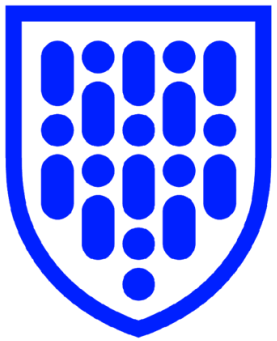

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Visualisation

- Overview
- Selecting chart type
- Guidelines
- Resources

Visualisation - Overview

- Thinking is **slow**. Seeing is **fast**.
- Data visualisation conveys **information** through visual representations with usually the aim to gain **knowledge** about the internal **structure, trend** and **relationships** between data entities.
- Visualisation can be useful in many **contexts**. In Data Science it is usually used for a number of key (overlapping) purposes:
  - **Discovery**
  - **Analysis**
  - **Communication (story telling)**
- Using visualisation for communication tends to be the **focus** of most of the articles and books about visualisation. The audience in this case are the **stakeholders** who are typically business oriented.
- In cases of discovery and analysis the audience is usually the Data Science **practitioners**. Requirements and tooling of visualisation in these cases are different from the communication purpose.

Visualisation – Selecting charts

- There a finite number of useful chart types. Cultivate you **own favourite list**.
- List of common chart types
  - Area Chart
  - Bar Chart
  - Box-and-whisker Plots
  - Bubble Cloud
  - Cartogram (map)
  - Gantt Chart
  - Heat Map
  - Histogram
  - Network
  - Polar Area
  - Radial Tree
  - Scatter Plot (2D or 3D)
  - Timeline
  - Treemap
  - Word Cloud
- And any mix-and-match combination in a dashboard!

Visualisation – Selecting charts

- The effective visualisation technique depends on what you are **looking at** and what you are **look for**.
- **Type of data** (what are you looking at):
  - Single variable
  - Two variables
  - Many variables
  - Timeline
- **Purpose** (what are you looking for)
  - Range
  - Pattern
  - Comparison
  - Distribution
  - Proportions

