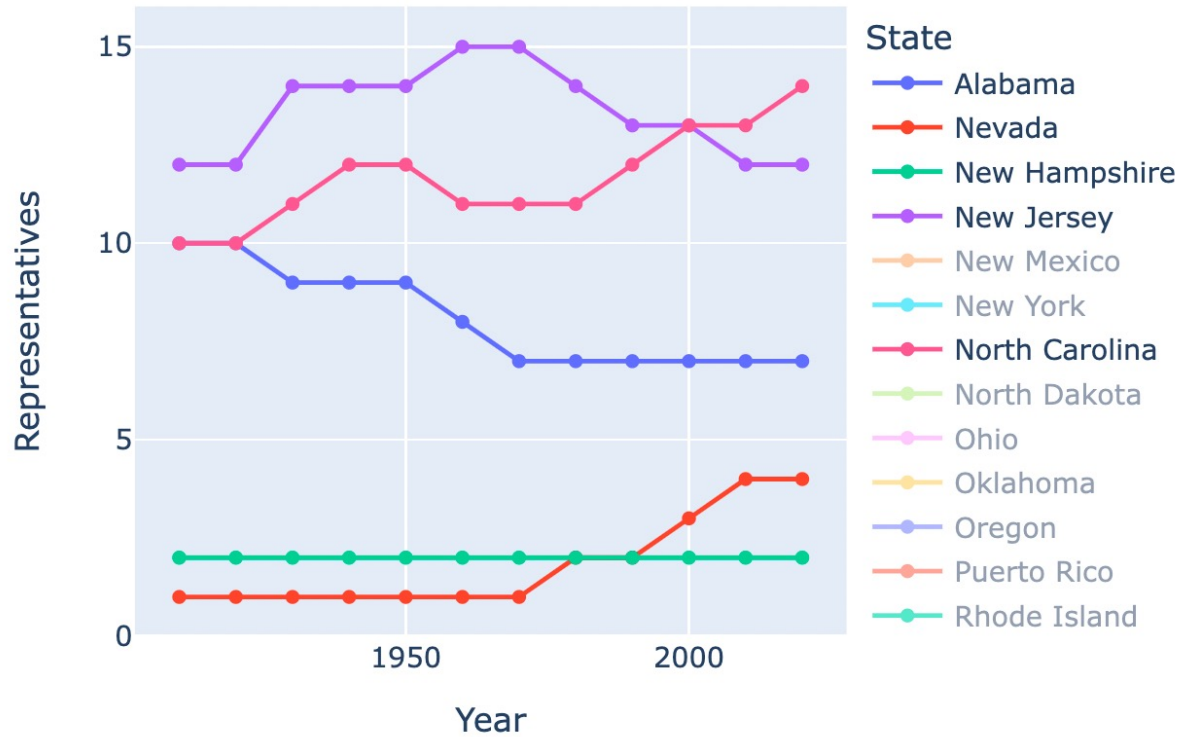


Bar Charts

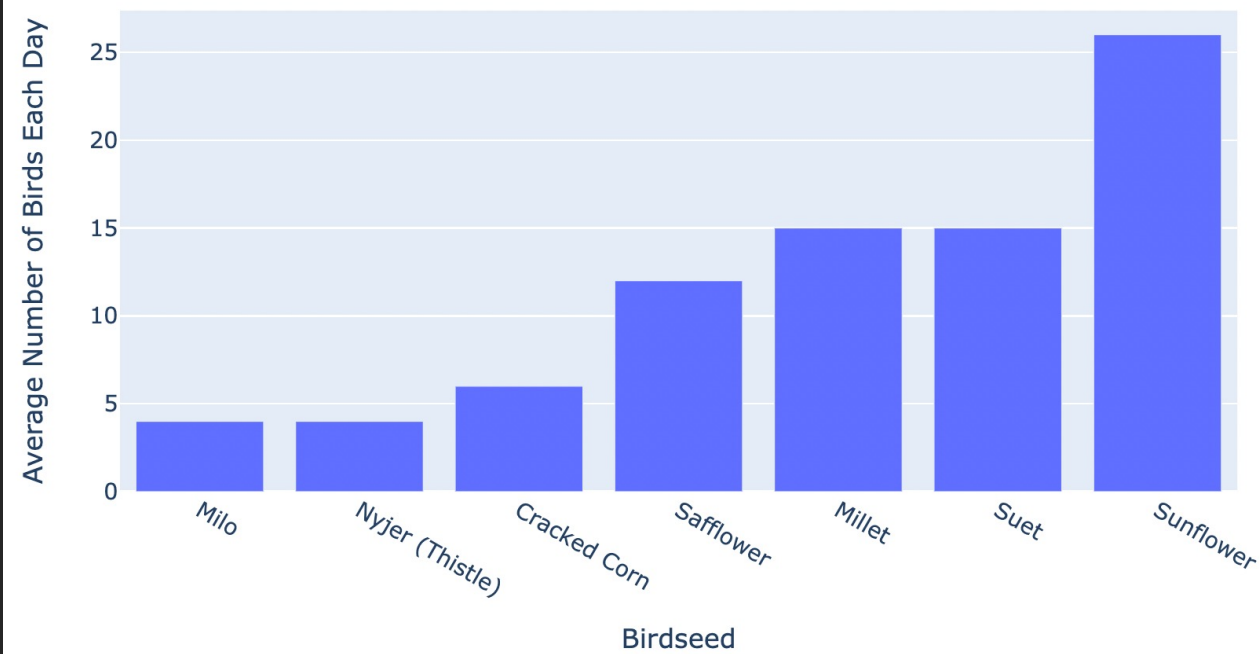
One Way to Plot Categorical Data

Think Share: Line Charts vs Bar Charts

