

# PITTSBURGH HEALTHY RIDE ANALYSIS

The Healthy Ride program is operated by Pittsburgh Bike Share

The program is a 501(c)(3) non-profit

Service began December 2012;

Raised capital of about \$1.6M in 2013

Rideshare system piloted in 2015 reaching up to 50 stations across the Pittsburgh area

Their mission is to provide “joyful, sustainable, and affordable mobility service to residence and visitors

Cost is based on User Type: Customers (pay as you go) pay \$2 /30 min; Subscribers pay either \$12 per mo./unlimited 30 min ride or \$20 per mo./unlimited 60 min ride

## BRIEF HISTORY

```
In [4]: import pandas as pd
```

#### 1) pandas reading csv dataset

```
In [5]: df = pd.read_csv(r"C:/Users/.../Documents/.../Healthy_Ride_Data.csv", header = 0)
```

#### 2) Calculated column Tripduration from seconds to Minutes

```
In [6]: df.Tripduration = (df.Tripduration/60)
```

#### 3) New calculated 'Tripduration' column

```
In [7]: print(df.Tripduration)

0      16.050000
1       6.450000
2      69.833333
3      10.200000
4     391.850000
...
14614   13.650000
14615   16.666667
14616    1.700000
14617   11.533333
14618   15.300000
Name: Tripduration, Length: 14619, dtype: float64
```

#### 4) New dataframe assigned while removing rows with 'na' values

```
In [8]: new_df = df.dropna()
```

```
In [9]: # splitting columns Starttime & Stoptime
new_df2 = new_df["Starttime"].str.split(" ", n=1, expand = True)
```

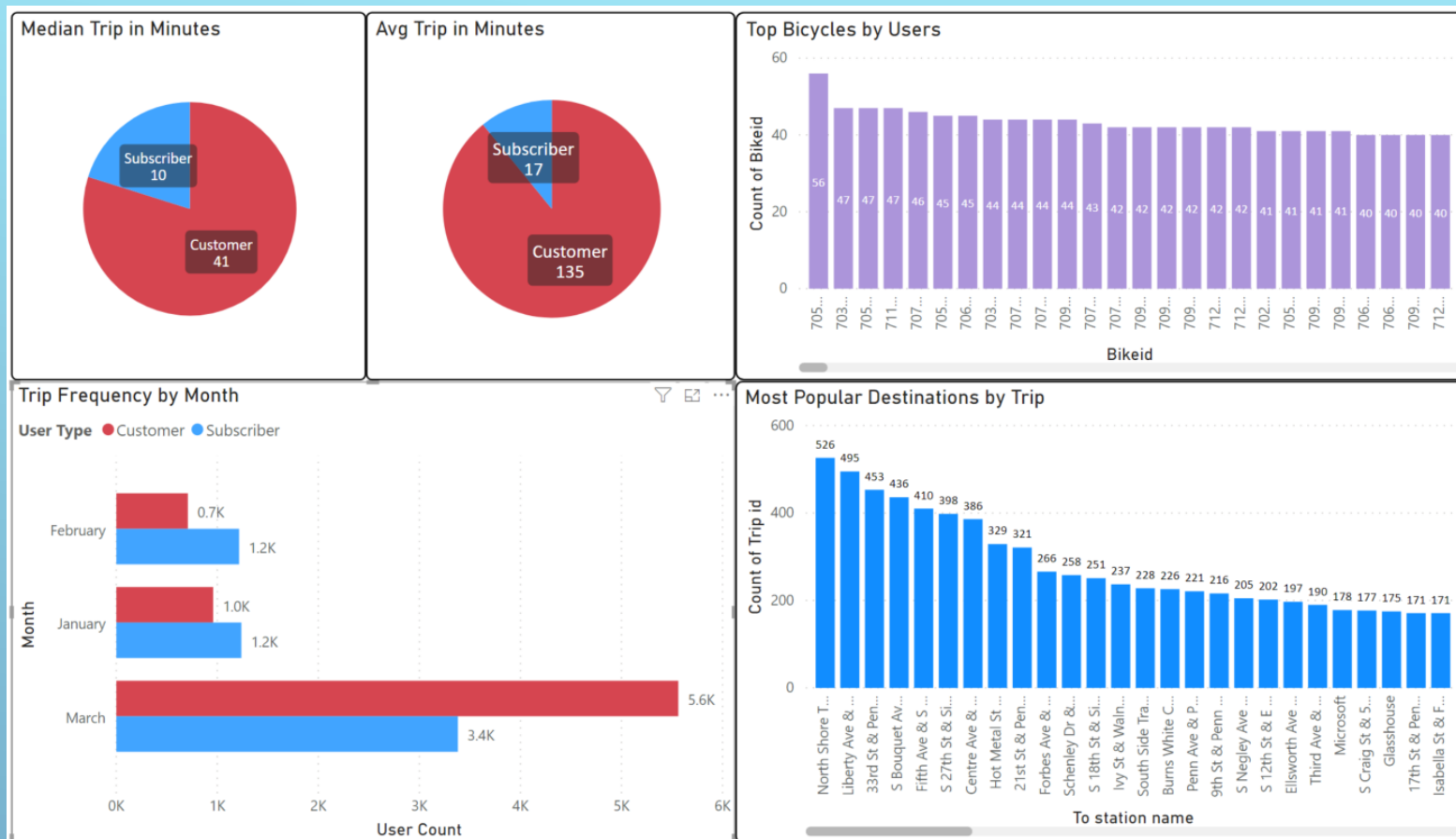
# CLEANSING DATA (PYTHON)

