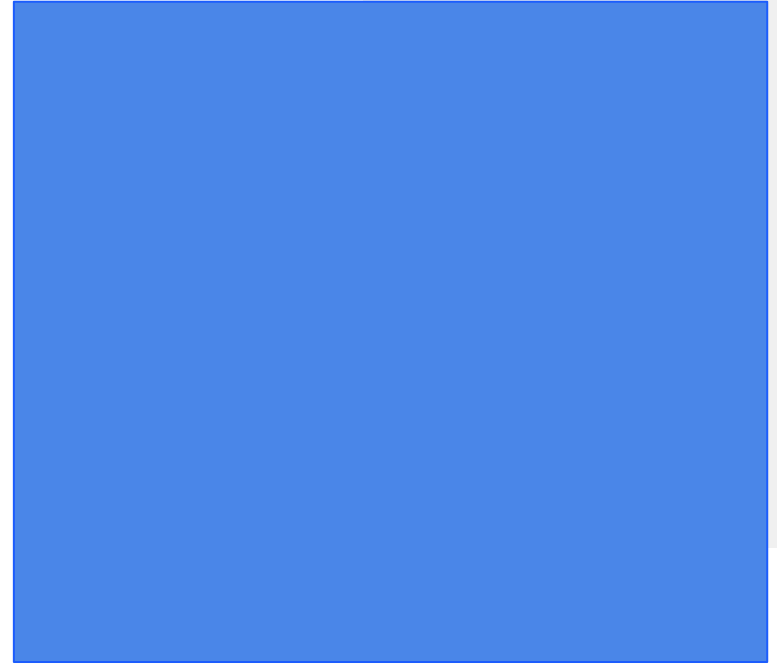# Big Data Analytics

Dr Sirintra Vaiwsri | Email: sirintra.v@itm.kmutnb.ac.th

Visualisation and Visualisation Categories

Visualisation (EasyBI, 2023)

- Visualisation is a way to represent information.

- Data visualisation helps data analysts understand complex relationships between variables such as helping to identify patterns and trends of data.

- Visualisation Chart Categories:
  - Comparison
  - Composition
  - Distribution
  - Relationship

Dr Sirintra Vaiwsri

Comparison **(Temple University, 2023)**

- It suits for comparing variables:

  - To find the highest and lowest points in data.

  - To understand the increasing and decreasing values.

- Comparison charts such as:

  - Column chart - small data and oriented vertically

  - Bar chart - complexed and detailed data, long x-axis labels, and oriented horizontally

  - Line chart - analysing trends

  - Choropleth - geographical data

Dr Sirintra Vaiwsri

Composition (Temple University, 2023)

- It is suited for comparing a part to a whole.

- It is in a percentage form.

- Composition charts such as:

  - Pie chart - small data and clear differences between variables

  - Stacked bar/column chart - multiple levels of the same variables

Dr Sirintra Vaiwsri

Distribution (Temple University, 2023)

- It is suited for analysing distribution analysis such as mean, range, and outliers.

- Distribution charts such as:
  - Line chart - analysing trends
  - Scatter plot - small data and highlighting the similarities between variables
  - Bar/Column histogram - relationship of a variable over a set of categories

6

Dr Sirintra Vaiwsri

Relationship (Temple University, 2023)

- It is suited for analysing the relationship between two or more variables.

- It can be used to identify outliers and trends of data clusters.

- Relationship charts such as:

  ○ Scatter plot - small data and highlighting the similarities between variables

  ○ Bubble chart - represents three or more dimensions of data where the larger bubble shows the higher percentage of total value in that bubble.

