

# Plotly & Dash Presentation

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# 01

# Pandas & Mlxtend





- **Pandas** is a data analysis and manipulation tool for Python,. It has functions for analyzing, cleaning, exploring and manipulating datasets.
- We used Pandas in our project to help us in the **data cleaning process** (delete rows that are not relevant in the dataset, or contains wrong values, like empty or NULL values...)



- **Mlxtend** is a Python library of useful tools for the day-to-day data science tasks.
- One of the tools contained in mlxtend is the **Apriori** algorithm.
- Apriori is a popular algorithm for extracting frequent itemsets and identifying underlying **relations between different items**.
- We used Apriori to search for **modalities that tend to appear together** in our dataset regarding **answers** to the survey...

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# 02


## Plotly

Plotly Open Source Graphing  
Library





**Plotly** is an open-source, browser-based graphing library, it provides **online graphing, analytics, and statistics tools** for individuals and collaboration, as well as **scientific graphing libraries** for a variety of different programming languages :

- Python
  - R
  - Javascript
  - Julia
  - Matlab
  - ...
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**Plotly.py** is the Plotly graphing library for Python, used to make interactive graphs :

- Line plots
- Scatter plots
- Bar charts
- Box plots
- Histograms
- ...

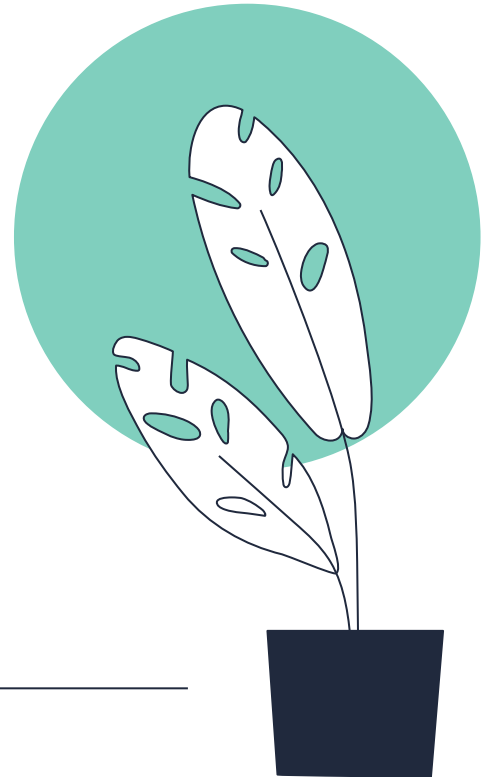
Plotly.py is free and open source and everyone can view the source, report issues or contribute on GitHub.