Python script to read csv dataset and begin cleaning process of data

Trip id						Close New Query Data Sources Parameters Query Manage Columns Reduce Rows Sort Transform					
A	B	C	D	E	F	Queries [2]					
Trip id	Starttime	Stoptime	Bikeid	Tripduration	From	Cleansed_Data (1)	processed_batch	ABC Start Date	ABC Start Time	ABC Stop Date	ABC Stop Time
1.11E+08	1/12/2021 12:48	1/12/2021 13:04	70782	963	49			1/12/2021	12:48	1/12/2021	13:04
1.11E+08	1/13/2021 9:32	1/13/2021 9:39	70578	387	49			1/13/2021	9:32	1/13/2021	9:39
1.11E+08	1/15/2021 17:43	1/15/2021 18:52	70935	4190	1			1/15/2021	17:43	1/15/2021	18:52
1.12E+08	1/20/2021 16:00	1/20/2021 16:11	70910	612	1			1/20/2021	16:00	1/20/2021	16:11
1.12E+08	1/24/2021 14:40	1/24/2021 21:12	70910	23511	1			1/24/2021	14:40	1/24/2021	21:12
1.12E+08	1/27/2021 5:57	1/27/2021 6:17	70670	1204	1			1/27/2021	5:57	1/27/2021	6:17
1.12E+08	1/31/2021 17:43	1/31/2021 18:12	71192	1715	1			1/31/2021	17:43	1/31/2021	18:12
1.12E+08	1/31/2021 18:12	1/31/2021 18:24	70917	730	1			1/31/2021	18:12	1/31/2021	18:24
1.12E+08	1/31/2021 18:14	1/31/2021 18:25	70836	664	1			1/31/2021	18:14	1/31/2021	18:25
1.12E+08	1/31/2021 18:45	1/31/2021 18:50	70293	252	1			1/31/2021	18:45	1/31/2021	18:50
1.12E+08	1/31/2021 18:47	1/31/2021 19:25	70917	2265	1			1/31/2021	18:47	1/31/2021	19:25
1.12E+08	1/31/2021 19:37	1/31/2021 19:45	70817	445	1			1/31/2021	19:37	1/31/2021	19:45
1.12E+08	1/31/2021 19:39	1/31/2021 19:51	70152	770	1			1/31/2021	19:39	1/31/2021	19:51

# DATA MANIPULATION (DAX & POWER QUERY)

Used Power Query and DAX for parsing cleansed data set columns:  
 Left is original csv dataset with columns B and C as date/time.  
 Right is cleansed data set with columns B and C parsed into individual date and time columns and data type for easier aggregation



# THE ANALYSIS

Power BI Visualization:

