required row



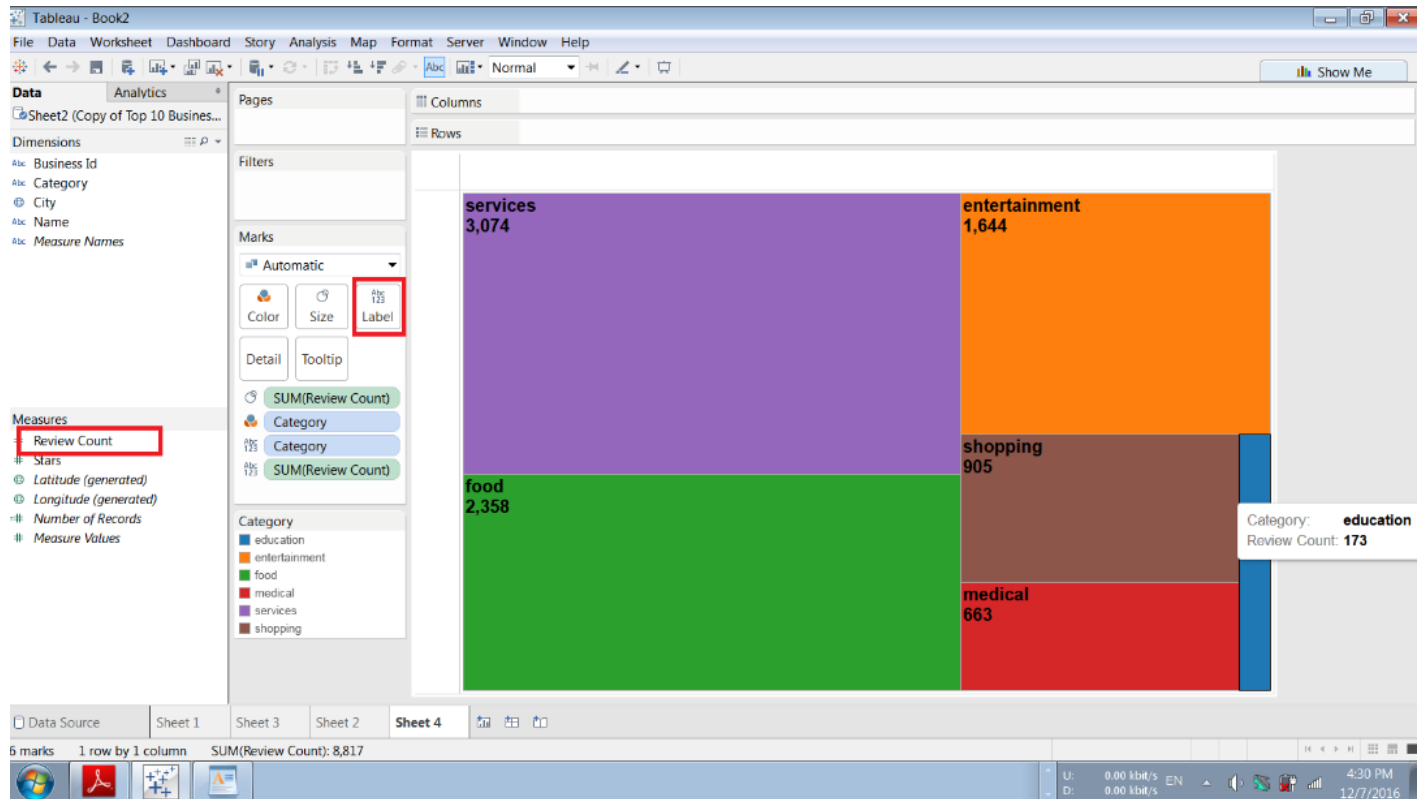
4) In the right top in show me tab select the tree map