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# Plotly code Example

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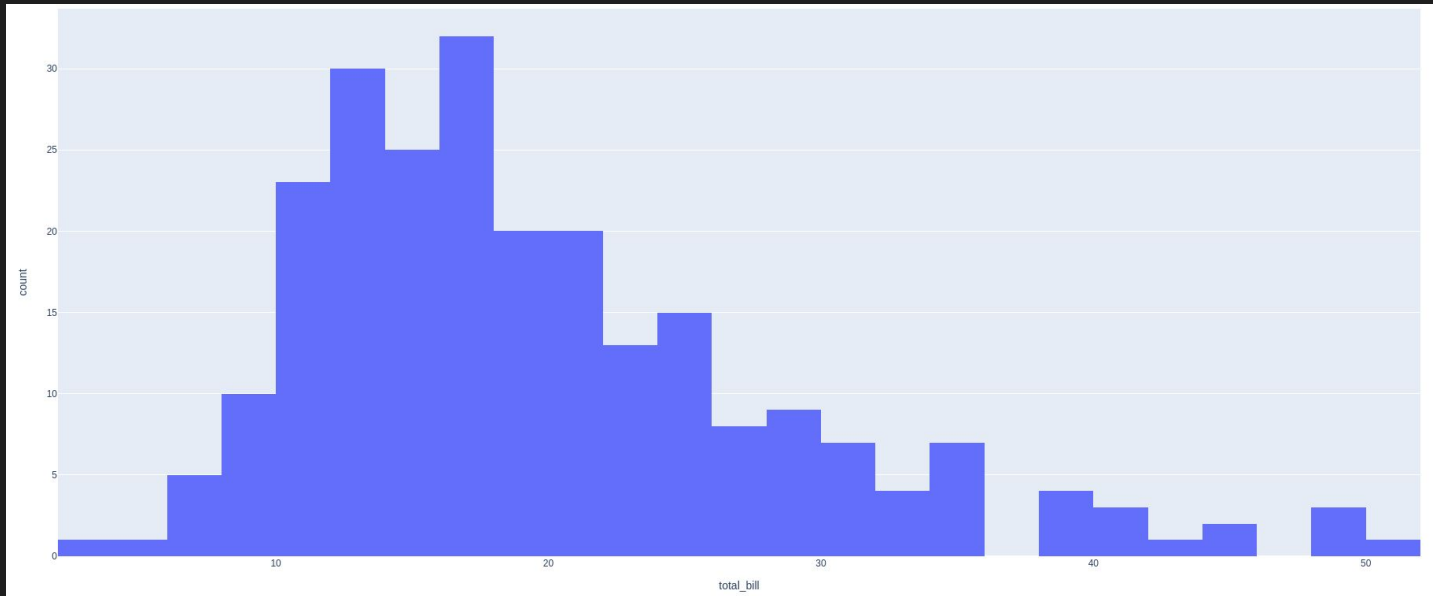


```
import plotly.express as px
df = px.data.tips() # Information about tips received by waiters in a restaurant
print(df)
```

|     | total_bill | tip  | sex    | smoker | day  | time   | size |
|-----|------------|------|--------|--------|------|--------|------|
| 0   | 16.99      | 1.01 | Female | No     | Sun  | Dinner | 2    |
| 1   | 10.34      | 1.66 | Male   | No     | Sun  | Dinner | 3    |
| 2   | 21.01      | 3.50 | Male   | No     | Sun  | Dinner | 3    |
| 3   | 23.68      | 3.31 | Male   | No     | Sun  | Dinner | 2    |
| 4   | 24.59      | 3.61 | Female | No     | Sun  | Dinner | 4    |
| ... | ...        | ...  | ...    | ...    | ...  | ...    | ...  |
| 239 | 29.03      | 5.92 | Male   | No     | Sat  | Dinner | 3    |
| 240 | 27.18      | 2.00 | Female | Yes    | Sat  | Dinner | 2    |
| 241 | 22.67      | 2.00 | Male   | Yes    | Sat  | Dinner | 2    |
| 242 | 17.82      | 1.75 | Male   | No     | Sat  | Dinner | 2    |
| 243 | 18.78      | 3.00 | Female | No     | Thur | Dinner | 2    |

```
[244 rows x 7 columns]
```

```
fig = px.histogram(df, x="total_bill")  
fig.show()
```




# 03

## Dash

Open Source Dashboard creation  
Framework





- **Dash** is an open-source Python framework for creating dynamic, web-based analytic applications.
  - Written on top of **Plotly.js** and **React.js**, Dash is ideal for building data apps with customized user interfaces. It's particularly suited for anyone who works with data.
  - Dash makes it very simple to build a GUI around your data analysis code.
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# Dash code Example