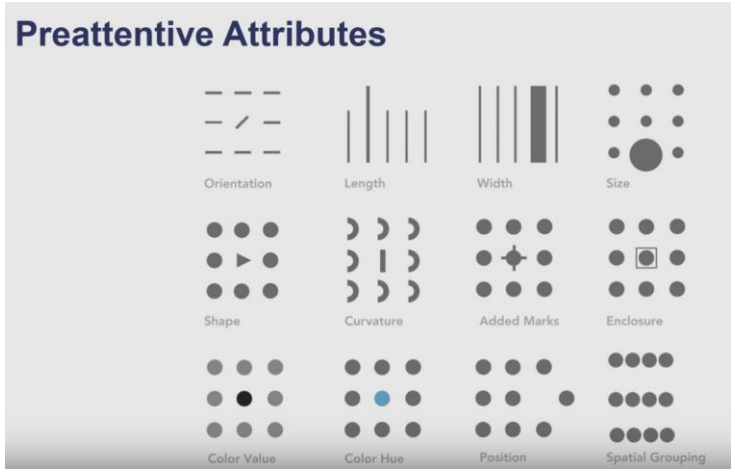
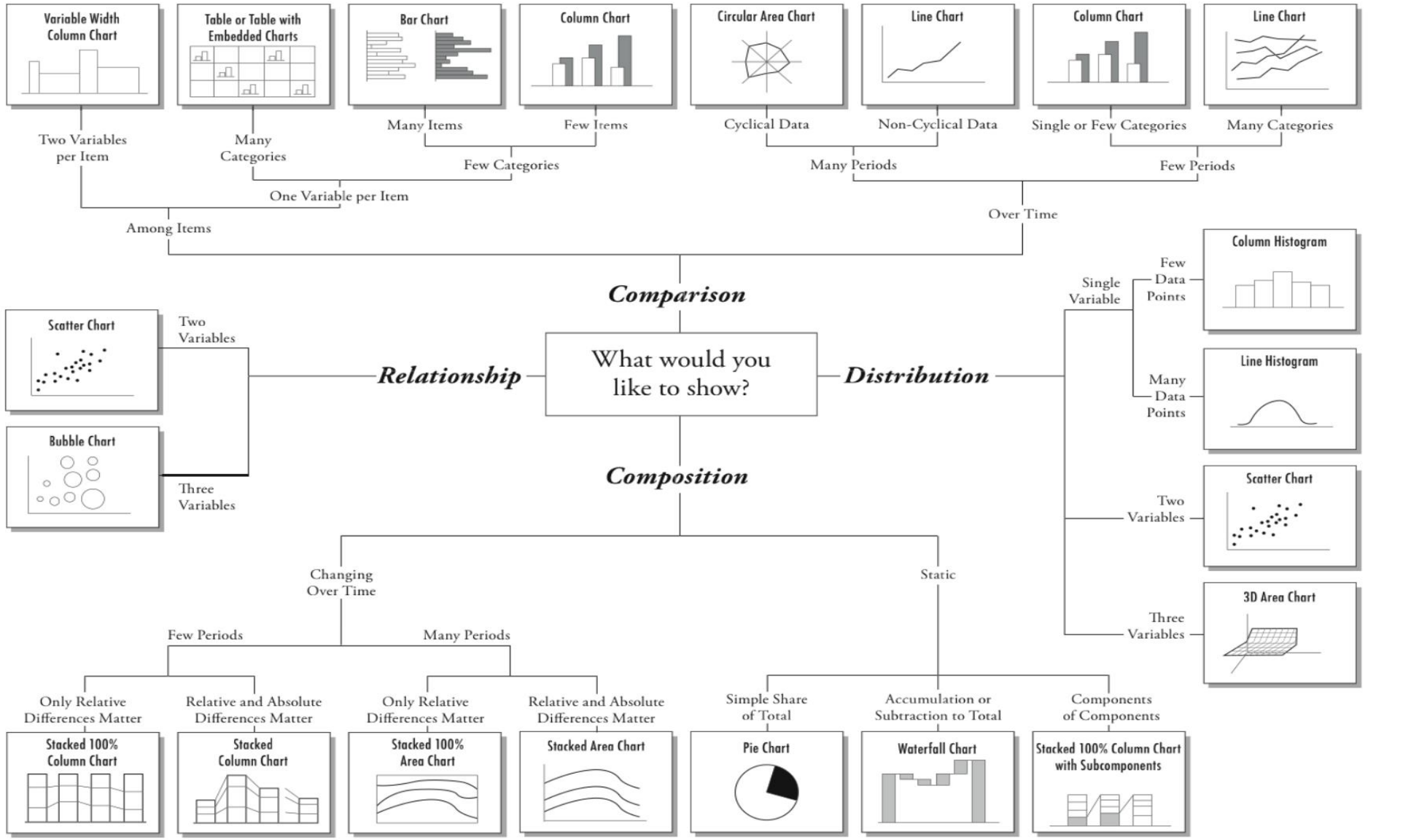