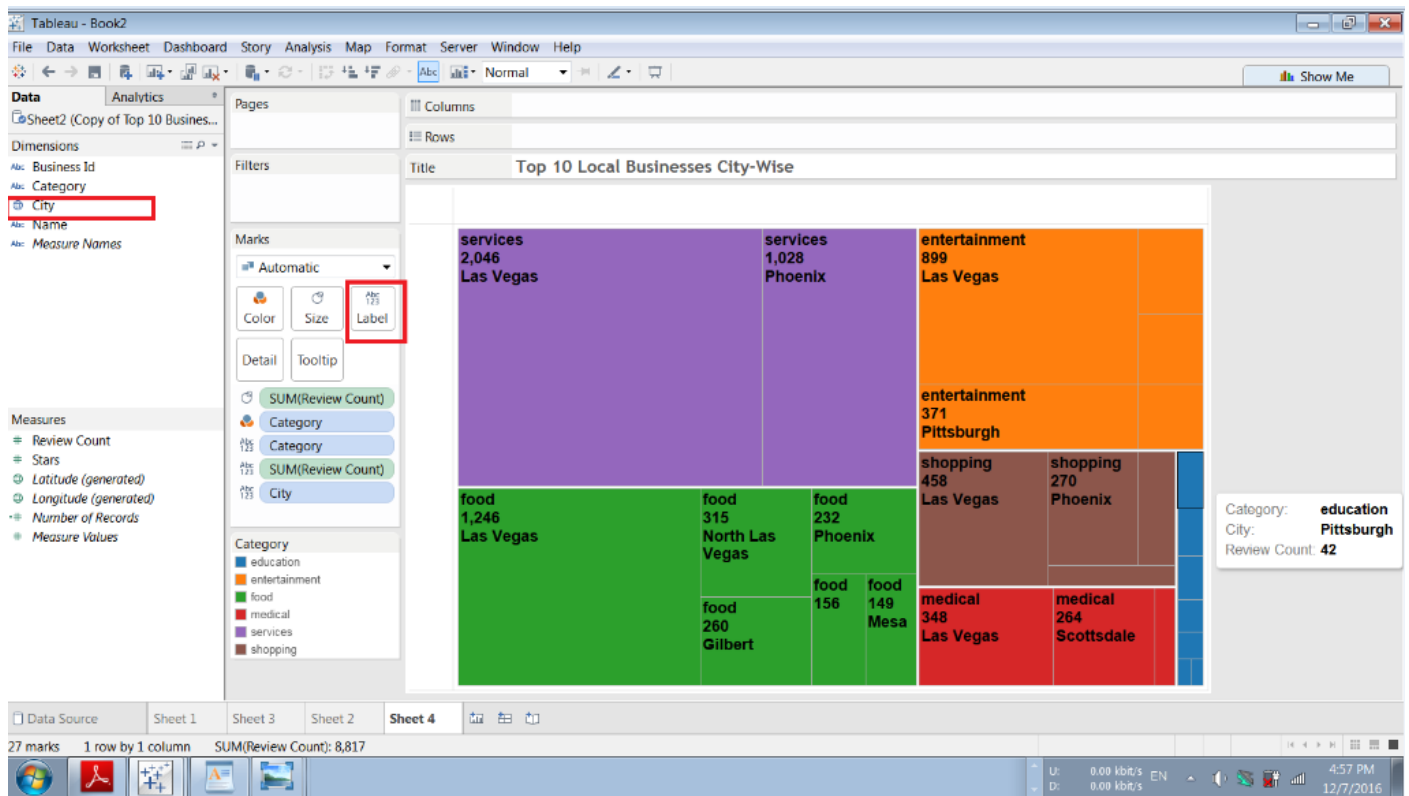
5) Drag category to color and to the labels as well. As we can see there are different categories with different colors such as education, entertainment, food, medical, services and shopping



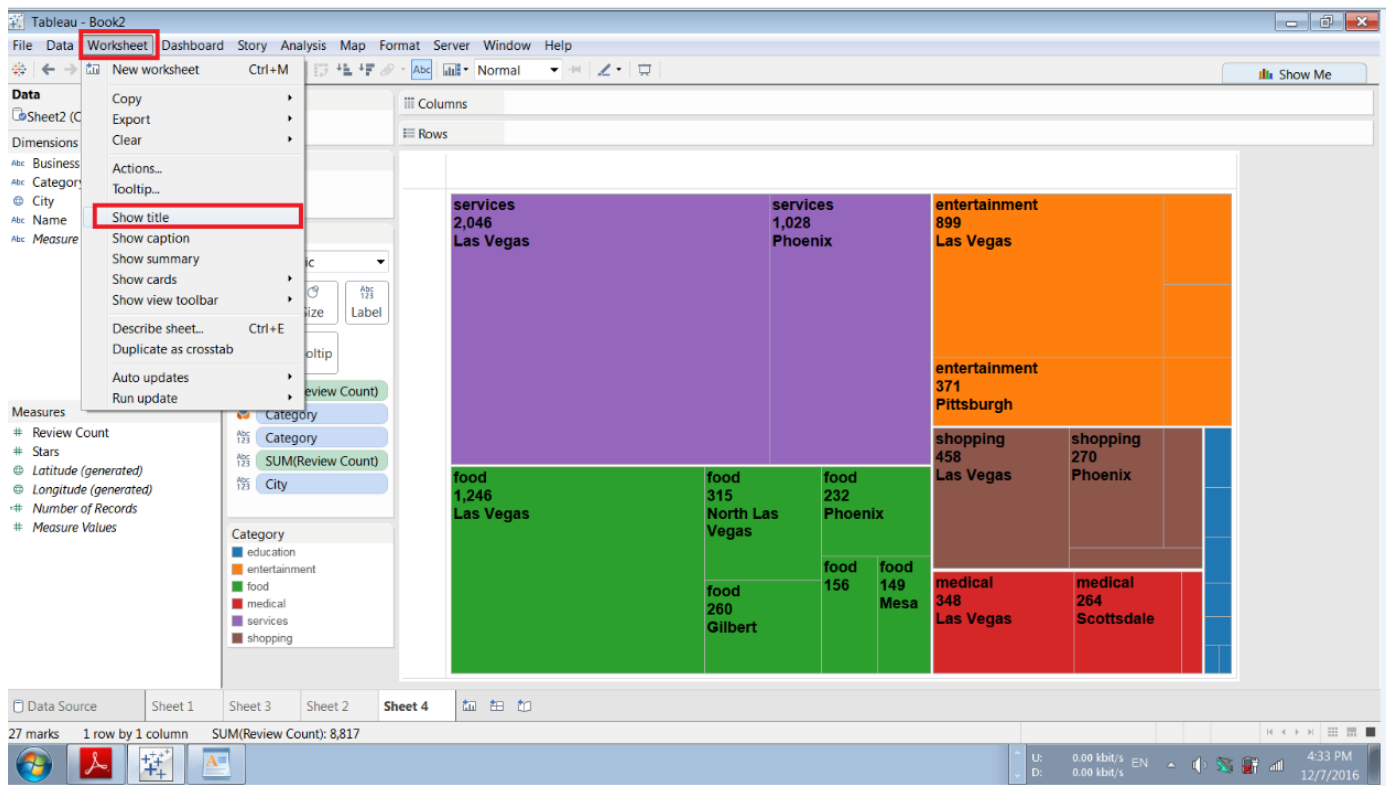
6) Drag review count to labels in order to analyze the number of reviews for each category