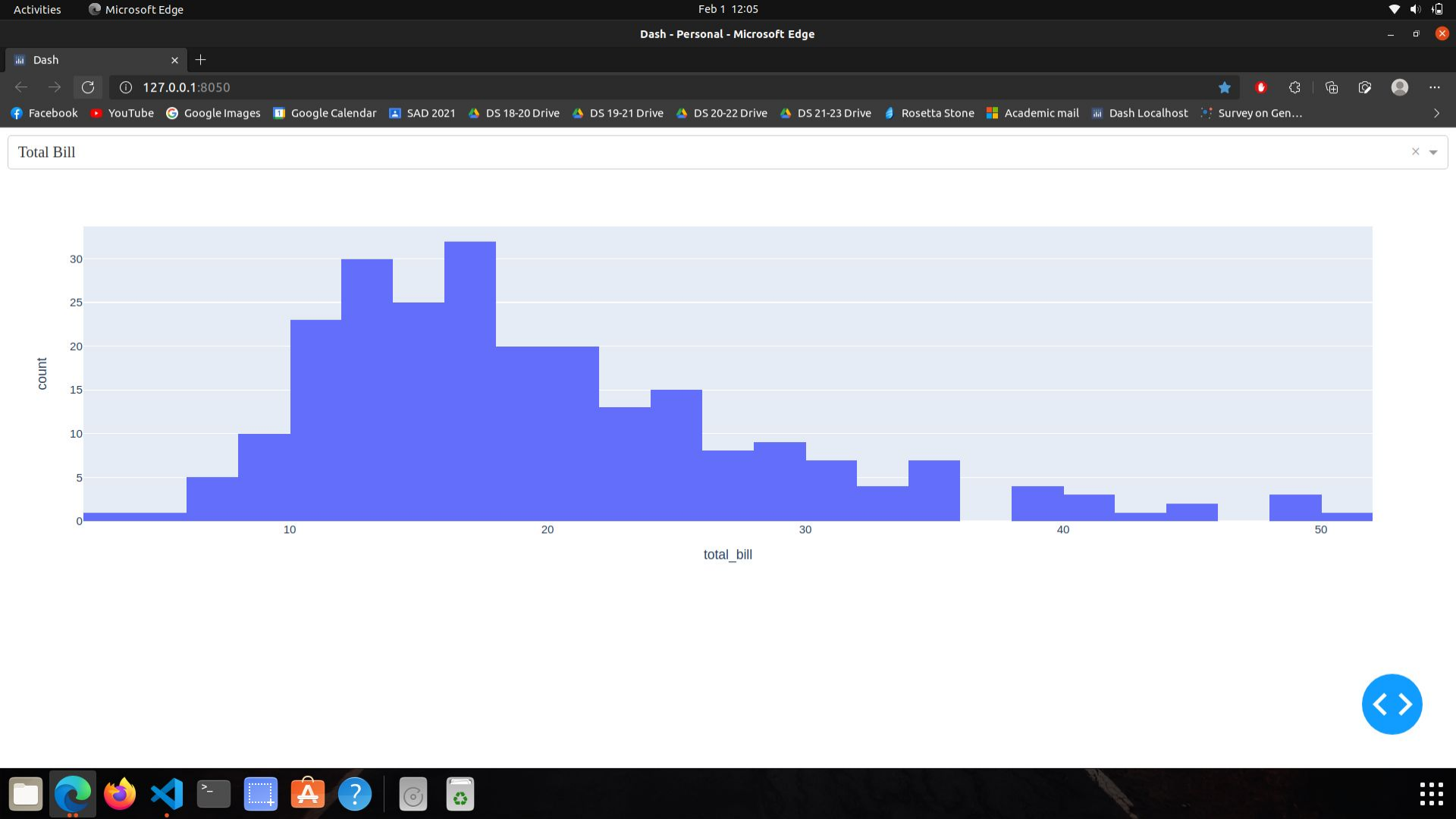
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