Citibike Tableau Challenge

19,766,285

# of Trips of CitiBike between
September 2017 through September 2018.
This is a combined dataset of Manhattan and Jersey City raw data.

Source: https://www.citibikenyc.com/system-data

Citibike Tableau Challenge

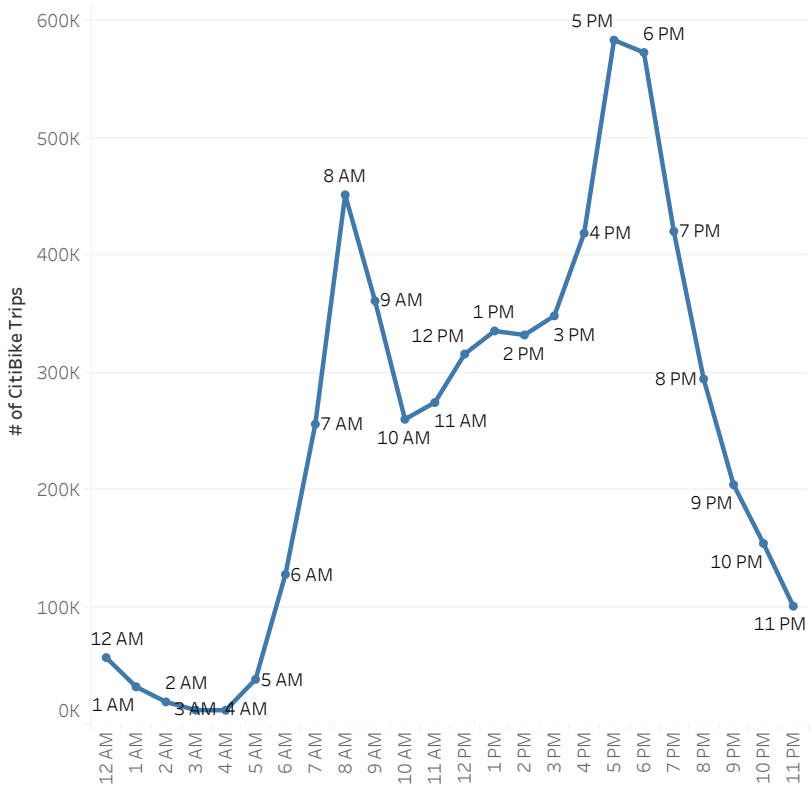
How Many Trips Have been Recorded? | **How has total ridership grown in the past year?** | What are the peak hours during summer months? | What are the peak hours during winter months? | What are the top 10 starting stations? | What are the top 10 ending stations? | What are the bottom 10 starting sta..

	2017	2018
	September	September
# of CitiBike Trips	1,911,217	1,916,906
YoY % Growth		0.30%

Compared to the previous year's September, the ridership has stayed pretty much consistant, grown by 0.30%

Citibike Tableau Challenge

How Many Trips Have been Recorded?	How has total ridership grown in the past year?	What are the peak hours during summer months?	What are the peak hours during winter months?	What are the top 10 starting stations?	What are the top 10 ending stations?	What are the bottom 10 starting sta..



Peak Hour during Summer Months
(June - August) is 8AM and 5PM

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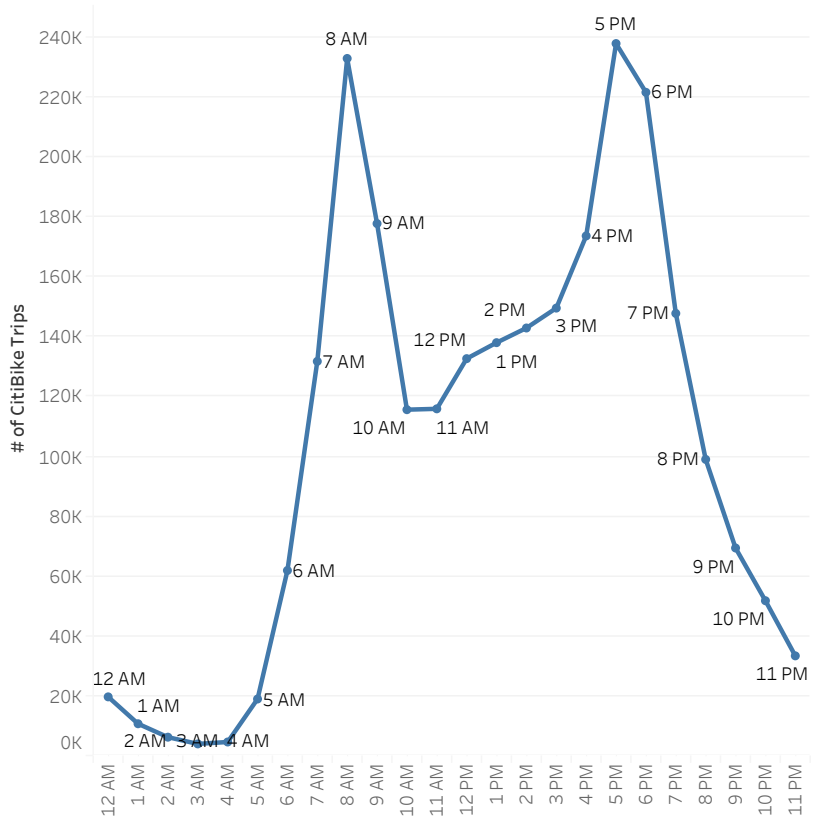
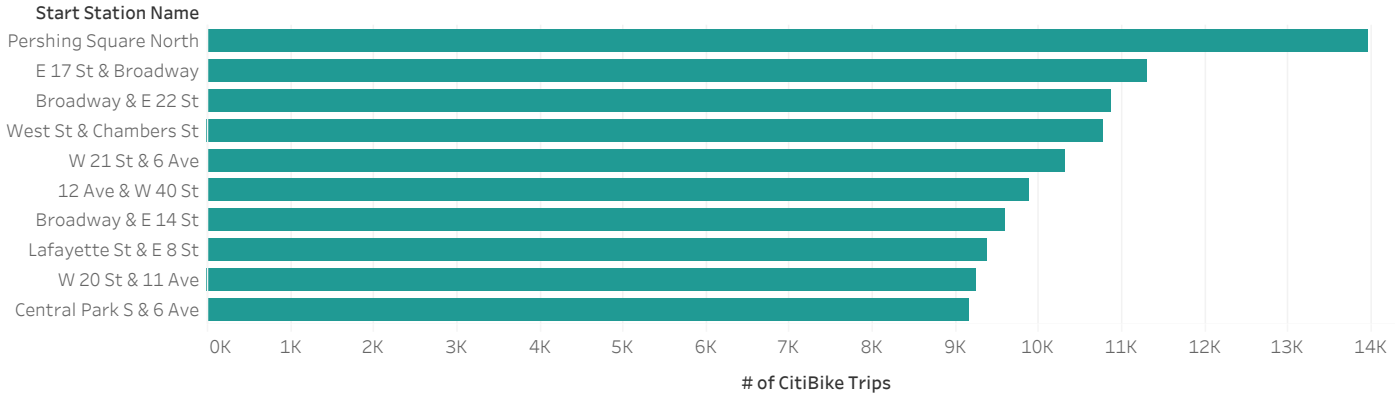
How Many Trips Have been Recorded?	How has total ridership grown in the past year?	What are the peak hours during summer months?	What are the peak hours during winter months?	What are the top 10 starting stations?	What are the top 10 ending stations?	What are the bottom 10 starting stations?