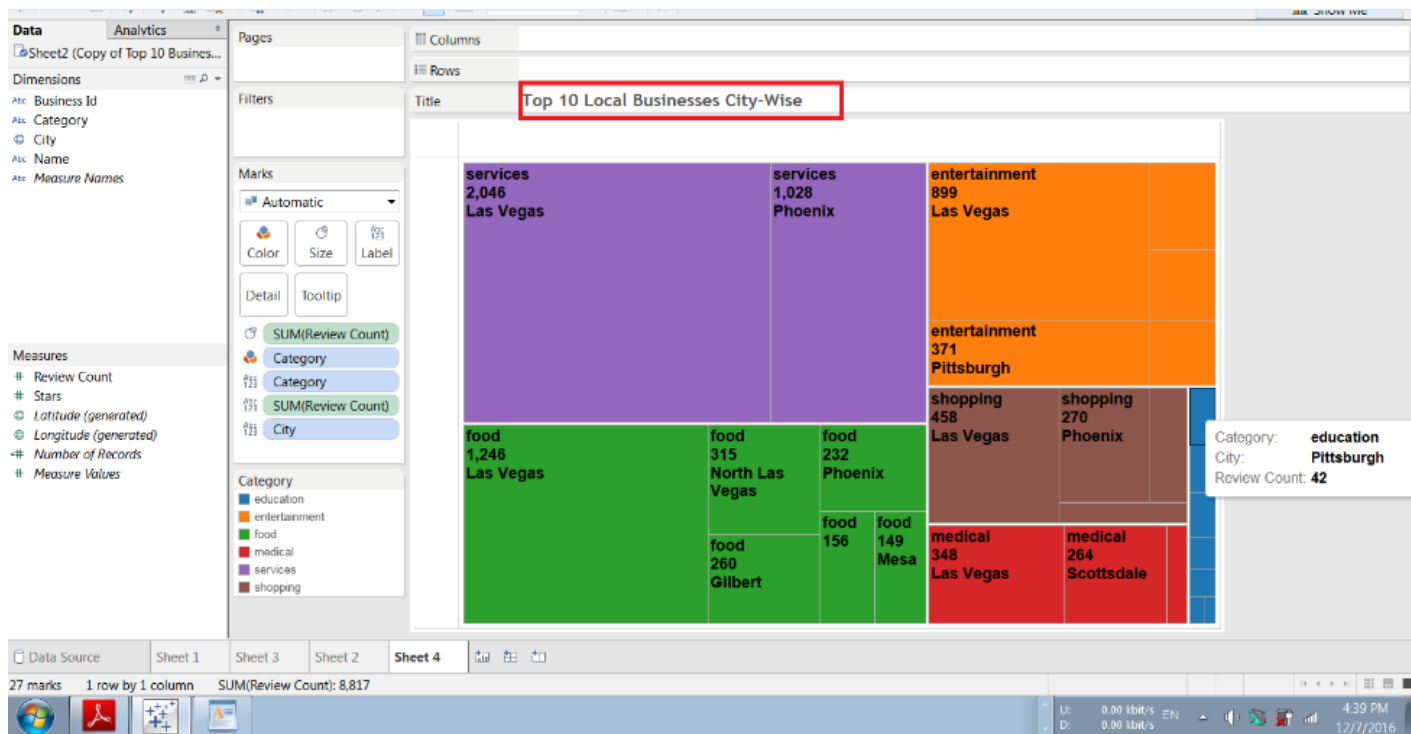
7) Drag city to label as we want to know the number of reviews for each local businesses in different city. We can see the picture depicts Las Vegas has the highest number of reviews in almost every category