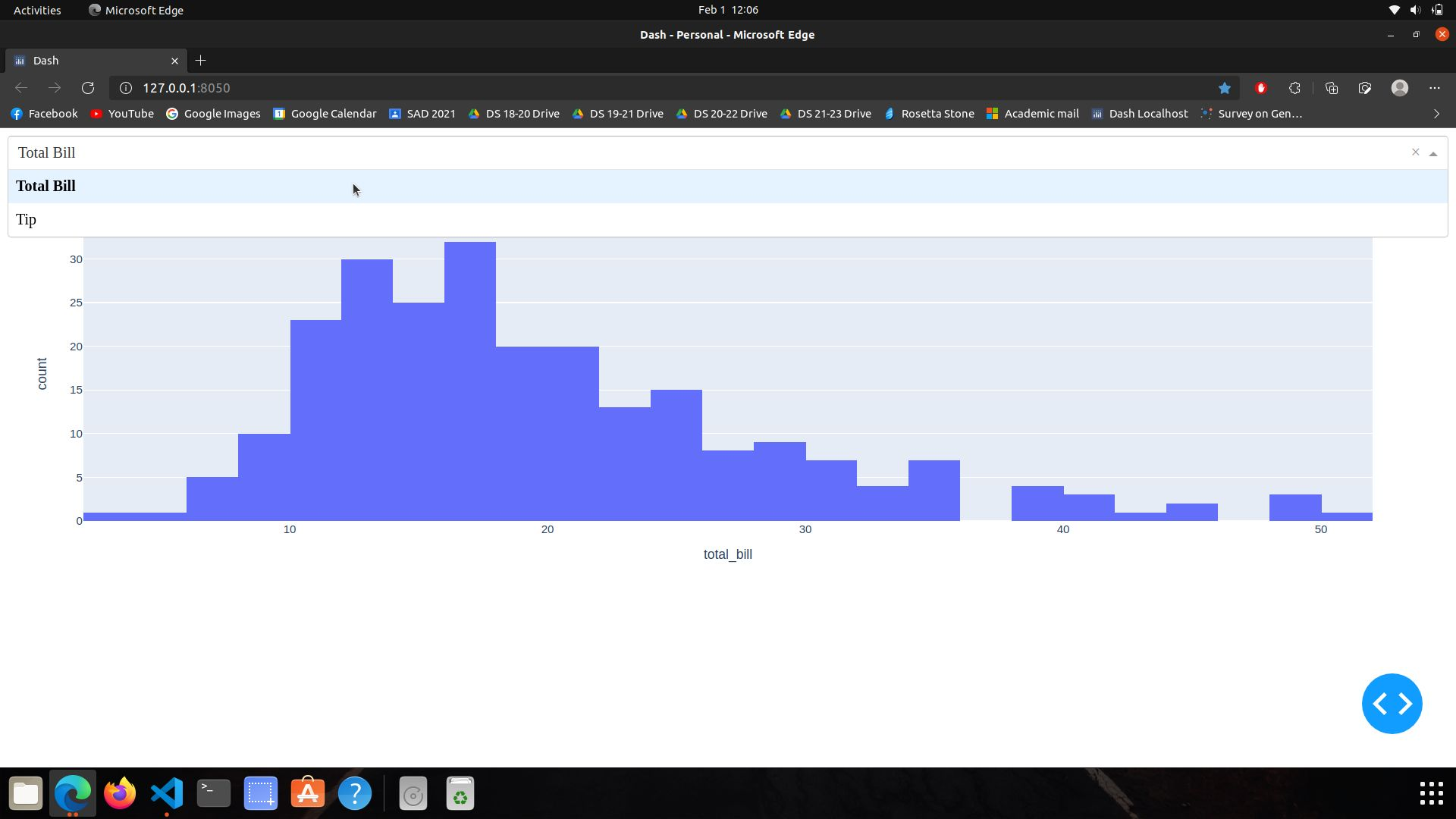