Number of US Representatives by State (1910-2020)



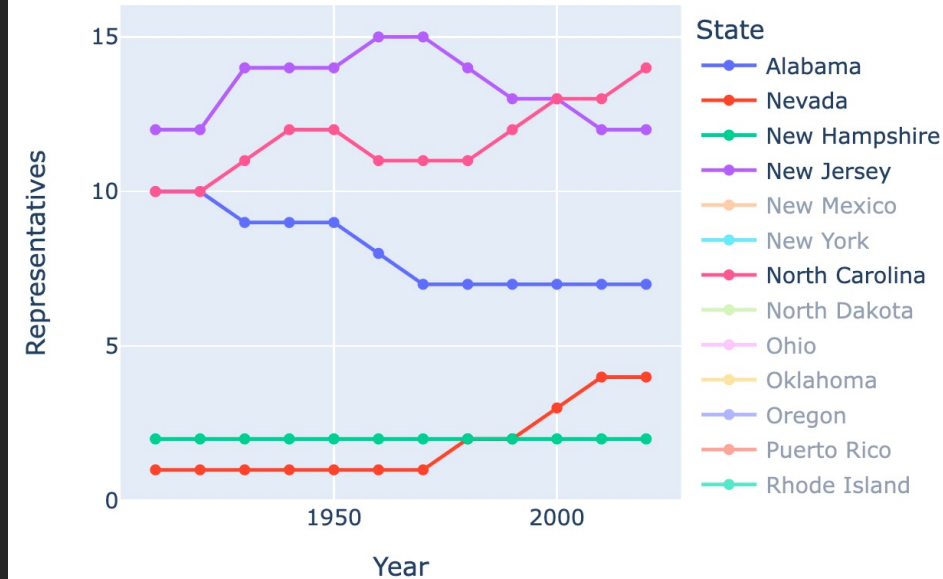
Most Popular Types of Birdseed by Average Number of Birds Attracted