Peak Hour During Winter Months (December - February) is 8AM and 5PM, but with much less overall volume compared to summer months

Citibike Tableau Challenge

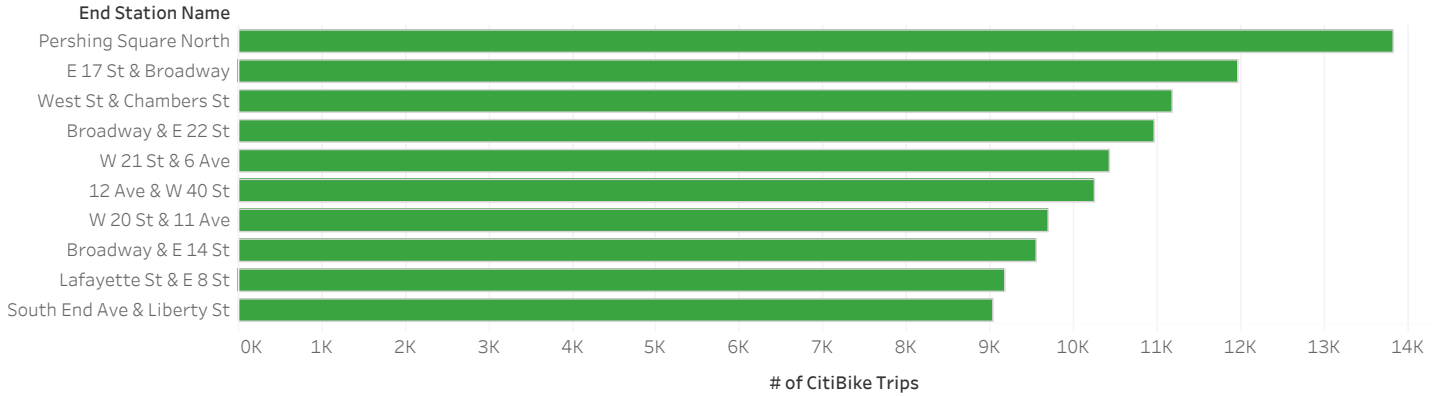
How has total ridership grown in the past year? | What are the peak hours during summer months? | What are the peak hours during winter months? | **What are the top 10 starting stations?** | What are the top 10 ending stations? | What are the bottom 10 starting stations? | What are the bottom 10 ending stations?



Based on the data, we can observe that top 10 stations are located across Manhattan.