Median Trip Duration in minutes

Avg Trip Duration in minutes

Trip Frequency by Month

Top Bicycles by Users

Most Popular Destination by Trip

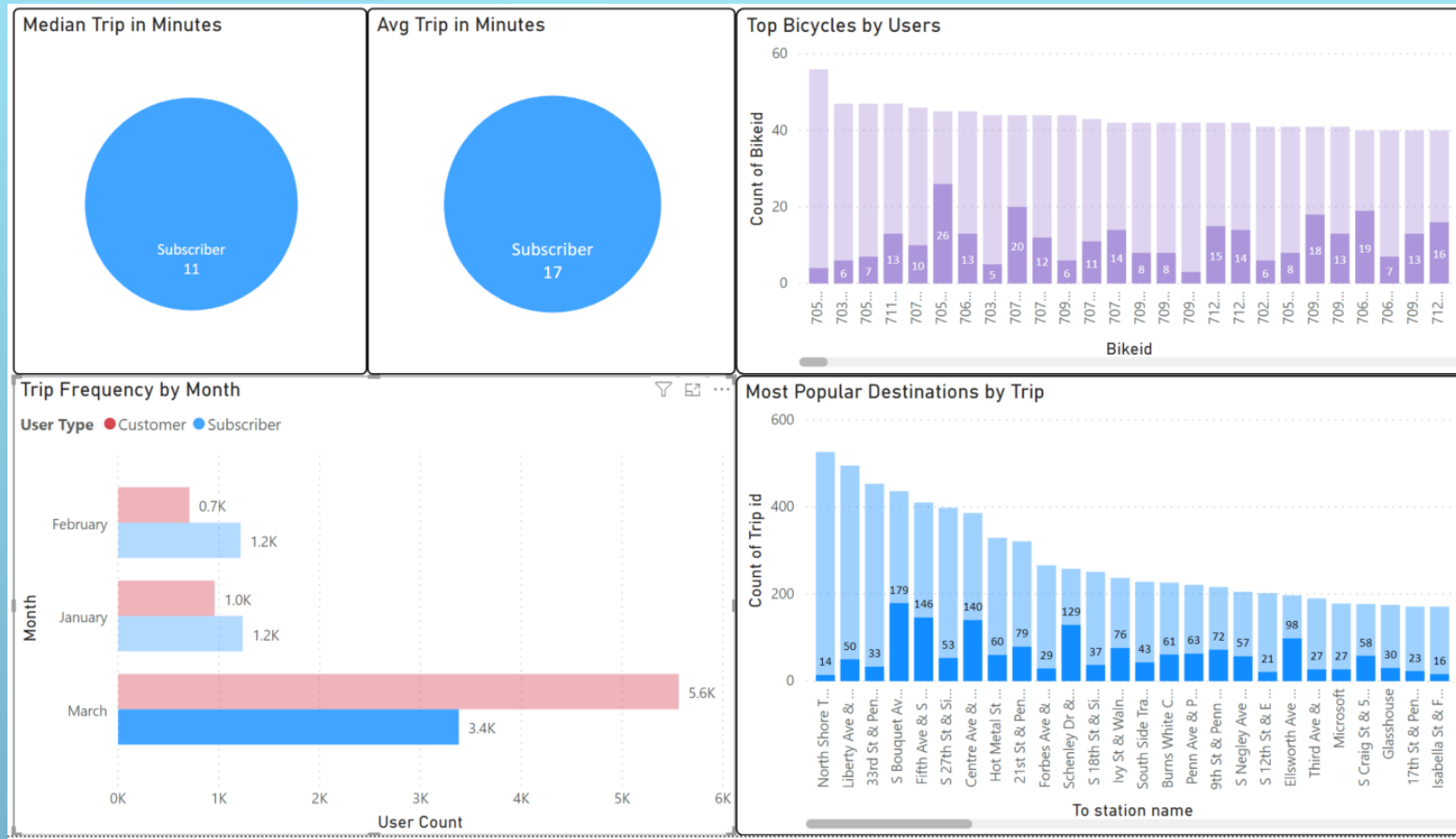


# THE ANALYSIS

Power BI Visualization:

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# THE ANALYSIS

Power BI Visualization:

Median Trip Duration in minutes

Avg Trip Duration in minutes

Trip Frequency by Month

Top Bicycles by Users

Most Popular Destination by Trip

SO WHY IS THIS IMPORTANT?