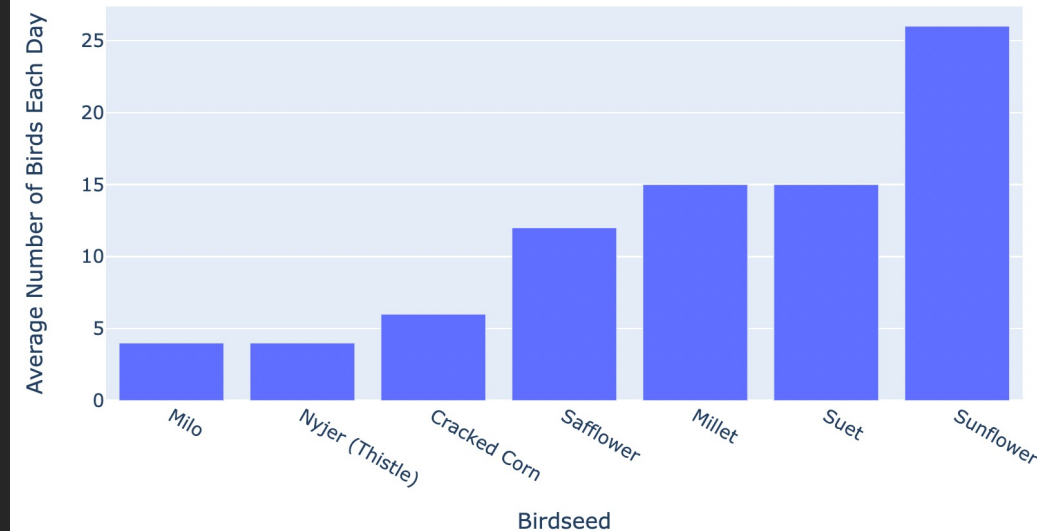
Line Charts vs Bar Charts

- Independent variable
 - Line: unit of time
 - Bar: any categorical data (or binned numerical data)
- Number of y values for each x (**Same!**)
 - Line: only one y for each x
 - Bar: only one y for each x
- Representation
 - Line: points connected by line
 - Bar: separate rectangles for each category where size indicates category's value

Number of US Representatives by State (1910-2020)



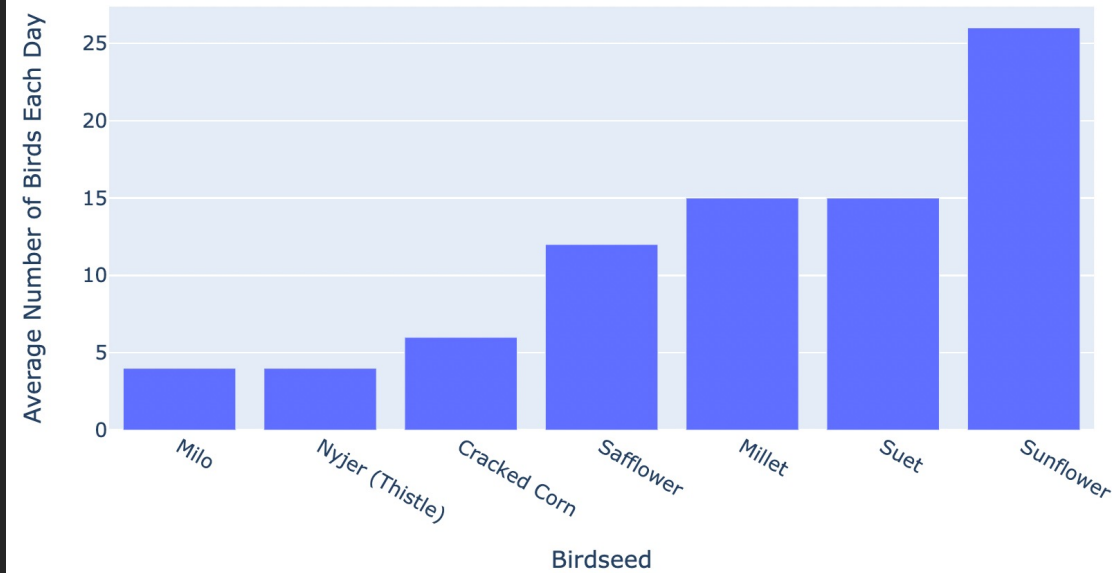
Most Popular Types of Birdseed by Average Number of Birds Attracted