Citibike Tableau Challenge

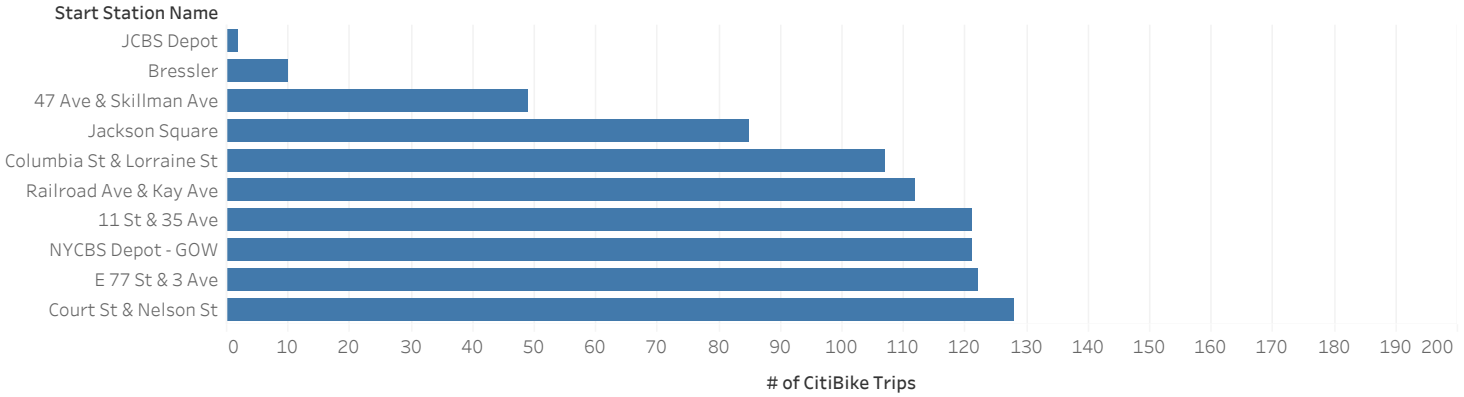
What are the peak hours during summer months? | What are the peak hours during winter months? | What are the top 10 starting stations? | **What are the top 10 ending stations?** | What are the bottom 10 starting stations? | What are the bottom 10 ending stations? | Gender Breakdown current (Sept-2018) participants?



Top Ending Stations resembles the list of top startting staitons. We can make an assumptiton that a lot of citizens use Citibike and return the bike at the station they started the journey.

Citibike Tableau Challenge

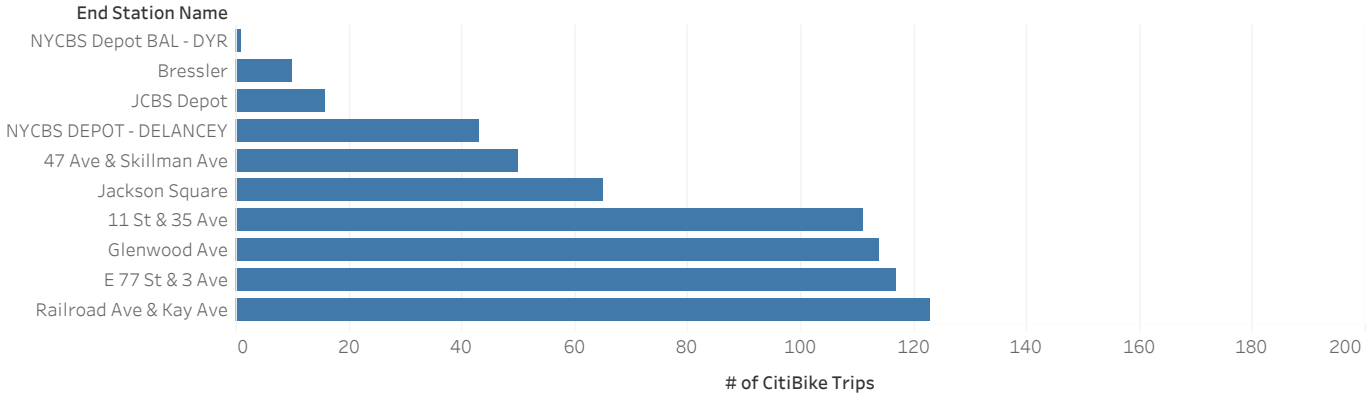
What are the peak hours during winter months? | What are the top 10 starting stations? | What are the top 10 ending stations? | **What are the bottom 10 starting stations?** | What are the bottom 10 ending stations? | Gender Breakdown current (Sept-2018) participants? | Has has Female Ridership grown Year-To-Year?



We can observe from the data that the majority of unpopular stations are located outside of Manhattan.

Citibike Tableau Challenge

What are the top 10 starting stations? | What are the top 10 ending stations? | What are the bottom 10 starting stations? | **What are the bottom 10 ending stations?** | Gender Breakdown current (Sept-2018) participants? | Has has Female Ridership grown Year-To-Year? | How does the average trip duration change by..