Customer Reviews	Classification	Numeric Value	Confidence
The bikes got us around, but not the best biking / rental experience	Positive	1	0.973
The bikes themselves though felt quite unstable to me. The handlebars were wobbly	Negative	-1	0.585
At one station we accidentally tried to unlock a bike that was out of order	Negative	-1	0.943
Anyways - I appreciate the fact that there were / are bikes to rent	Positive	1	0.641
Finally, saw a lot of stations that had 0 to a few bikes, but then a lot more that had 10+	Negative	-1	0.618
I experienced a fairly carefree process in downloading the app, and then using it	Positive	1	0.621
The next bike app is 24 MB, so you may want to download it in advance	Negative	-1	0.639
Once you enter the bike ID you wish to rent on your app, a code is generated	Negative	-1	0.542
One beauty of the process is that you can return the bike to any station	Negative	-1	0.424
The app is clunky, at least in it's Android version, but it does make it easy to use	Positive	1	0.749
The seats on the bikes are adjustable, and the bikes are much better than the ones I've seen elsewhere	Positive	1	0.997
Riding bikes is the best way to see the 'burg! This station based in the heart of the city	Positive	1	0.979
Dear baby Jesus, I need the strength to take a breath and write a review	Negative	-1	0.542
I had friends in from out of town and thought this would be the perfect way to get around	Negative	-1	0.996

# SENTIMENT ANALYSIS

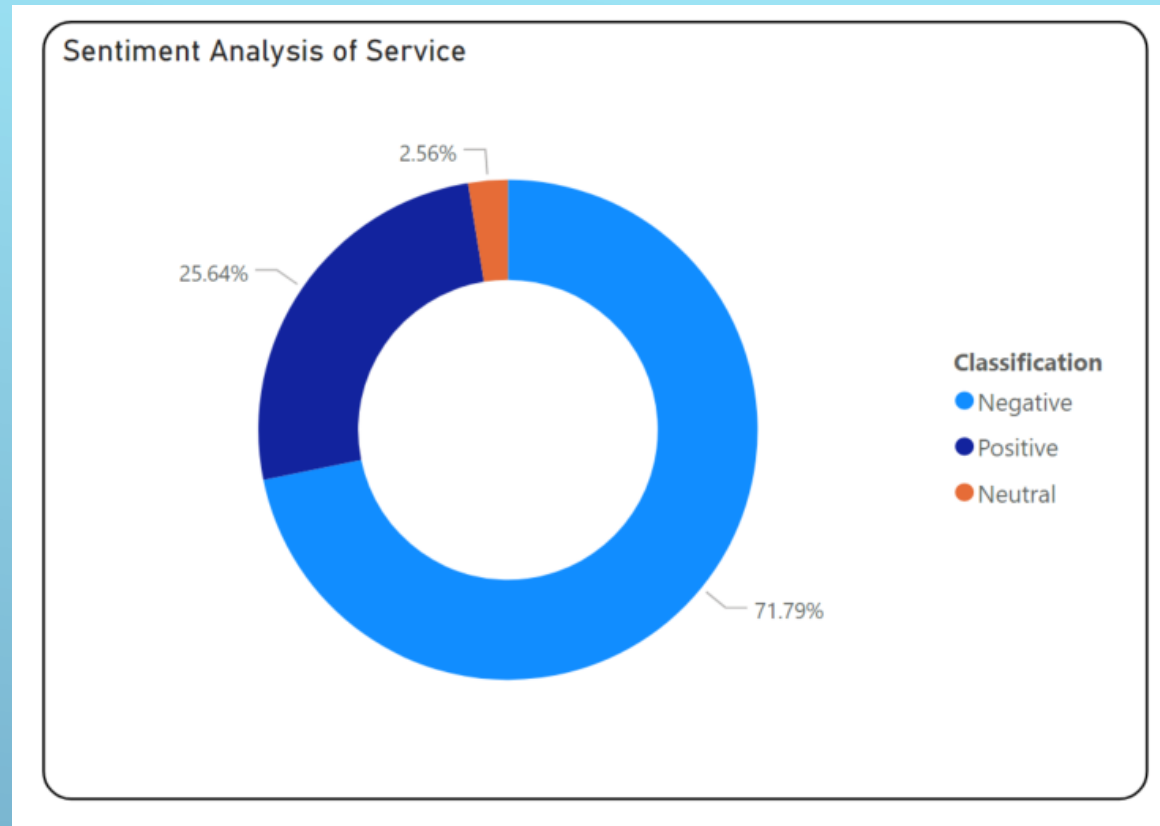
Sentiment Analysis:  
Customer Reviews  
Classification  
Numeric Value assigned to classification  
Confidence of sentiment analysis model to review string

