



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (po), Coimbatore – 641 107

Accredited by NAAC-UGC with 'A' Grade

Approved by AICTE & Affiliated to Anna University, Chennai

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

## 19AD504 – DATA VISUALIZATION

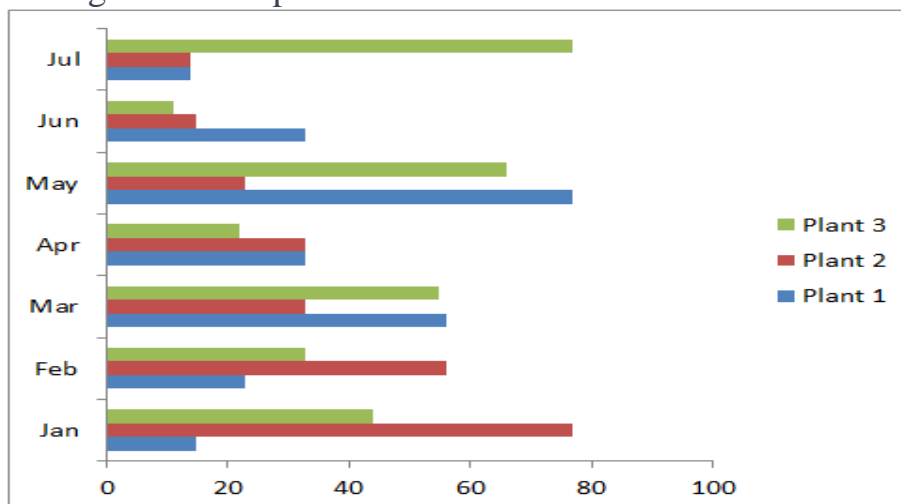
### UNIT –I

#### INTRODUCTION TO DATA VISUALIZATION

### 1.3 CHOOSING THE CHART TYPE

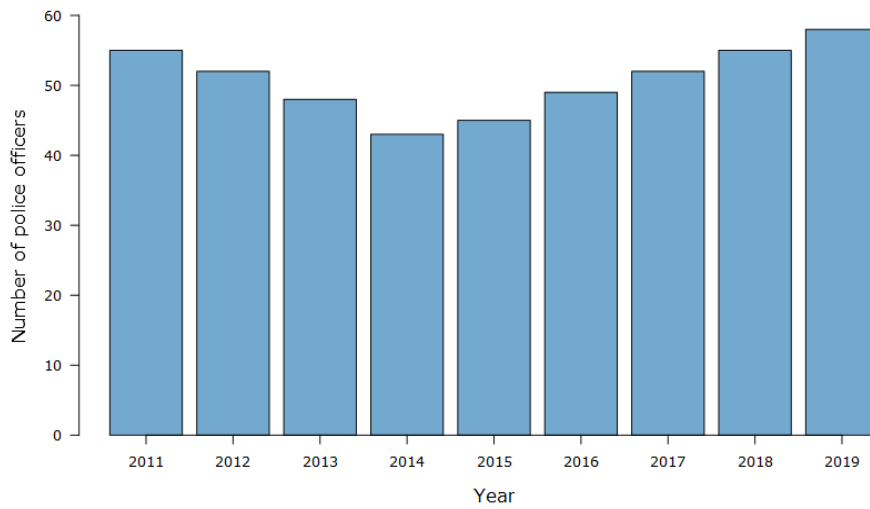
Choosing the right chart type for data visualization is crucial for effectively communicating your data and conveying your message. Here are some key considerations to help you choose the appropriate chart type:

1. **Comparison:** If your goal is to compare values or show relationships between different categories or data points, consider the following chart types:
  - **Bar chart:** Ideal for comparing discrete categories or groups of data using vertical or horizontal bars. Useful for displaying frequency, count, or magnitude comparisons.



- **Column chart:** Similar to bar charts, but with vertical bars only. Suitable for the same types of comparisons as bar charts.

**Chart 5.2.1**  
**Number of police officers in Crimeville, 2011 to 2019**



- **Line chart:** Useful for showing trends and changes over time. It can also be used to compare multiple data series.

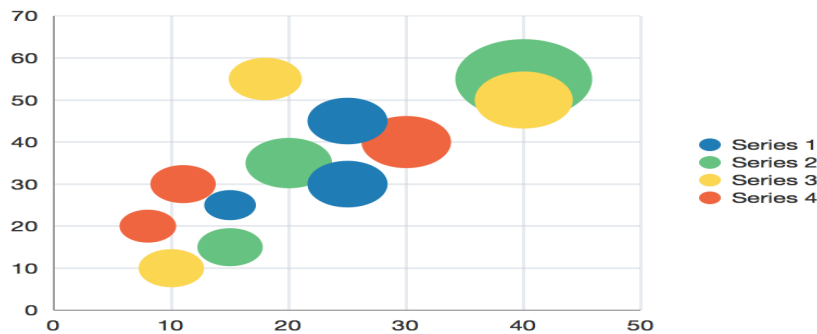


- **Scatter plot:** Shows the relationship between two continuous variables, where each data point represents an individual observation. Useful for identifying correlations or clusters in data.