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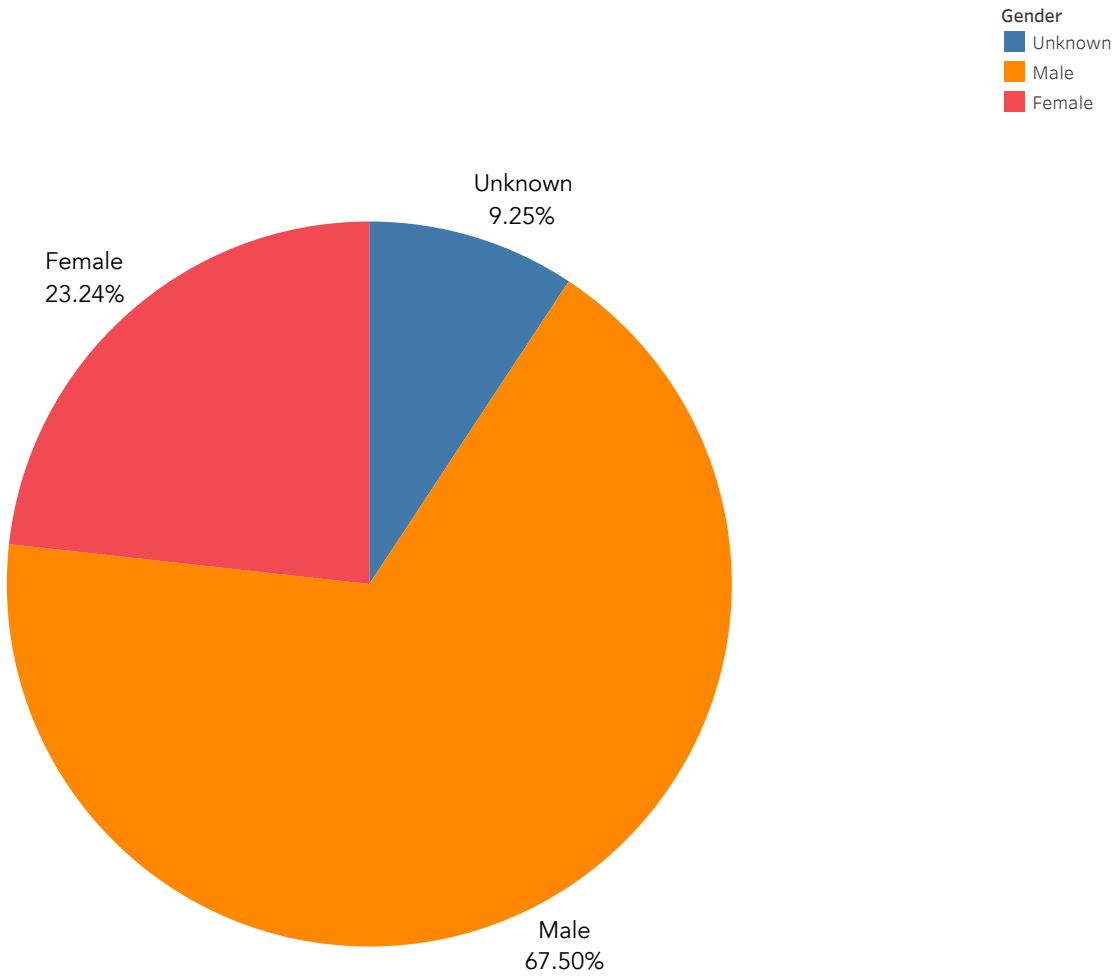
Citibike Tableau Challenge

What are the top 10 ending stations?	What are the bottom 10 starting stations?	What are the bottom 10 ending stations?	Gender Breakdown current (Sept-2018) participants?	Has has Female Ridership grown Year-To-Year?	How does the average trip duration change by age?	What is avg Distance in Miles that a bike is ridden?



Citibike Tableau Challenge

What are the bottom 10 starting stations?	What are the bottom 10 ending stations?	Gender Breakdown current (Sept-2018) participants?	Has has Female Ridership grown Year-To-Year?	How does the average trip duration change by age?	What is avg Distance in Miles that a bike is ridden?	Which Bike (by BikeID) is most likely due for repair?

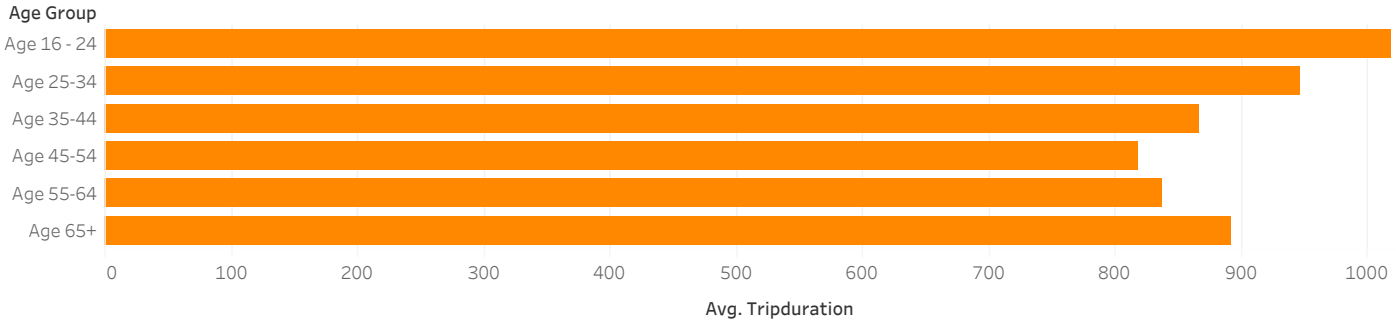
	2017 September			2018 September		
	Unknown	Male	Female	Unknown	Male	Female
# of CitiBike Trips	217,988	1,241,888	451,341	176,261	1,268,754	471,891
YoY % Growth				-19.14%	2.16%	4.55%

Compared to September 2017, ridership for both genders have grown in a year (September 2018). The growth of female ridership has outperformed the growth of male ridership. However, since the ”Unknown” gender suffered a decline, it is hard to conclude whether the female ridership has actually grown, or the program is getting better at capturing gender data compared to previous year.

As a result, it would be premature to conclude that female outreach campaign has been successful.

Citibike Tableau Challenge

What are the bottom 10 ending stations?	Gender Breakdown current (Sept-2018) participants?	Has has Female Ridership grown Year-To-Year?	How does the average trip duration change by age?	What is avg Distance in Miles that a bike is ridden?	Which Bike (by BikeID) is most likely due for repair?	Most Popular Starting Stations w/ Zip Code Data Over..



1) I have created a new field called "Rider Age (Estimated)" by subtracting the existing variable called "Birth Year" from the current year of 2018.

2) Based on the "Rider Age" dimension, I have created 6 distinguishing Age Group and excluded "Null" values. This categorization of age group follows what various industry uses for market research purposes.