Customer Reviews	Score	Scoring String	Negativity	Positivity	Uncovered T...	Total Tokens
The bikes got us around, but not the best biki...	1.692	best (0.82) ok (0.31) pretty (0.56)	0	1.692	57	60
The bikes themselves though felt quite unsta...	-0.487	unstable (-0.38) share (0.31) worst (-0.79) like (0.38)	1.179	0.692	63	67
At one station we accidentally tried to unlock ...	-2	accidentally (-0.36) error (-0.44) broken (-0.54) broken (-0.54) broken (-0.54) cancel (-0.26) nice (0.46) cancell...	2.923	0.923	139	148
Anyways - I appreciate the fact that there were...	1.077	appreciate (0.44) good (0.49) liked (0.46) cool (0.33) better (0.49) stable (0.31) broken (-0.54) accidentally (-0.3...	1.436	2.513	103	112
Finally, saw a lot of stations that had 0 to a fe...	-0.026	empty (-0.21) better (0.49) no (-0.31)	0.513	0.487	42	45
I experienced a fairly carefree process in dow...	0.846	carefree (0.44) credit (0.41)	0	0.846	20	22
The next bike app is 24 MB, so you may want ...	0.487	want (0.08) credit (0.41)	0	0.487	33	35
Once you enter the bike ID you wish to rent on...	0.436	wish (0.44)	0	0.436	29	30
One beauty of the process is that you can retu...	0.846	beauty (0.72) helps (0.41) drop (-0.28)	0.282	1.128	28	31
The app is clunky, at least in it's Android versi...	0		0	0	23	23
The seats on the bikes are as adjustable, an...	0.462	easier (0.46)	0	0.462	19	20
Riding bikes is the best way to see the 'burg! ...	1.513	best (0.82) share (0.31) recommend (0.38)	0	1.513	80	83
Dear baby Jesus, I need the strength to take ...	2.641	dear (0.41) strength (0.56) amazing (0.72) friendly (0.56) ready (0.38)	0	2.641	78	83
I had friends in from out of town and thought t...	0.718	friends (0.54) perfect (0.69) opportunity (0.46) hard (-0.10) hard (-0.10) confused (-0.33) weird (-0.18) no (-0.31) ...	1.385	2.103	136	146
We went to the kiosk on 10th and Penn and t...	-0.333	good (0.49) number (0.08) bad (-0.64) broken (-0.54) well (0.28)	1.179	0.846	87	92
We gloriously rode down the Penn Ave bike la...	3.026	gloriously (0.74) happy (0.69) awesome (0.79) delicious (0.69) ready (0.38) well (0.28) odd (-0.33) confusing (-...	0.564	3.590	113	121
So we called costumer service and proceede...	0.179	broken (-0.54) great (0.79) convinced (0.44) leave (-0.05) sadly (-0.46)	1.051	1.231	72	77

# THE ANALYSIS

Screenshot of sentiment analysis in rapid miner:

Shows how sentences are separated into individual strings and assigned numeric values. Strings are then tokenized



# THE ANALYSIS

Sentiment Analysis Donut Graph:

2.56% Customers Have Neutral Sentiment

25.64% Customers have Positive Sentiment

71.79% Customers have Negative Sentiment

- Healthy Ride is a healthier option for all who partake
- Likely increases tourist revenue to the city since patrons can perform more self-guided tours
- Great alternative public transportation and walking especially since the onset of Covid-19
- Project would likely see improved customer reviews by fixing technical issues and provide more training to phone staff since most customer sentiments pertained to technical issues of application and dealing with customer service agents

# CONCLUSION

Questions?