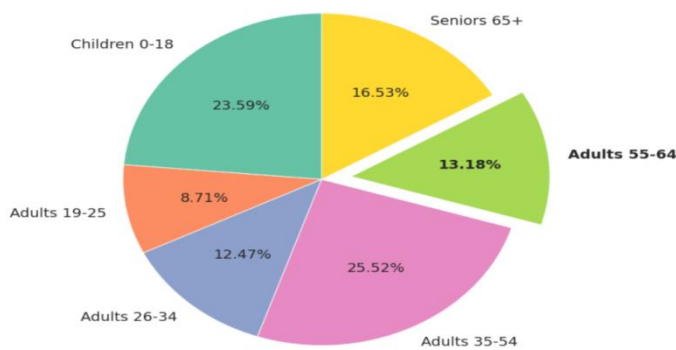
- **Bubble chart:** Similar to a scatter plot but with an additional dimension represented by the size of the bubbles. Useful for visualizing three variables simultaneously.

**Bubble Chart**

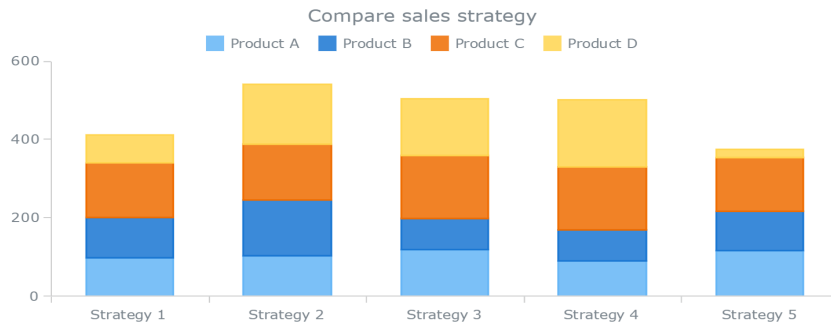


2. **Composition:** When you want to represent the composition or distribution of data, consider the following chart types:

- **Pie chart:** Shows proportions or percentages of a whole, where each category represents a slice of the pie.

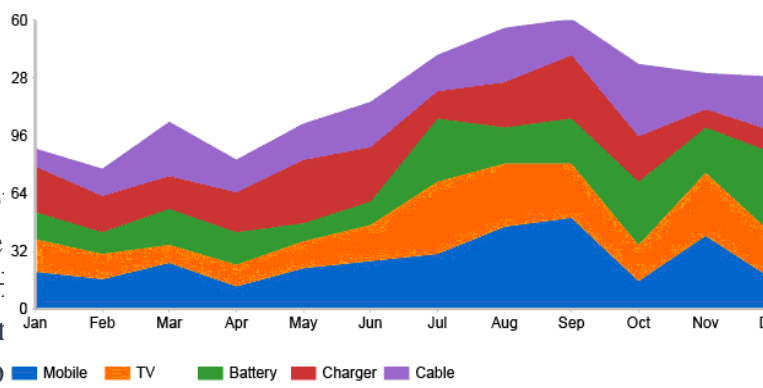


- **Stacked bar or column chart:** Displays the composition of a whole category by stacking bars or columns for each subcategory. Useful for showing the relationship between parts and the whole.



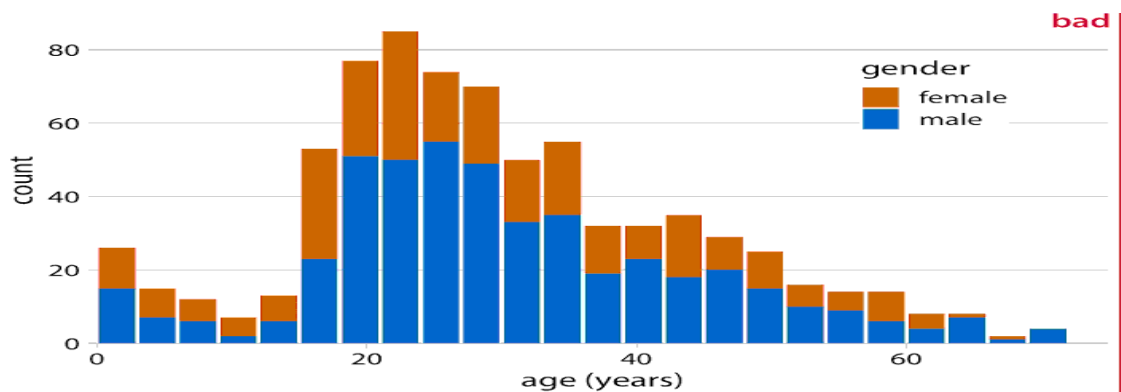
- **Area chart:** Suitable for visualizing the cumulative effect or composition of multiple data series over time.