3) Observing the bar graph, it is interesting that the avg Trip Duration (in second) declines as you age, and starts back to increase after retirement age when people begin to ride bikes for leisure.

Citibike Tableau Challenge

Gender Breakdown current (Sept-20..	Has has Female Ridership grown Year-To-Year?	How does the average trip duration change by age?	What is avg Distance in Miles that a bike is ridden?	Which Bike (by BikeID) is most likely due for repair?	Most Popular Starting Stations w/ Zip Code Data Overlay	Most Popular Ending Stations w/ Zip Code Overlay

1.301

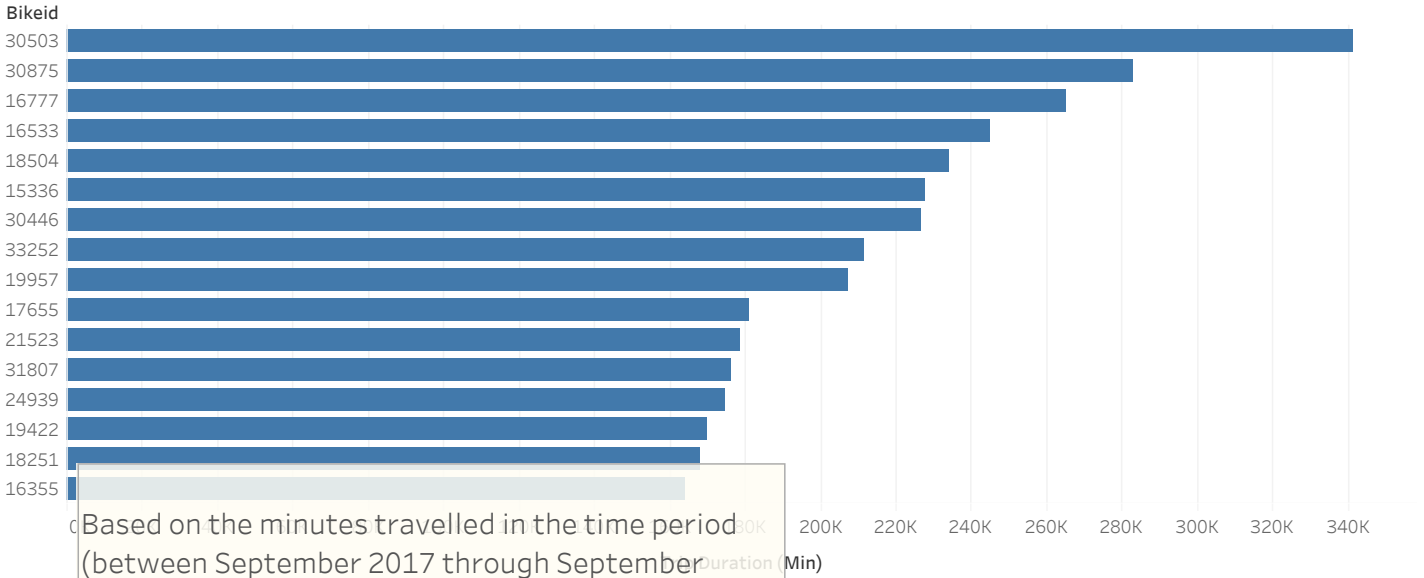
Average distance in miles that a bike is ridden in 1.3 Mile

Distance Equation:

```
3959 * ACOS
(
SIN(RADIANS([Start Station Latitude])) * SIN(RADIANS([End Station Latitude])) +
COS(RADIANS([Start Station Latitude])) * COS(RADIANS([End Station Latitude])) * COS(RADIANS([End Station
Longitude]) - RADIANS([Start Station Longitude]))
)
```