8) In order to give a title to our visualization go to worksheet tab and select show title and write the title to the insight



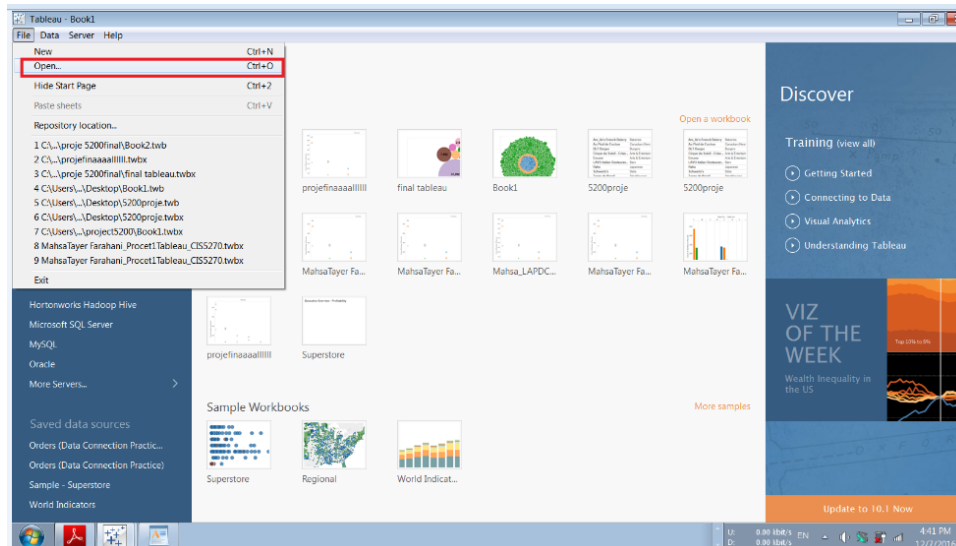
We can now see the title being saved in the title tab. Save the file after completing the visualization



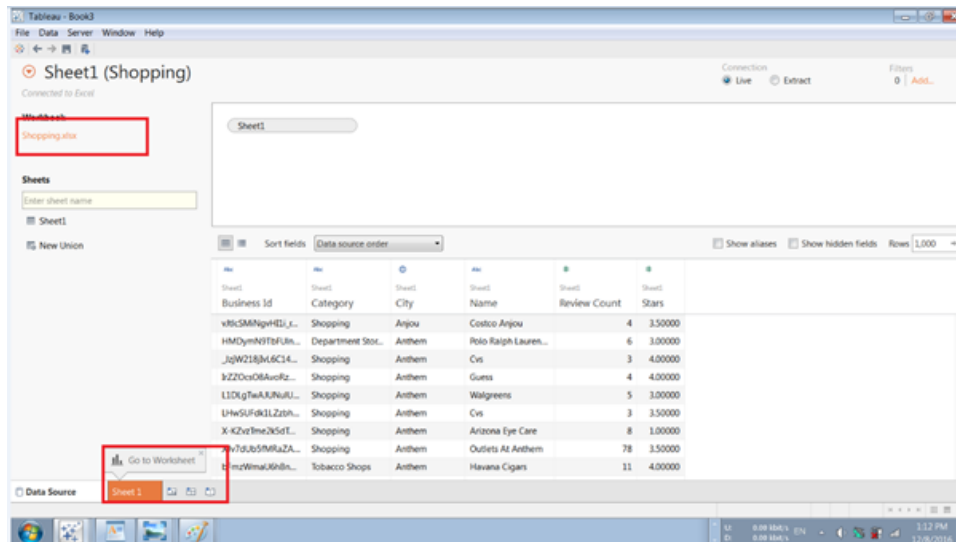
Similarly the various visualizations can be done

