**Project Overview**

In this analysis, we explore Tableau, a data analysis and visualization tool which is more popular in today's professional world. It allows data visualization professionals to create assets that are visually appealing and easy for a nontechnical audience or stakeholder to understand. We create this visualization so clear and so helpful to give a chance to stakeholders to go directly to the results and make decisions.

Tableau will help us by

* Providing the tools to create powerful analytic dashboard
* Tell a clear story
* Can easily share with others In fact, we use three core components like worksheets, dashboard and story to dive in and level up our analysis with the most popular data analytic and visualization too, Tableau.

**Resources**

Software: [Jupyter Notebook](https://www.anaconda.com/products/individual), [Tableau](https://public.tableau.com/en-us/s/download/thanks)

Module: Pandas

**Results**

We provide a data visualization by allowing nontechnical audiences to dive in the conclusion of our analysis. This analysis includes two stories using New York city-bike-sharing data, and we discuss them separately as follows:

1- [Bike Journey 1](https://public.tableau.com/profile/homa.almasieh#!/vizhome/BikeJourney1/MinimumTripduration?publish=yes):

i) **Checkout Times for Users**: We analyze the length of time that bikes are checked out for all riders.

[Chart, line chart

Description automatically generated](https://github.com/halmasieh/bikesharing/blob/main/Datasources/Graph1-Story1.PNG)

As shown in the visualization, most bike riding occur in the first 20 minutes and then experiece a downward growth until the first hour. Finally, we observe a constant behaviour.

ii) **Checkout Times by Gender**: Most trip durations are for male with a large difference from female as you see below:

[Chart

Description automatically generated](https://github.com/halmasieh/bikesharing/blob/main/Datasources/Grapg%202-Story%201.PNG)

iii) **Trips by weekday for Each Hour**: We graph the number of bike trips by weekday for each hour of the day as follows:

[A picture containing rectangle

Description automatically generated](https://github.com/halmasieh/bikesharing/blob/main/Datasources/Graph%203-%20Story%201.PNG)

It seems that this amount is more colorful between 6:00 Am and 8:00 Pm.

iv) **Trips by Gender (Weekday per Hour)**: We graph the number of bike trips by gender for each hour of each day of the week as follows:

[Graphical user interface, application, PowerPoint

Description automatically generated](https://github.com/halmasieh/bikesharing/blob/main/Datasources/Graph%204-Story%201.PNG)

As shown in the shaded section, this amount is more meaningful for male between 6:00 Am to 8:00 Pm.

v) **User Trips by Gender by Weekday**: We visualize the number of bike trips by gender for each hour for each day of the week as follows:

[A picture containing graphical user interface

Description automatically generated](https://github.com/halmasieh/bikesharing/blob/main/Datasources/Graph%205-%20Story%201.PNG)

This graph shows that male have more experience of trips on Thursdays and Fridays.

2- [Bike Journey 2](https://public.tableau.com/profile/homa.almasieh#!/vizhome/BikeJourney2/NumberofTripsBetweenTwoStations?publish=yes):

i) **Top Starting Locations**: As shown in the visualization,

[Map

Description automatically generated](https://github.com/halmasieh/bikesharing/blob/main/Datasources/Garph%201-%20Story%202.PNG)

The most popular stations in the city for starting bike journey are marked by larger symbols on the map.

ii) **Top ending Locations**: As shown in the visualization,

[Map

Description automatically generated](https://github.com/halmasieh/bikesharing/blob/main/Datasources/Graph%202-Story%202.PNG)

The most popular stations in the city for ending bike journey are marked by larger symbols on the map.

iii) **August Peak Hours**:

[Chart, bar chart

Description automatically generated](https://github.com/halmasieh/bikesharing/blob/main/Datasources/Graph%203-%20Story%202.PNG)

The peak hour for trips in August occurs at 5:00 Pm and 6:00 Pm.

iv) **Average Trip duration**: By observing the following visualization,

[Chart, histogram

Description automatically generated](https://github.com/halmasieh/bikesharing/blob/main/Datasources/Graph%204-%20story%202.PNG)

we see that, people born in about 1890 and 1970 have the highest average trip, respectively.

v) **Bike Utilization**: As shown in the circle graph,

[A picture containing dome, stone

Description automatically generated](https://github.com/halmasieh/bikesharing/blob/main/Datasources/Graph%205-Story%202.PNG)

the trip duration corresponding to each Bikeid are marked with dynamic symbols.

**Summary**

In fact, we want to use Tableau to create effective visualizations from the Citi Bike data, therefore the key to getting a good visualization—and, really, any good data analysis—is to start with a question. But what is the right question to ask and how do we portray the answer accurately?

However, we need to think critically about which questions are the most important for our analysis. Our opinion can be swayed based on how the data is represented, so we need to consider how our audience will perceive and interpret the results and visualization that we show them.

After identifying the needs and determining the data capacity, we performed the visualization as below, using New York city-bike-sharing data set:

* Show the length of time that bikes are checked out for all riders and genders.
* Show the number of bike trips for all riders and genders for each hour of each day of the week.
* Show the number of bike trips for each type of user and gender for each day of the week.
* Show a symbol map for the most popular bike ride starting and ending locations.
* Show the peak hours of bike riding in August 2019.
* Show the average trip duration in terms of age.

We suggest additional visualizations for future analysis as follows:

1- **Maximum or Minimum Tripduration**: Basically, we can visualize the maximum or minimum of trip duration based on the birth year of the candidates.

[Graphical user interface, application

Description automatically generated](https://github.com/halmasieh/bikesharing/blob/main/Datasources/Max-Min.PNG)

2- **The Number of Trips Between Two Stations**: By determining the number of people travelling between the two stations, it is possible to determine what facilities should be installed along the route for their saftey and which roads shoud be smooth and suitable for bike riding.

[A screenshot of a computer

Description automatically generated with medium confidence](https://github.com/halmasieh/bikesharing/blob/main/Datasources/Station.PNG)