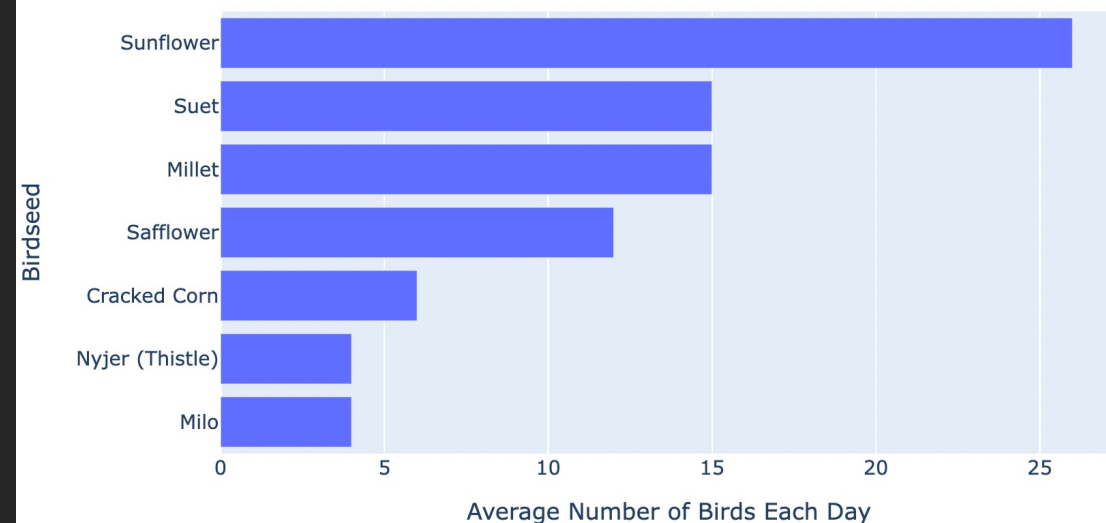
Bar Charts

- Orientation can be vertical or horizontal!
- Still have independent and dependent variables but no longer synonymous with x and y
- Independent is the category, dependent is the category's value