## **REVIEW COUNT FOR SUBCATEGORY FOR SHOPPING**

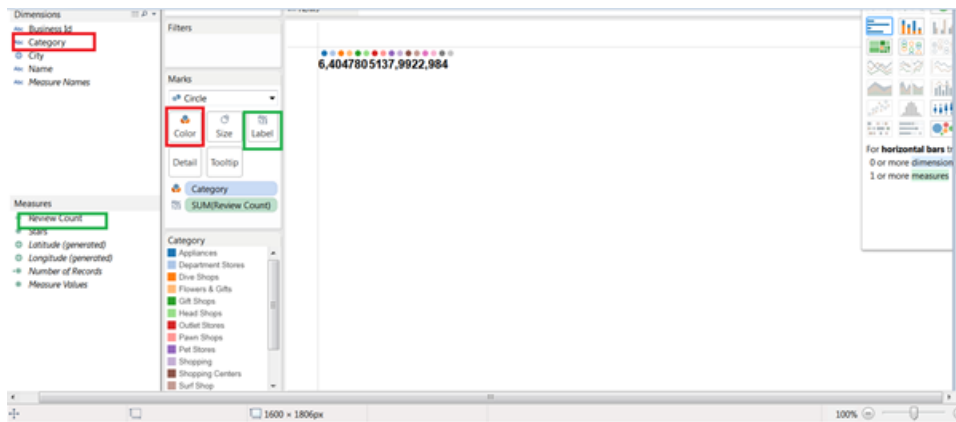
1)open tableau, go to file in the top left side and open the excel sheet.



2)go to shopping sheet(sheet1) for visualization.

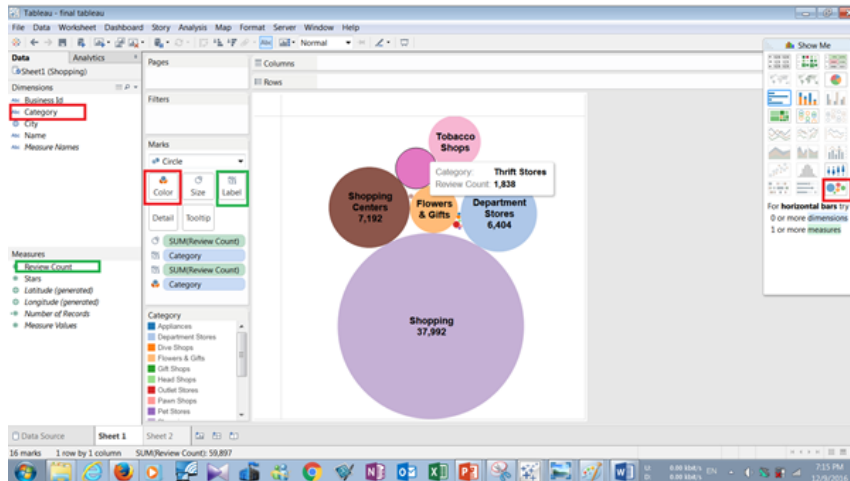


3) drag category to color in the marks box and review count to the label.

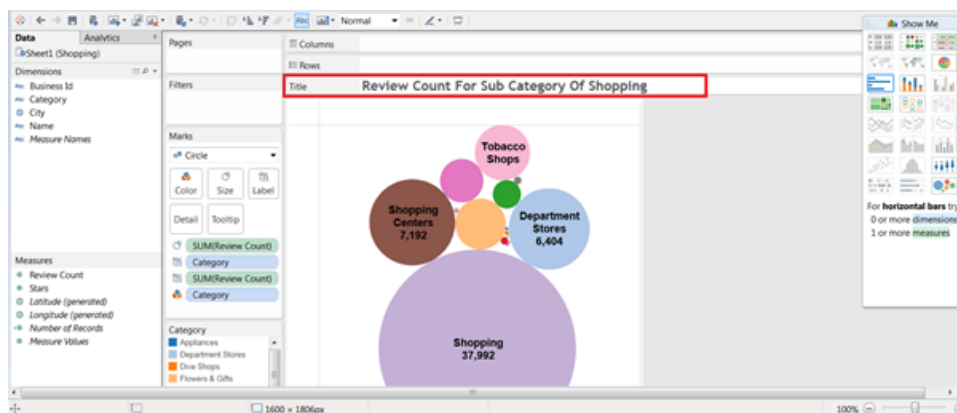
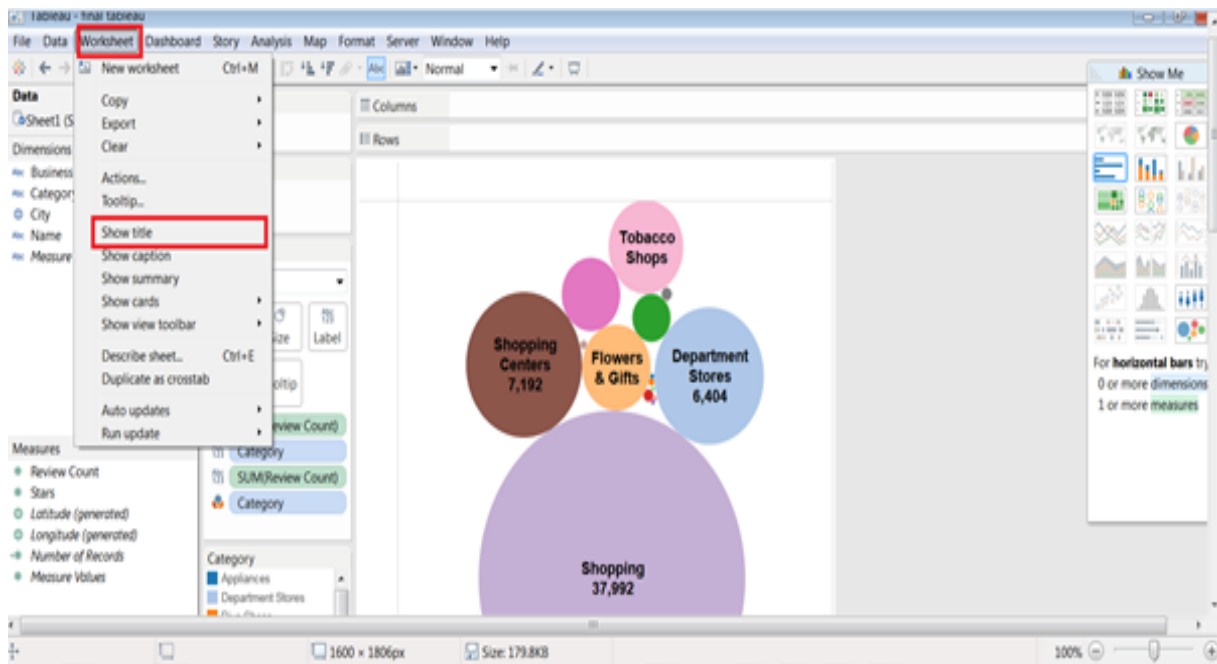