Citibike Tableau Challenge

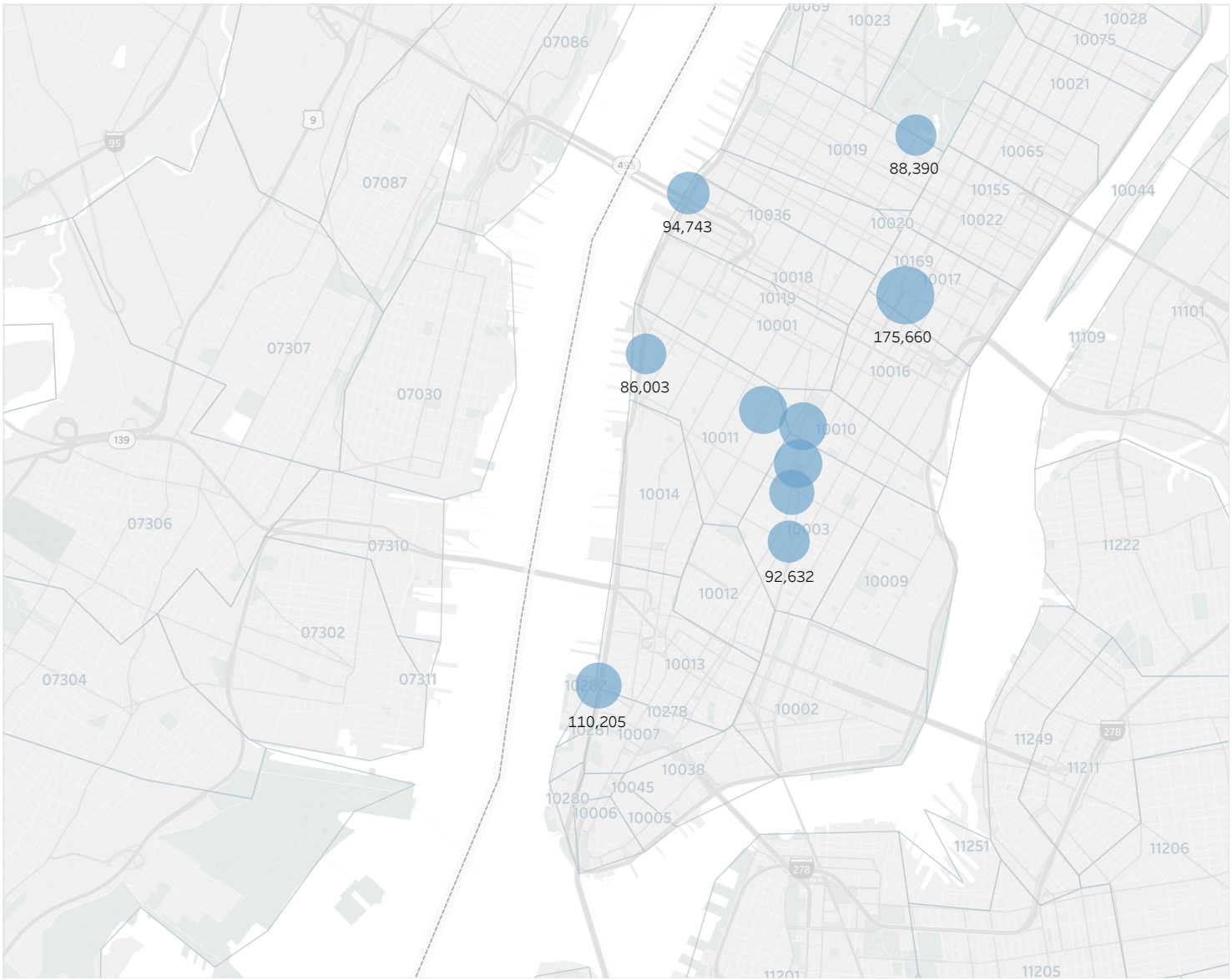
Has has Female Ridership grown Year-To-Year?	How does the average trip duration change by age?	What is avg Distance in Miles that a bike is ridden?	Which Bike (by BikeID) is most likely due for repair?	Most Popular Starting Stations w/ Zip Code Data Overlay	Most Popular Ending Stations w/ Zip Code Overlay	Dynamic Map of Top Station Over Sept 2017 - Sept 2018



Based on the minutes travelled in the time period (between September 2017 through September 2018), it is recommended that these above bikes should be inspected as priority repair target.