Most Popular Types of Birdseed by Average Number of Birds Attracted



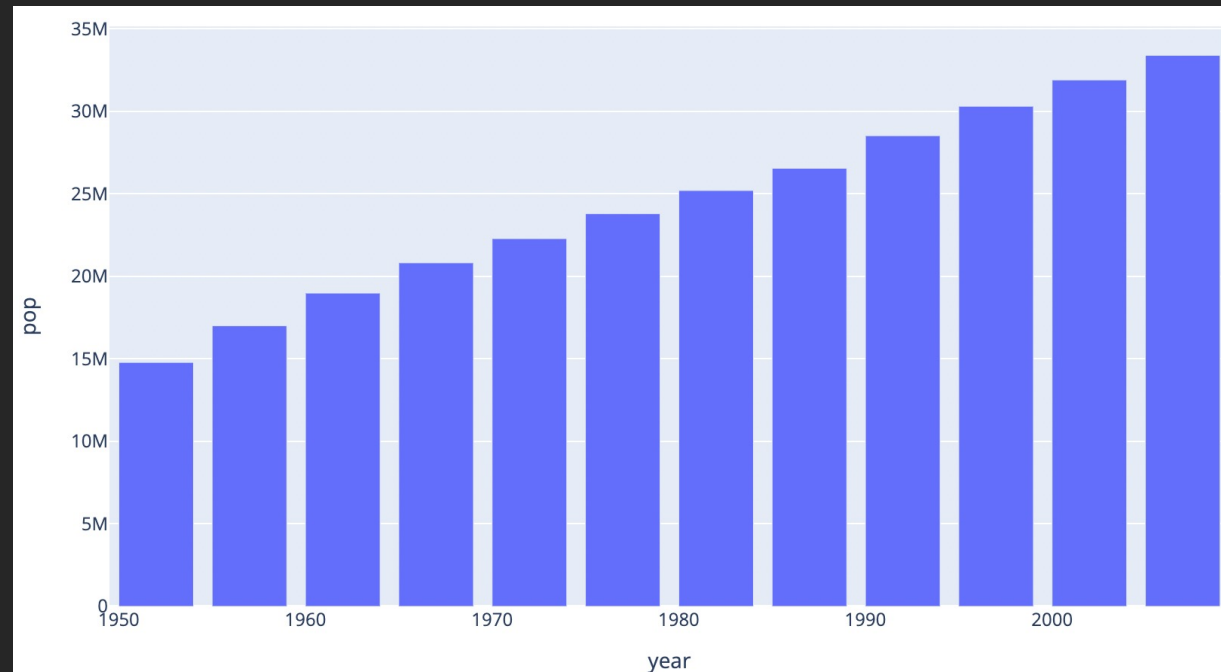
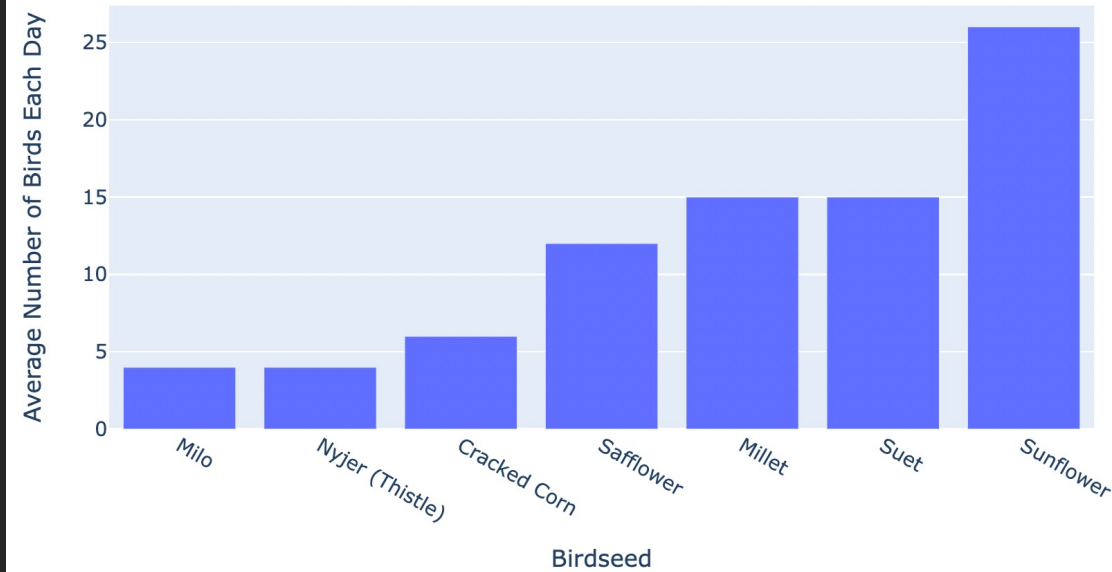
Most Popular Types of Birdseed by Average Number of Birds Attracted



Bar Charts: Sorting

- In most cases, we want to sort the data to be able to show the strongest conclusions.
- We can sort by either category or values!
- If category has implicit ordering, we sort by that, otherwise by category values.

Most Popular Types of Birdseed by Average Number of Birds Attracted



How-to: Make Bar Charts in Jupyter

1. Read CSV Data into Pandas Dataframe

- Import Pandas Library
- Read CSV data and Save in Variable
- Sort Data
- Display Dataframe Contents

2. Generate Plotly Line Chart

- Import Plotly Express Library
- Set Columns as category and value
- Set Additional Plot Options (Optional)
- Generate Chart

How-to: Switch Orientation of Bar Chart

- Vertical Orientation

```
px.bar(df, x=category, y=values, labels=labels, title=title)
```



How-to: Switch Orientation of Bar Chart

- Horizontal Orientation

```
px.bar(df, x=values, y=category, labels=labels, title=title)
```



Summary

- Bar charts
- Line charts vs bar charts
- Plotly bar charts with Blockly