Chart Suggestions—A Thought-Starter



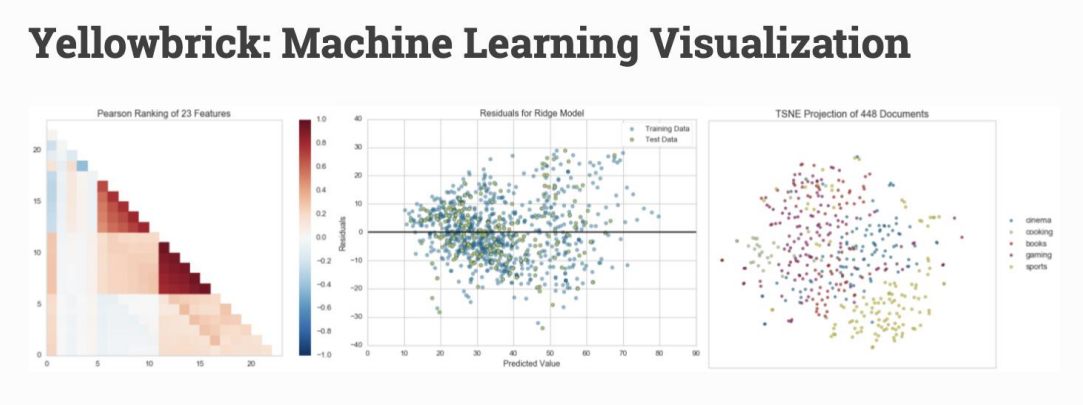
[Source: Extreme presentation]

Data visualisation guidelines

- **Articulate the purpose** (of the chart)
- Speak to a specific **audience**
- Provide **context**
  - Show clear, precise **title**, **labels** and **legend**
- Keep things simple and digestible
  - Use **one** visualisation to show **one key idea**
  - Use appropriate **coordinates and scale**
  - **Highlight** what you want you audience to notice (ideally only **one element**). Highlight with colour, size or orientation.
  - Make the diagram, text and number **clearly legible**.
- Design for **user engagement**
  - Use **simple interaction** if applicable
  - **Tell a story**