Dr Sirintra Vaiwsri
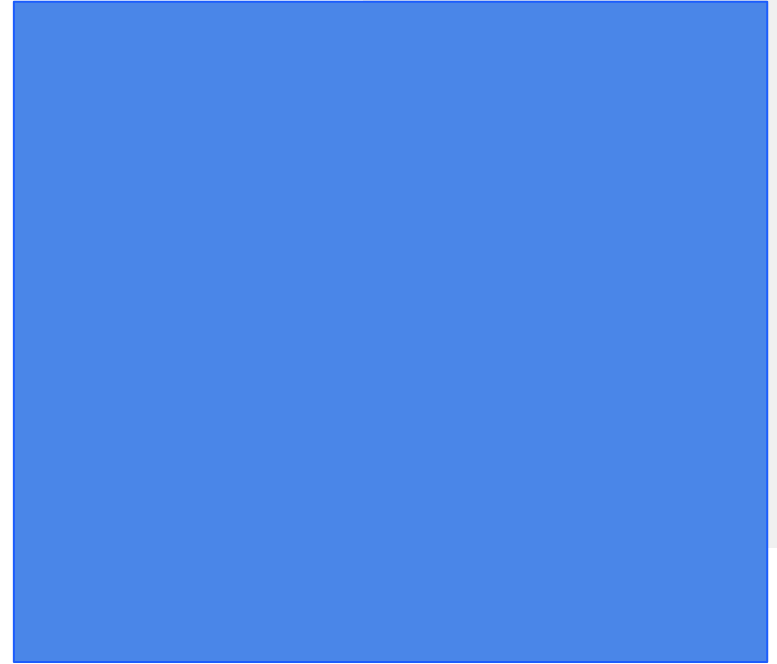
Visualisation Table and Charts

Table (EasyBI, 2023)

- Table is suitable for illustrating a small number of variables and data points.

- It is often used when:

  - Represent comparison, composition, or relationship visualisation.

  - Data can be easily interpreted from a table.

  - Individual values are needed to be compared.

  - Require precise values

Dr Sirintra Vaiwsri
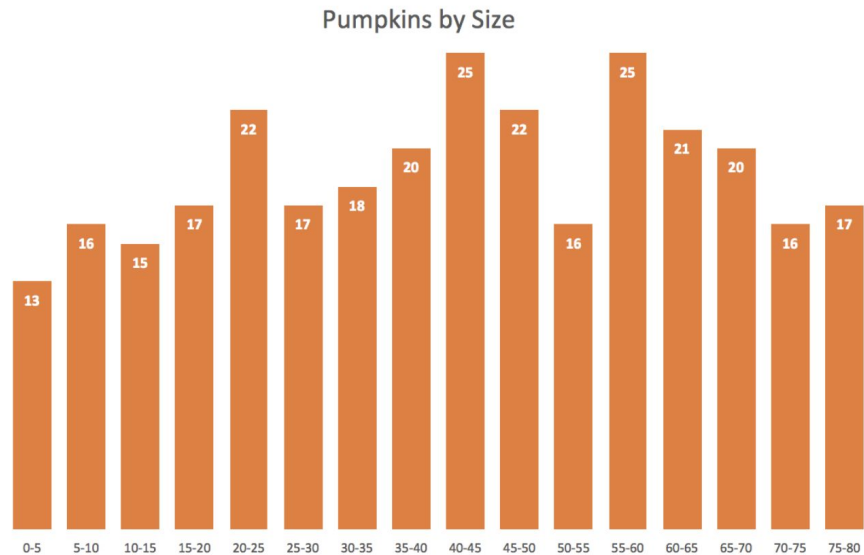
Column Chart (EasyBI, 2023)

- It is used for comparing different values.

- It shows the comparison of individual values between columns.

- It can be used to compare values between different categories or value changes in the same category.

EasyBI, 2023

Dr Sirintra Vaiwsri
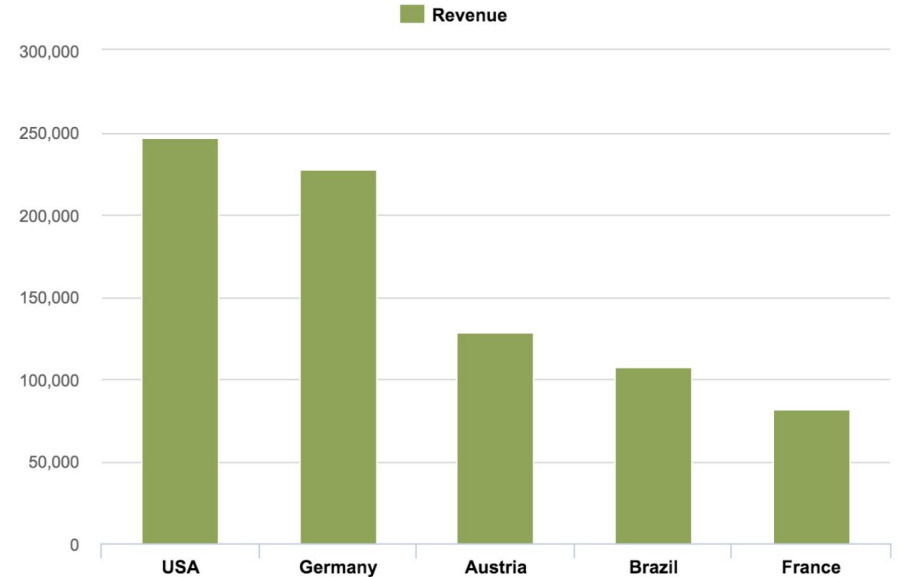
# Column/Bar Histogram Chart (EasyBI, 2023)