Sales Order Analysis

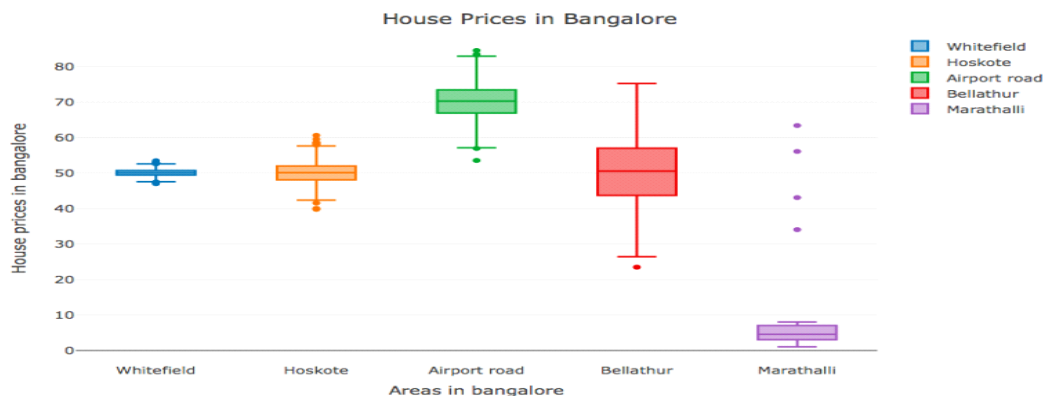


3. Distrib  
conside

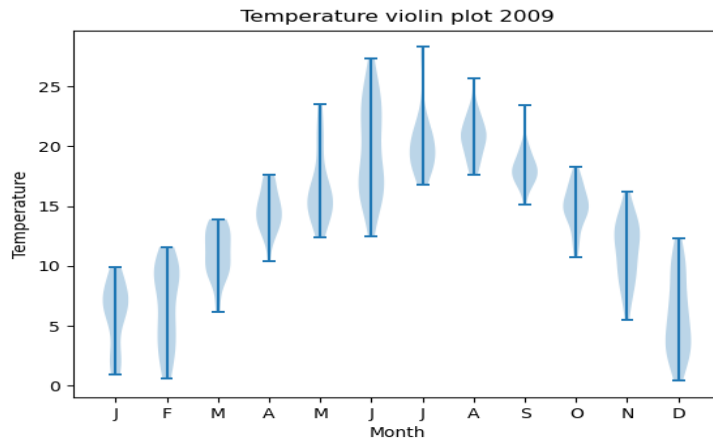
- **Faceted** plots within predefined bins and identifies



- **Box plot:** Provides a summary of the distribution's central tendency, spread, and outliers. It includes features such as quartiles, median, and whiskers.

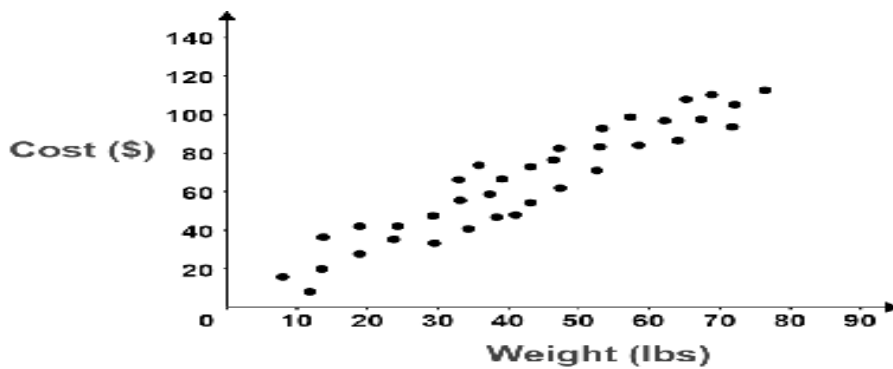


- **Violin plot:** Similar to a box plot, but it also shows the kernel density estimation of the data. It provides a combination of a box plot and a distribution plot.



4. **Relationship:** When you want to illustrate the relationship between variables or highlight patterns, consider the following chart types:

- **Scatter plot:** Effective for visualizing the relationship between two continuous variables. Each data point represents an observation, and patterns can indicate correlations or trends.