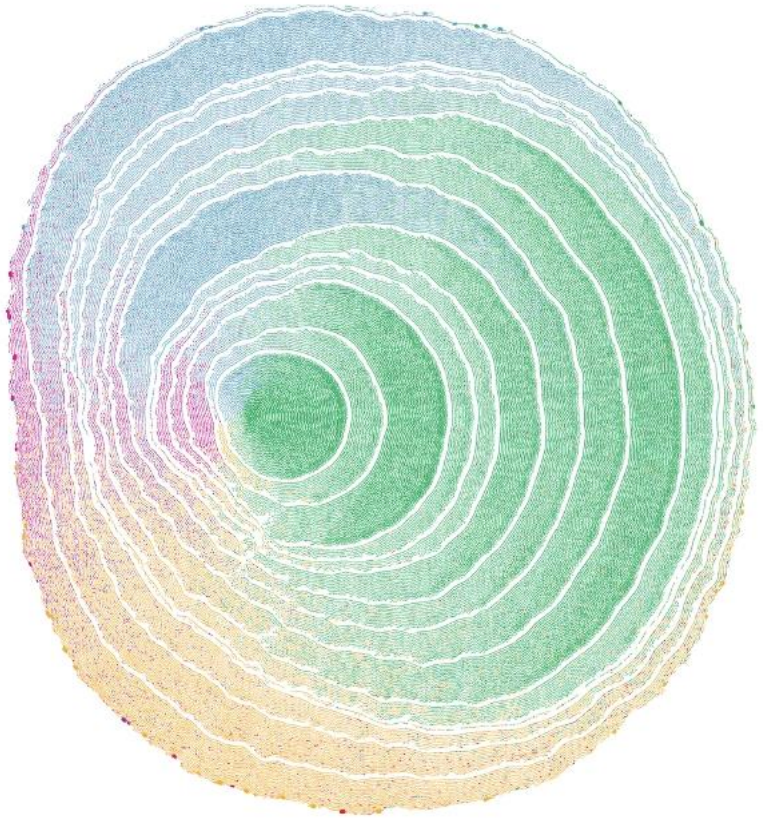
Visualisation - Resources

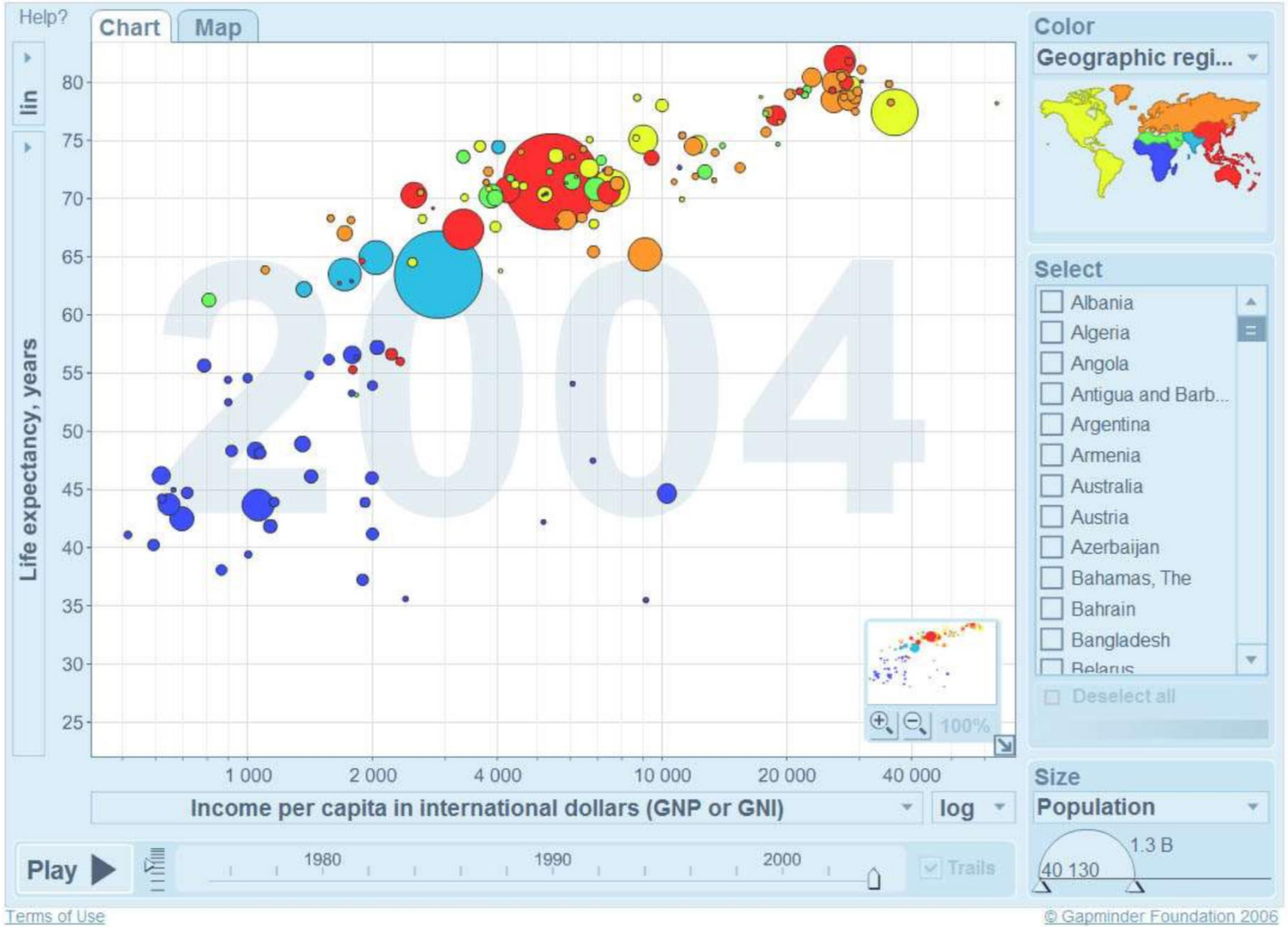
- There are a number of excellent guides to explore and learn about most applicable visualisation techniques for the task at hand:
  - Visual vocabulary
  - The Data Visualisation Catalogue
  - YellowBrick Machine Learning Visualisation
  - Tableau



Questions?

Appendices





End of presentation