- It is used to represent the distribution and relationships of a variable over a set of categories.

- For example, a distribution of the sizes of pumpkins in a pumpkin festival.

Pumpkins by Size

EasyBI, 2023

Dr Sirintra Vaiwsri

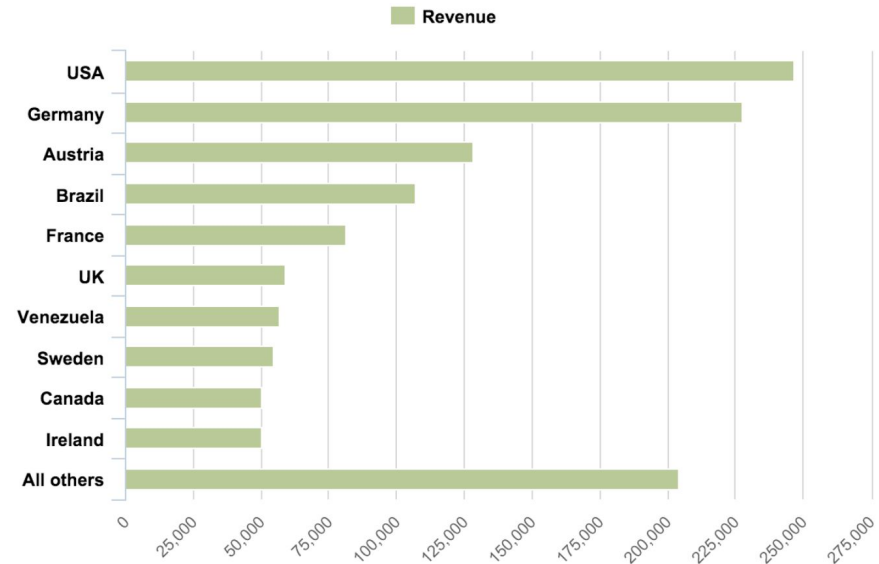# Stacked Column/ Bar Chart (EasyBI, 2023)

- It is used to represent composition.