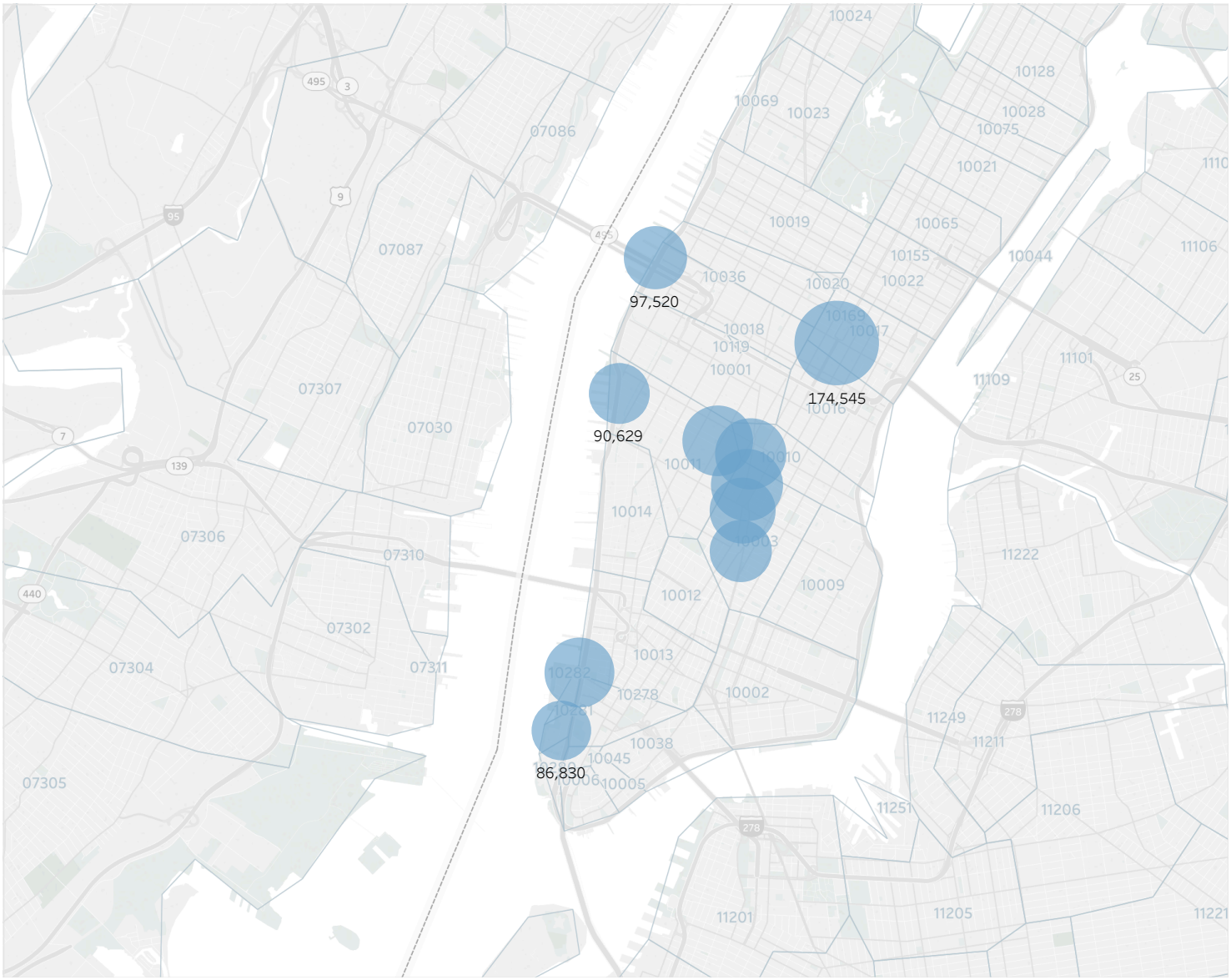
Citibike Tableau Challenge

How does the average trip duration change ..	What is avg Distance in Miles that a bike is ridden?	Which Bike (by BikeID) is most likely due for repair?	Most Popular Starting Stations w/ Zip Code Data Overlay	Most Popular Ending Stations w/ Zip Code Overlay	Dynamic Map of Top Station Over Sept 2017 - Sept 2018	Unexpected Phenomena #1: Ridership Birth Year



Citibike Tableau Challenge

What is avg Distance in Miles that a bike is rid..	Which Bike (by BikeID) is most likely due for repair?	Most Popular Starting Stations w/ Zip Code Data Overlay	Most Popular Ending Stations w/ Zip Code Overlay	Dynamic Map of Top Station Over Sept 2017 - Sept 2018	Unexpected Phenomena #1: Ridership Birth Year	Unexpected #2: Female Customer Age 16-24



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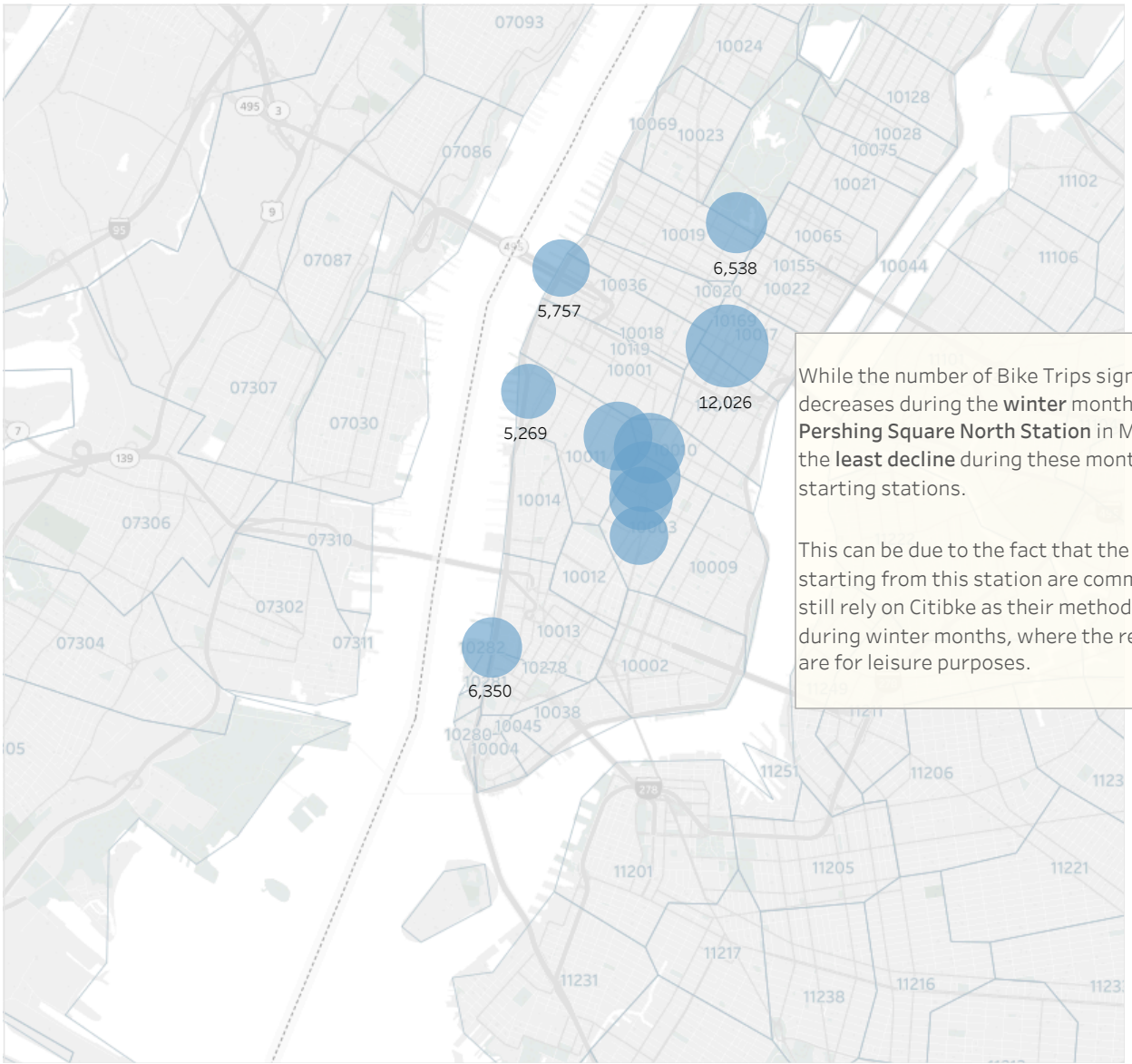

Month of Starttime
April 2018

Show history

While the number of Bike Trips significantly decreases during the **winter** months (Dec-Feb), **Pershing Square North Station** in Midtown suffers the **least decline** during these months among the top starting stations.