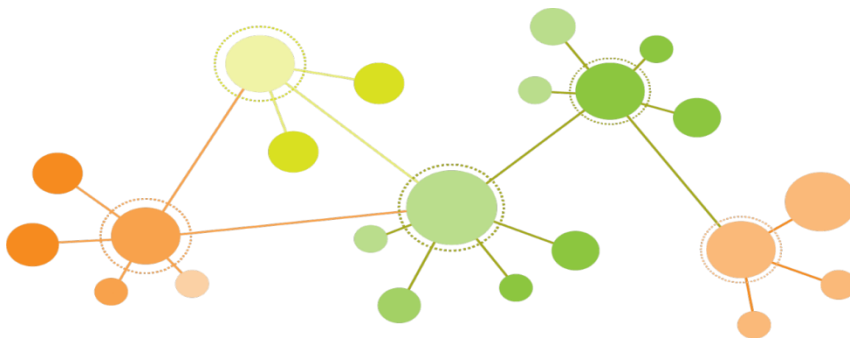
- **Heatmap:** Shows the magnitude of a variable across two dimensions, often using color intensity. Useful for displaying patterns or relationships in large datasets.

Impact	Catastrophic	5	5	10	15	20	25
	Significant	4	4	8	12	16	20
	Moderate	3	3	6	9	12	15
	low	2	2	4	6	8	10
	Negligible	1	1	2	3	4	5
			1	2	3	4	5
			Improbable	Remote	Occasional	Probable	Frequent
			Likelihood				

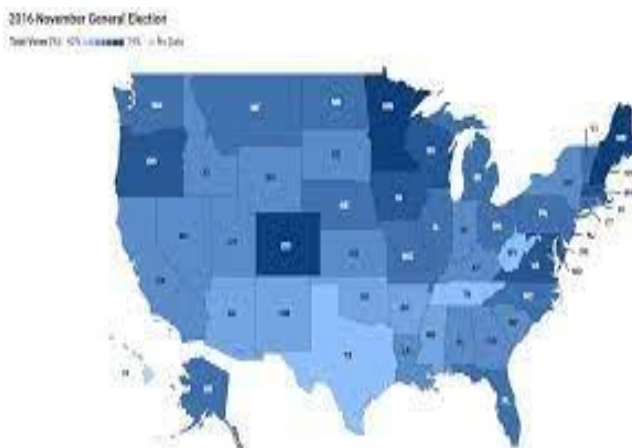
Catastrophic	Stop
Unacceptable	Urgent Action
Undesirable	Action
Acceptable	Monitor
Desirable	No Action

- **Network graph:** Displays relationships between nodes (vertices) and connections (edges). Useful for visualizing complex relationships, such as social networks or interconnected systems.

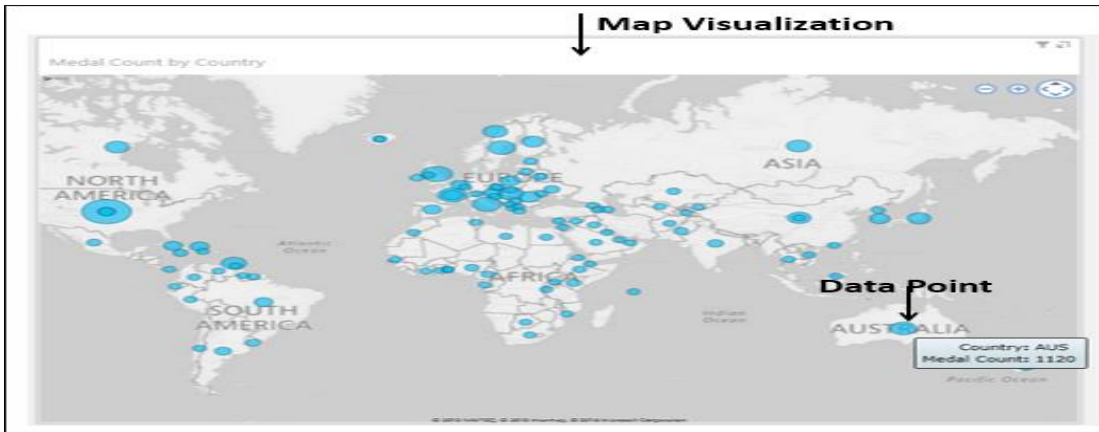


5. **Geographic:** If your data has a geographic component, consider using geospatial visualization techniques:

- **Choropleth map:** Uses color shading or patterns to represent data values associated with specific geographic regions, such as countries, states, or postal codes.



- **Point map:** Displays individual data points on a map using markers or symbols to represent each point's location and associated data.



- **Flow map:** Shows movement or flow between geographic locations using lines or arrows to indicate the direction and intensity of the movement.