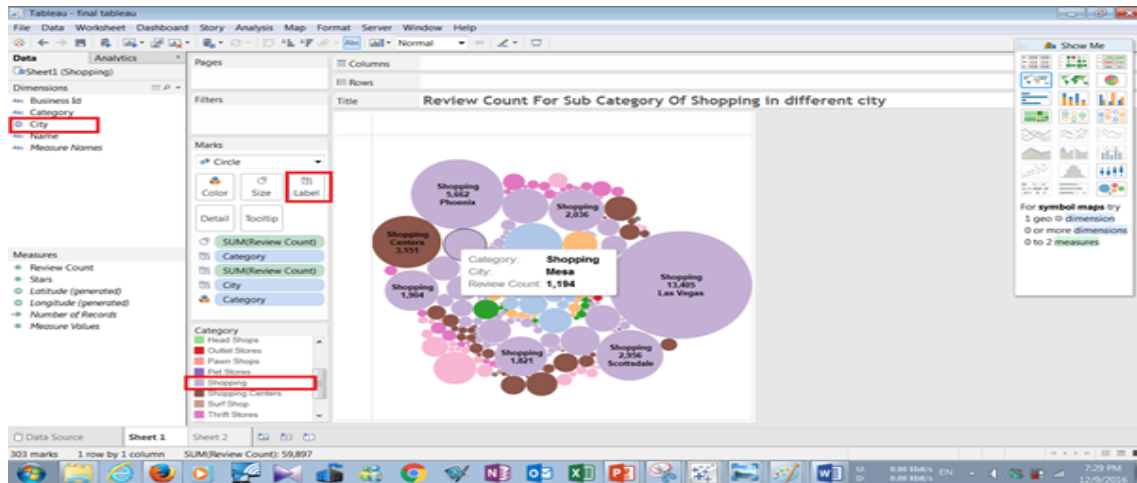
4) in the top right in show me tab select the bubble chart, as it shows in the bubble we can see the different types of shopping with their number of review for each type.