This can be due to the fact that the bike riders starting from this station are commuters, and they still rely on Citibke as their method of commutes during winter months, where the rest of top stations are for leisure purposes.

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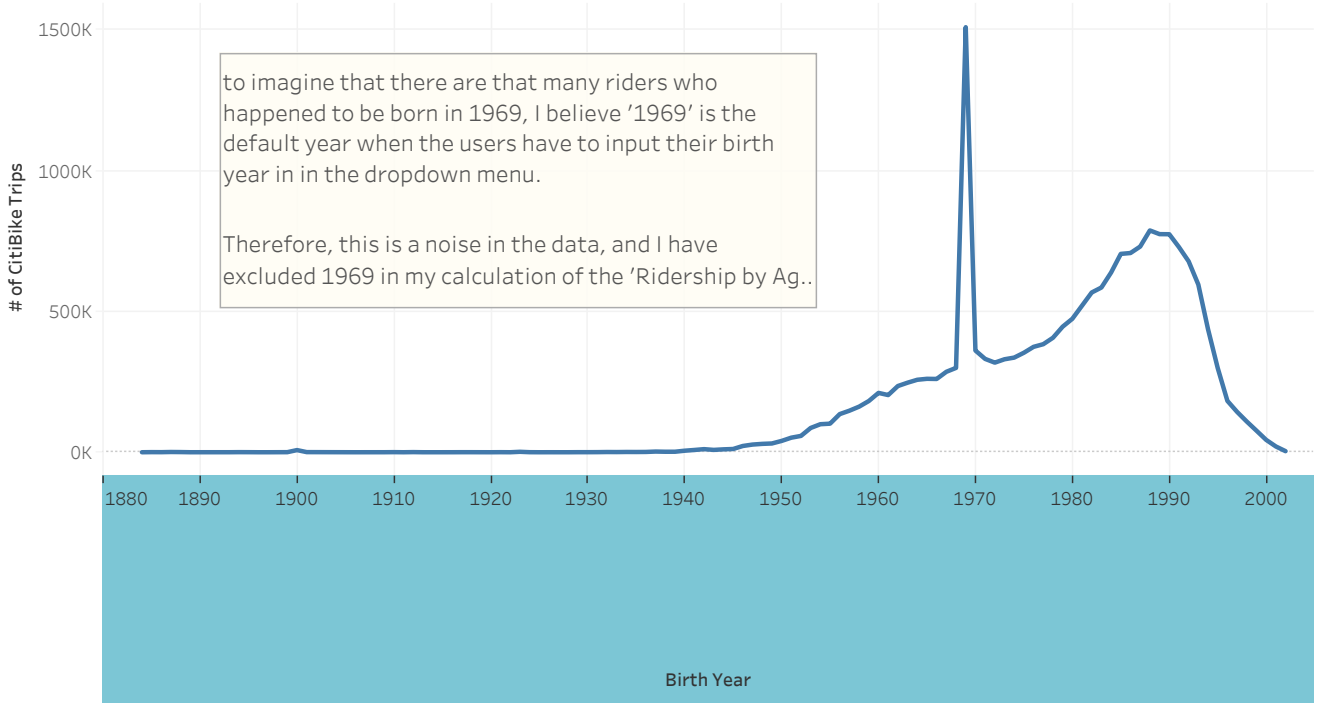
What is avg Distance in Miles that a ..	Which Bike (by BikeID) is most likely due for repair?	Most Popular Starting Stations w/ Zip Code Data Overlay	Most Popular Ending Stations w/ Zip Code Overlay	Dynamic Map of Top Station Over Sept 2017 - Sept 2018	Unexpected Phenomena #1: Ridership Birth Year	Unexpected #2: Female Customer Age 16-24



Citibike Tableau Challenge

Age Group	Gender	Usertype	
Age 16 - 24	Male	Customer	9.40%
		Subscriber	90.60%
	Female	Customer	14.91%
		Subscriber	85.09%
Age 25-34	Male	Customer	3.72%
		Subscriber	96.28%
	Female	Customer	6.48%
		Subscriber	93.52%
Age 35-44	Male	Customer	2.47%
		Subscriber	97.53%
	Female	Customer	4.25%
		Subscriber	95.75%
Age 45-54	Male	Customer	2.02%
		Subscriber	97.98%
	Female	Customer	3.38%
		Subscriber	96.62%
Age 55-64	Male	Customer	1.28%
		Subscriber	98.72%
	Female	Customer	2.25%
		Subscriber	97.75%
Age 65+	Male	Customer	0.99%
		Subscriber	99.01%
	Female	Customer	1.44%
		Subscriber	98.56%

Highlight Gender
No items highlighted

Highlight Usertype
No items highlighted

Highlight Age Group
No items highlighted

Female Age Group 16-24 has the highest share of "Customer" in all age groups and genders. In the assignment, it was mentioned there was a gender outreach campaign to boost Female ridership. If the campaign was mainly focused to target younger female audience, this phenomena might be the impact of the outreach campaign.