- It shows multiple levels of the same variables.
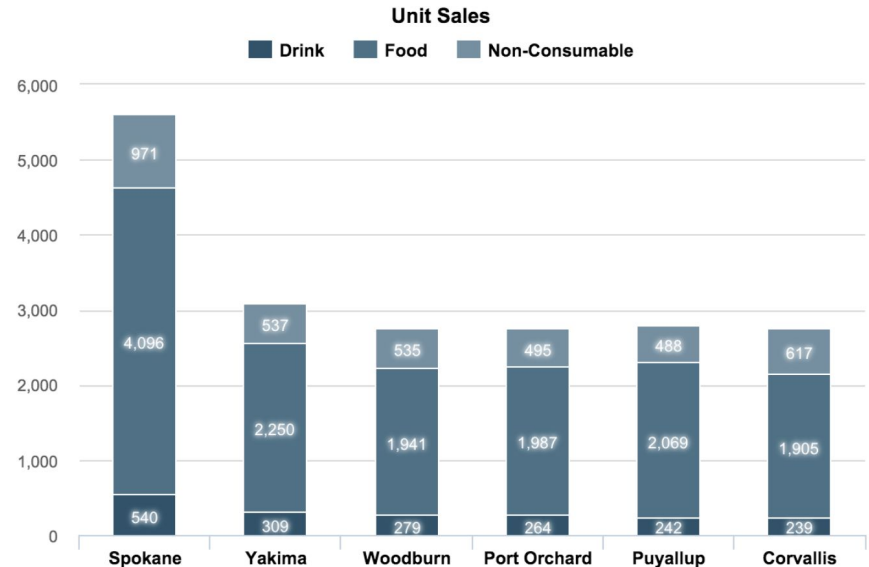
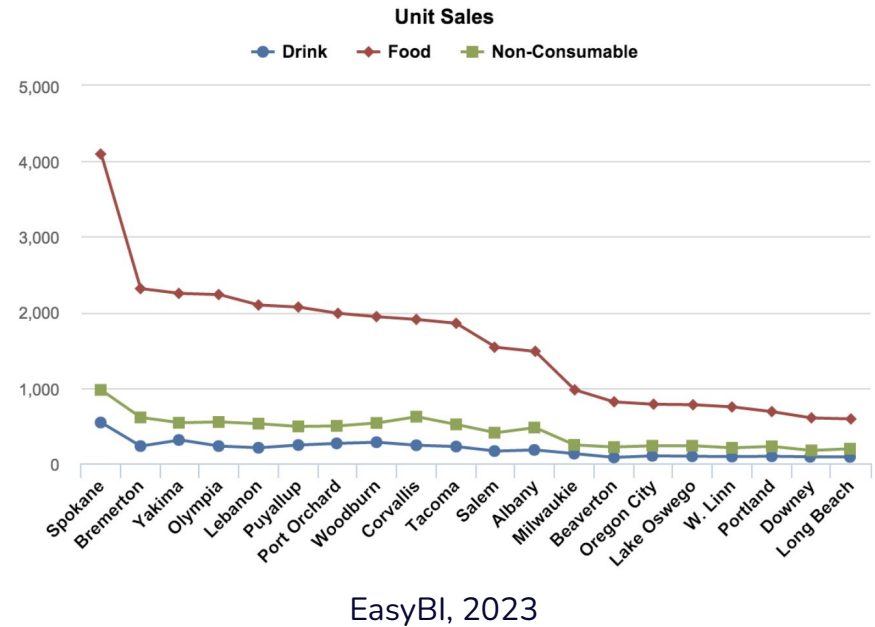EasyBI, 2023

Bar Chart (EasyBI, 2023)

- It is used when:
  - The names of categories are long.
  - The number of categories is more than seven and less than fifteen.
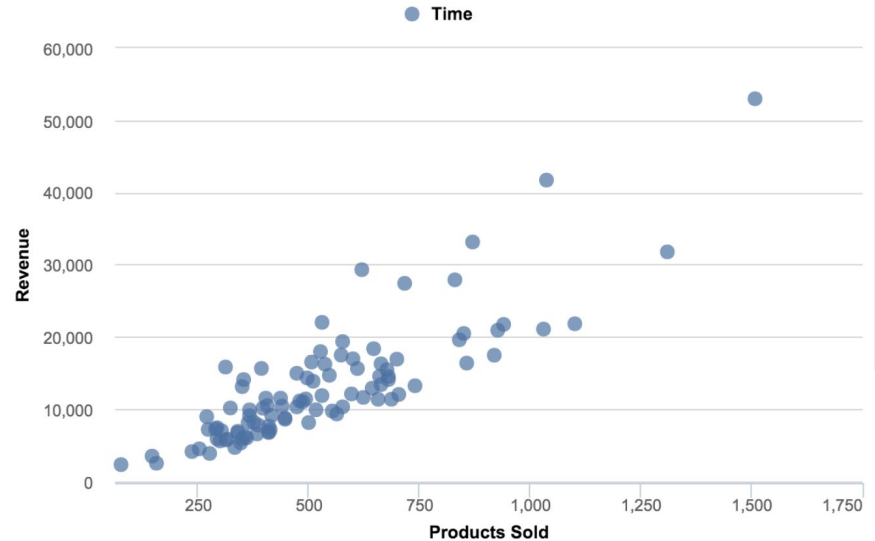 - Representing negative numbers.

EasyBI, 2023

Dr Sirintra Vaiwsri

Line Chart (EasyBI, 2023)

- It is used to analyse trends.

- It emphasises the continuation of values.

