Visualizing Frequency Distributions: Takeaways

Syntax

- Generating a bar plot for a frequency distribution table:

```
Series.value_counts().plot.bar()
```

- Generating a horizontal bar plot for a frequency distribution table:

```
Series.value_counts().plot.barh()
```

- Generating a pie chart for a frequency distribution table:

```
Series.value_counts().plot.pie()
```

- Making the pie chart a circle and adding percentages labels:

```
import matplotlib.pyplot as plt
Series.value_counts().plot.pie(figsize=(6,6), autopct='%.1f%%')
plt.ylabel('') # removes the label of the y-axis
```

- Generating a histogram for a series:

```
Series.plot.hist()
```

Concepts

- To visualize frequency distributions for *nominal* and *ordinal* variables, we can use:
    - **Bar plots**.
    - **Pie charts**.
- To visualize frequency distributions for variables measured on an interval or ratio scale, we can use a **histogram**.
- Depending on the shape of the histogram, we can have:
    - **Skewed** distributions:
        - Left skewed (negatively skewed) — the tail of the histogram points to the left.
        - Right skewed (positively skewed) — the tail of the histogram points to the right.
    - **Symmetrical** distributions:
        - **Normal** distributions — the values pile up in the middle and gradually decrease in frequency toward both ends of the histogram.
        - **Uniform** distributions — the values are distributed uniformly across the entire range of the distribution.

Resources

- An introduction to bar plots.
- An introduction to pie charts.
- An introduction to histograms.

- An introduction to skewed distributions.
- More details on the normal distribution.