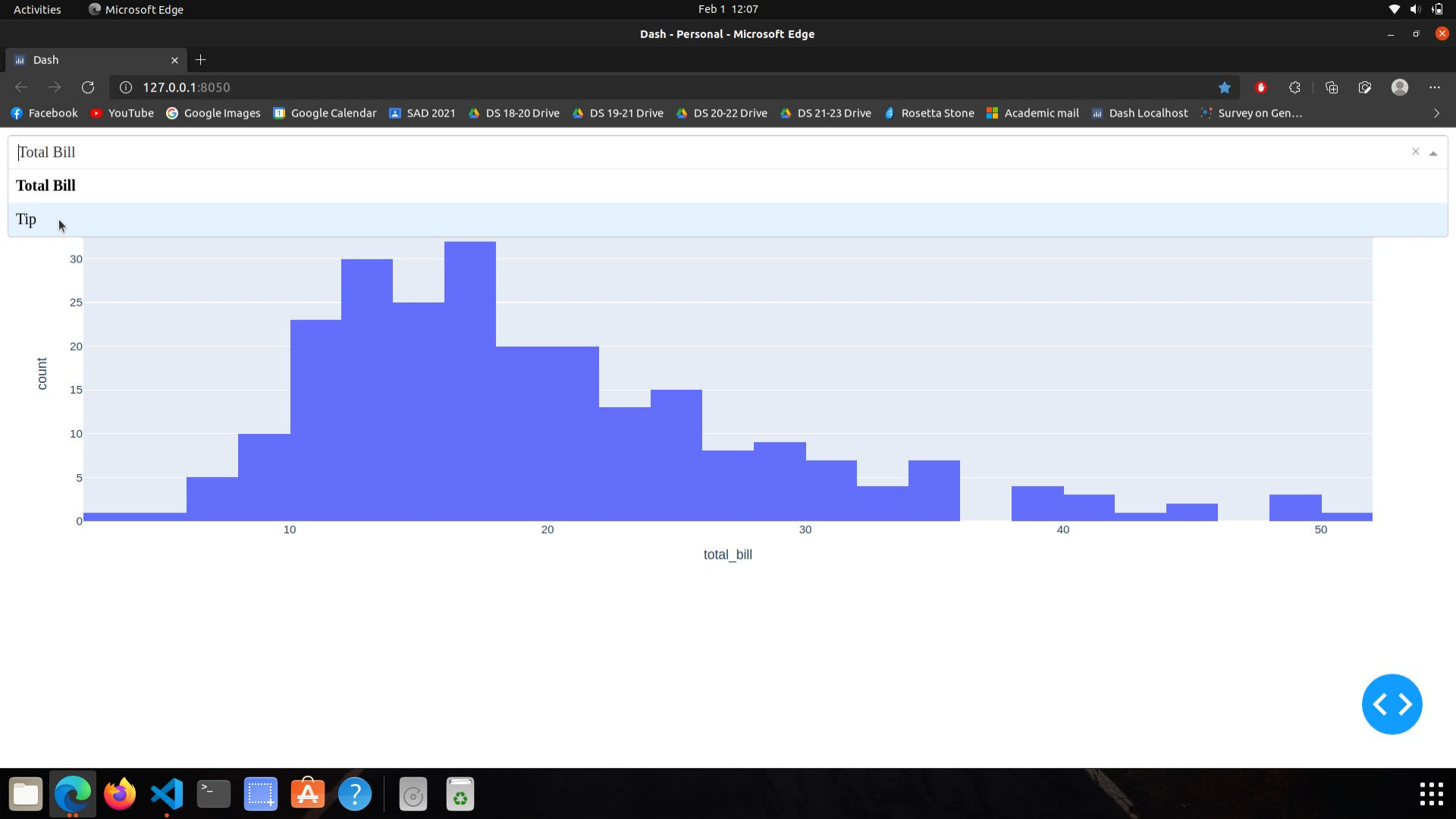


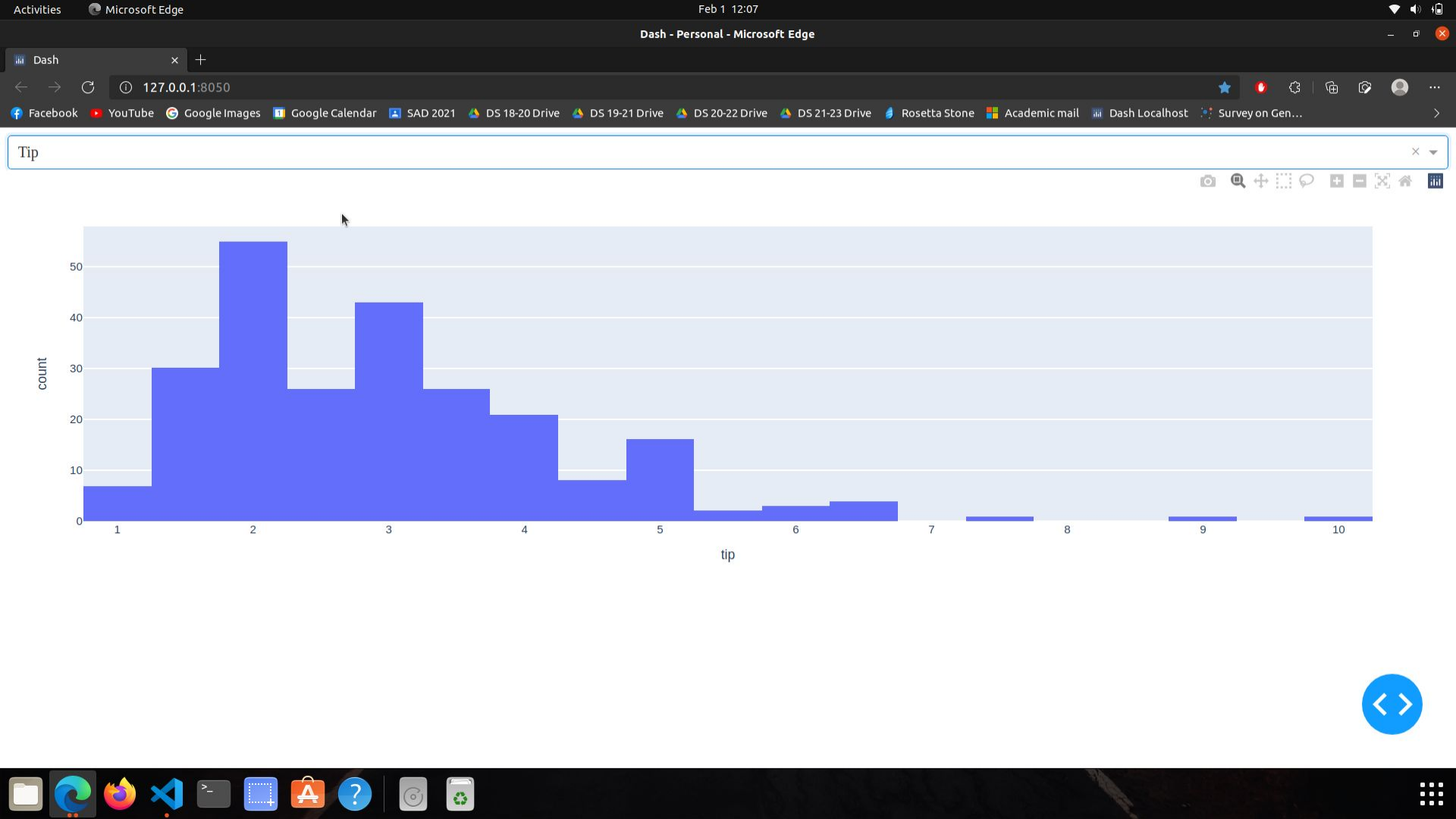












# 04

## Demo

Gender Equality Analysis  
Dashboard





# Thanks

For Your Attention



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# References

- <https://pandas.pydata.org/>
  - <http://rasbt.github.io/mlxtend/>
  - <https://plotly.com/graphing-libraries/>
  - <https://en.wikipedia.org/wiki/Plotly>
  - <https://plotly.com/python/>
  - <https://dash.plotly.com/>
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