EasyBI, 2023

Dr Sirintra Vaiwsri

Scatter Plot (EasyBI, 2023)

- It is used to analyse the relationship between two variables.

- It highlights the similarities (or dissimilarities) between variables.

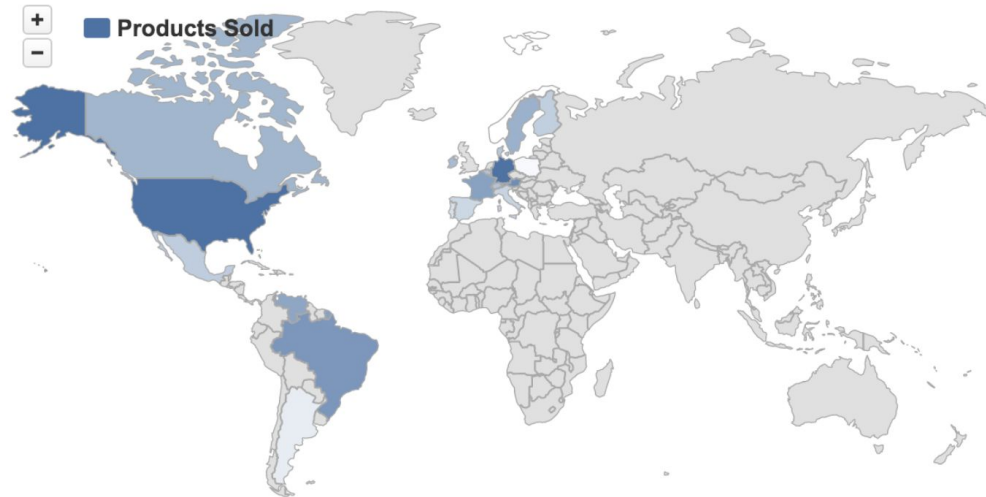EasyBI, 2023

Bubble Plot (EasyBI, 2023)

- It represents three or more dimensions of data.

- In other words, it is a scatter plot with other dimension(s).
    - A scatter plot compares two values, and then adds bubble size as a third variable.
    - If bubbles have similar sizes, you can add labels.

EasyBI, 2023

Dr Sirintra Vaiwsri
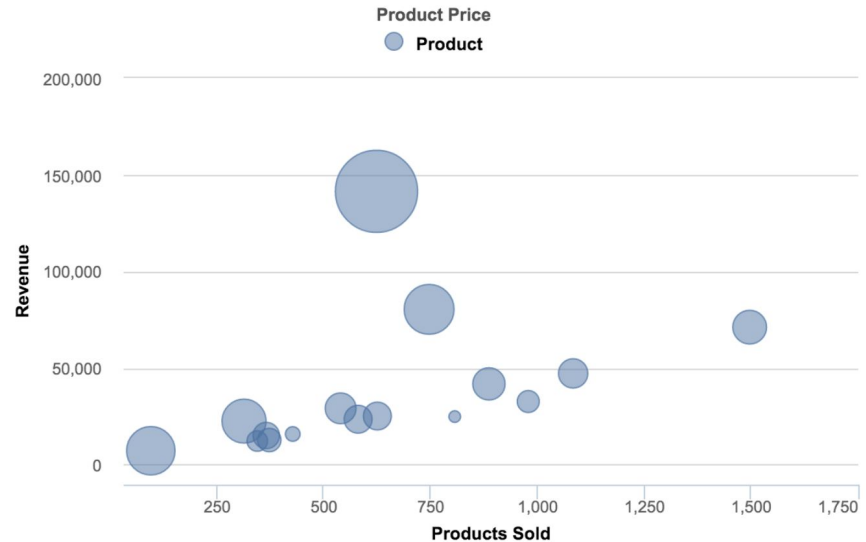
Chropleth/Map Chart (EasyBI, 2023)

- It represents geographically related data.

EasyBI, 2023

References

- EasyBI. Data Visualization. https://eazybi.com/blog/data-visualization-and-chart-types. Accessed: 2023-09-27.
- Temple University. Data Visualization Resources: Types of Charts and Graphs for Data Viz. https://guides.temple.edu/c.php?g=939377&p=6769862. Accessed: 2023-09-14.

Dr Sirintra Vaiwsri