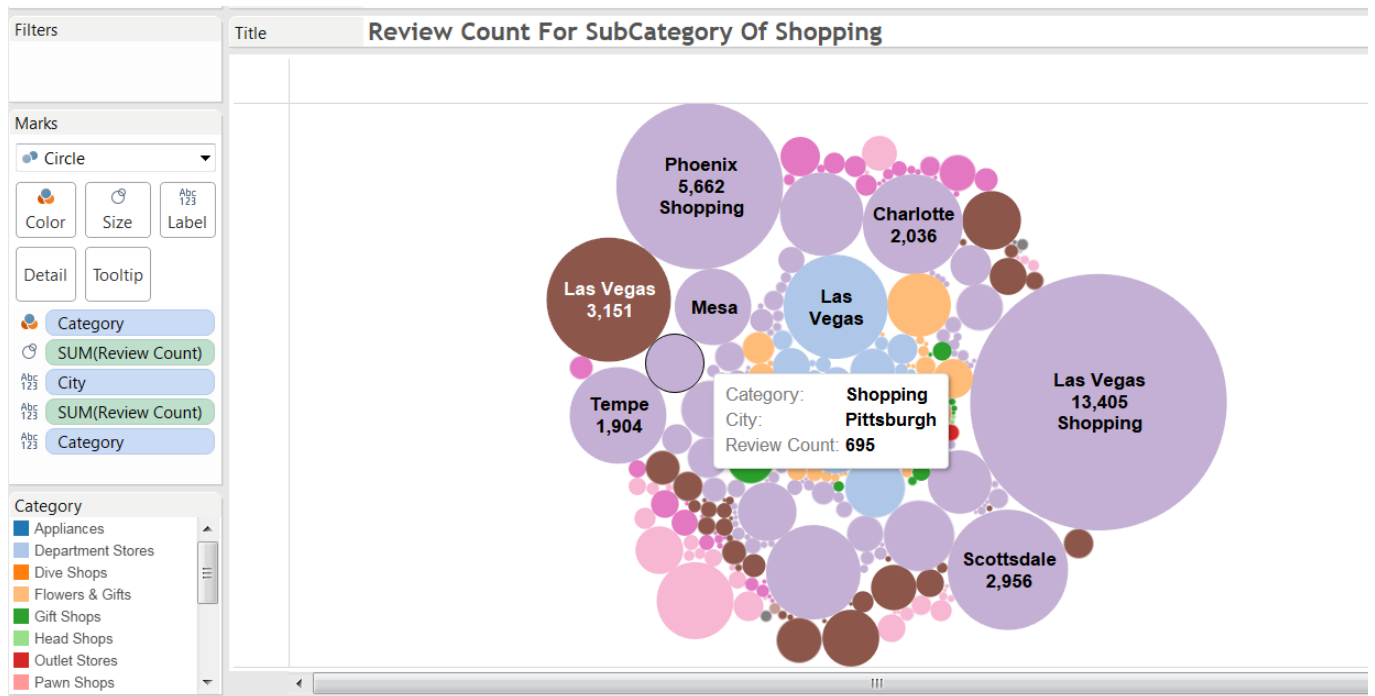


5) in order to show the title for this visualization go to worksheet tab in the top left side and select show title.

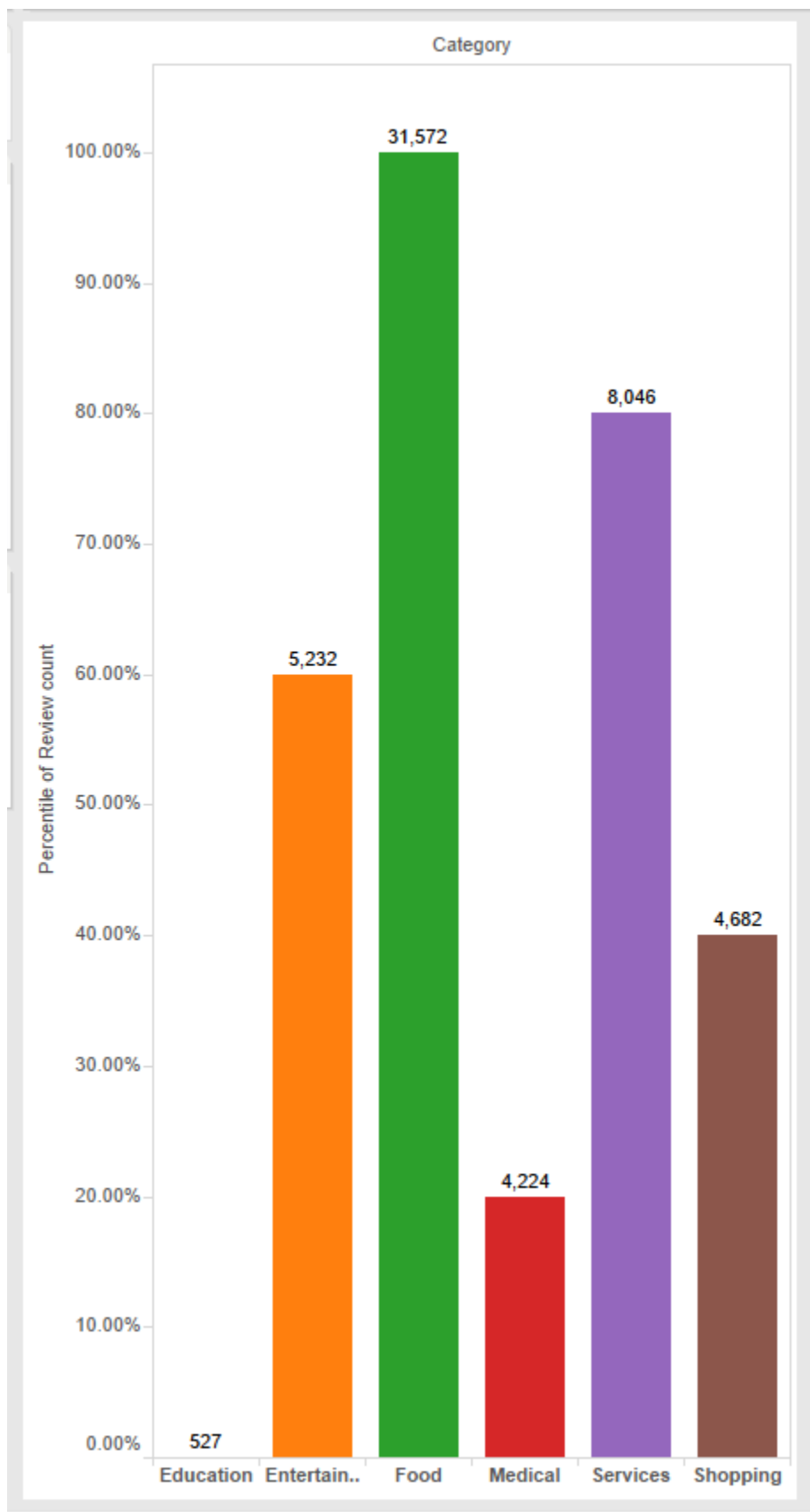


6: in order to analyze the number of count for sub category of shopping in different city, we have to drag a city to the labels as it shows in this figure. As we can see in the in the category side, shopping with the color of purple has the highest number of review among other types of shopping and Las Vegas has the highest number of review in shopping in comparison to other cities.

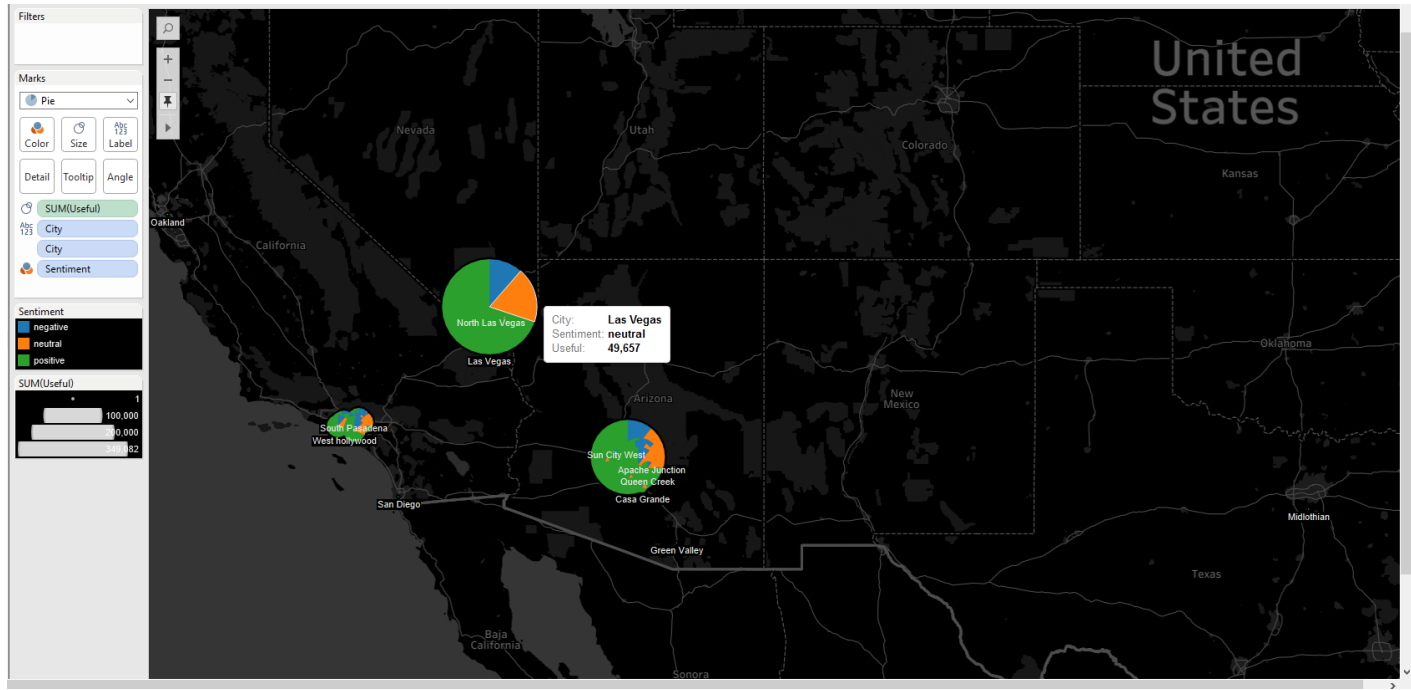




**REVIEW COUNT FOR BASED ON EACH CATEGORY**



## SENTIMENT ANALYSIS FOR ALL BUSINESS



The visualizations using Excel Power View can be done as follows: