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# Visualisations

ISYS2001, School of Marketing and Management

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I acknowledge the traditional custodians of  
the land on which I work and live, and  
recognise their continuing connection to land,  
water and community. I pay respect to elders  
past, present and emerging.



# Today

- Describe Visualisation
- Identify the Common Roles
- Use roles to select graph
- List common Python plotting packages
- Develop a visualisation strategy




**Data visualization** is the process of translating large data sets and metrics into charts, graphs and other visuals. The resulting visual representation of data makes it easier to identify and share real-time trends, outliers, and new insights about the information represented in the data. (IBM, 2021)

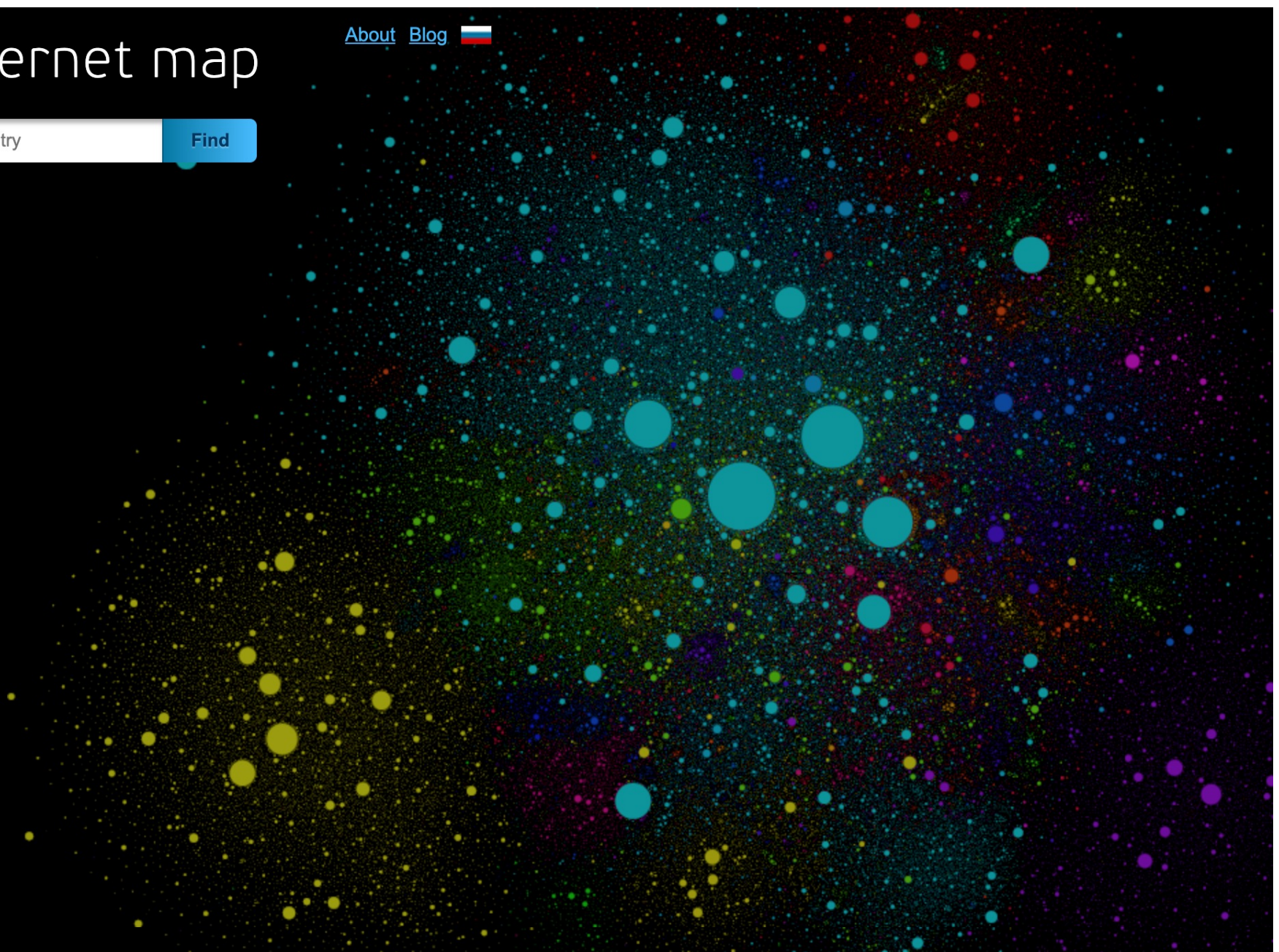




# The Internet map

[About](#) [Blog](#) 

Find



<http://internet-map.net/>

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# Common Visualisation Roles

- Showing change over time
- Showing a part-to-whole composition
- Looking at how data is distributed
- Comparing values between groups
- Observing relationships between variables
- Looking at geographical data



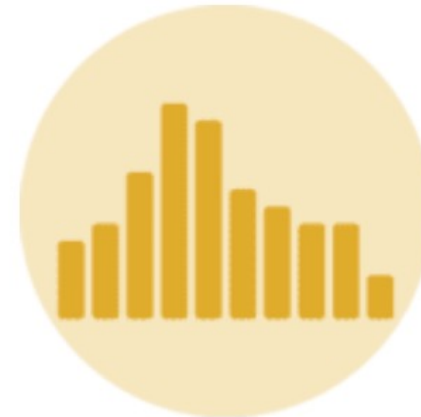
# Distribution



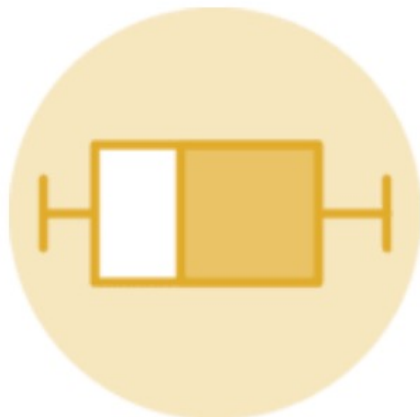
Violin



Density



Histogram



Boxplot



Ridgeline

<https://python-graph-gallery.com/>

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# Correlation



Scatterplot



Heatmap



Correlogram



Bubble



Connected Scatter



2D Density

<https://python-graph-gallery.com/>

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# Ranking



Barplot



Spider / Radar



Wordcloud



Parallel



Lollipop



Circular Barplot

<https://python-graph-gallery.com/>

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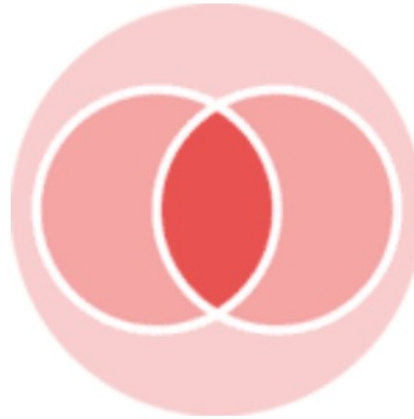


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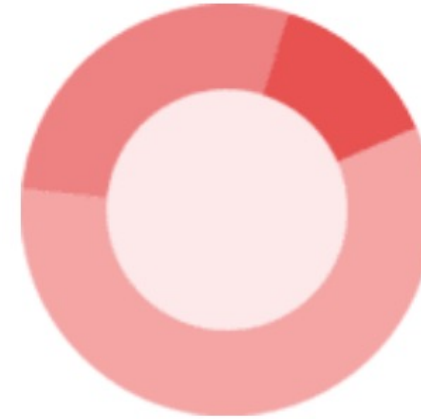
# Part of Whole



Treemap



Venn Diagram



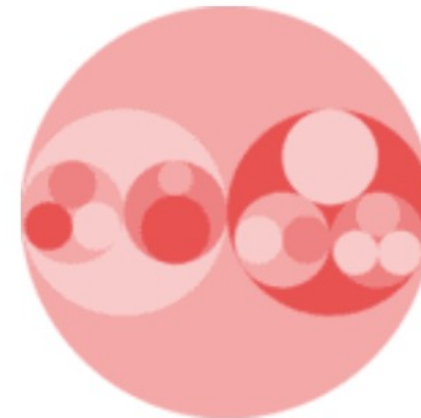
Donut



Pie Chart



Dendrogram



Circular Packing

<https://python-graph-gallery.com/>

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# Evolution



Line chart



Area chart



Stacked Area



Streamgraph



Timeseries

<https://python-graph-gallery.com/>

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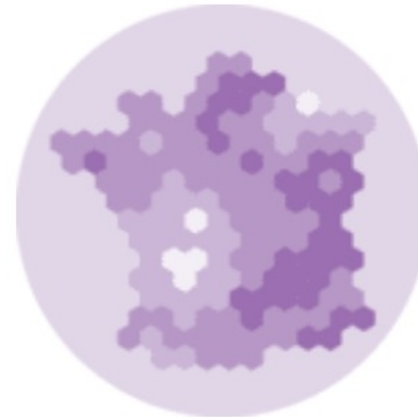
# Map



Map



Choropleth



Hexbin



Cartogram



Connection



Bubble

<https://python-graph-gallery.com/>

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# Flow



Chord Diagram



Network



Sankey



Arc Diagram



Edge Bundling

<https://python-graph-gallery.com/>

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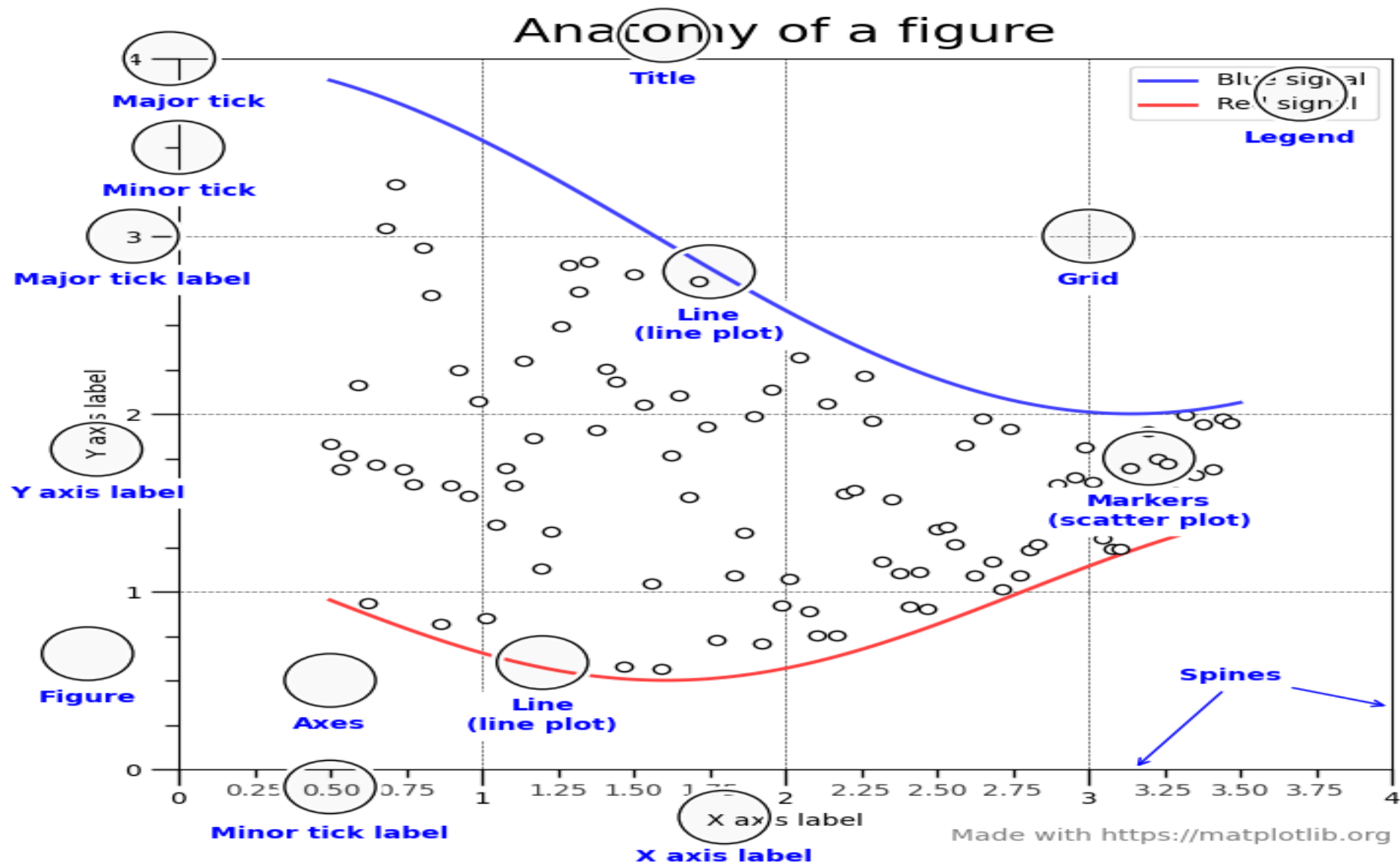


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# Python Plotting Libraries

- Matplotlib (some interactivity)
- Pandas (basic)
- **Seaborn**
- Ggplot (Copy of famous 'R' package)
- Plotly (interactive)
- Bokeh (Interactive)



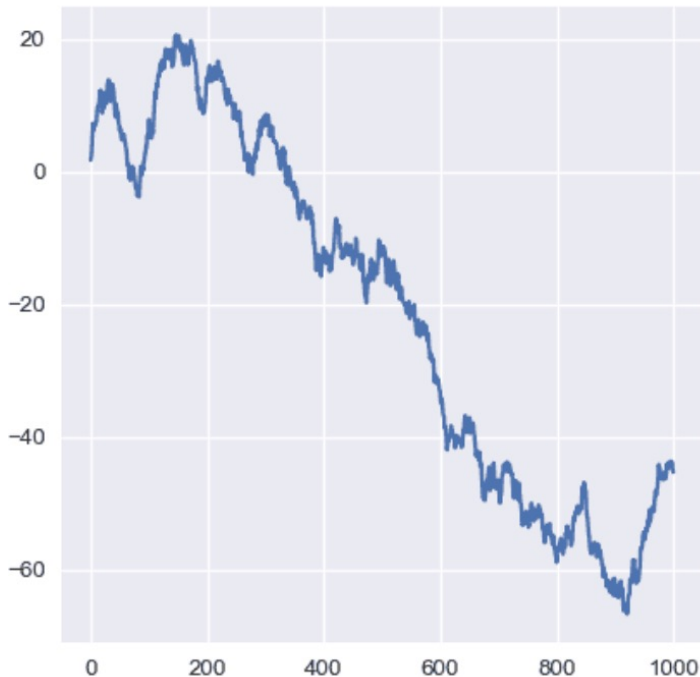


<https://matplotlib.org/3.5.0/gallery/showcase/anatomy.html>



# Python Graph Gallery

- Plot + Code



```
# libraries
import matplotlib.pyplot as plt
import numpy as np

# create data
values=np.cumsum(np.random.randn(1000,1))

# use the plot function
plt.plot(values)
```

<https://python-graph-gallery.com/line-chart/>

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# Python Dashboards

- Dash
- Anvil
- Atoti
- Streamlit
- Panel
- Explainer Dashboard



# Dashboards



# How to Guide

- Find the data you want
- What story do you want to tell
- Pick from the Python Graph Galley
- Revisit Python lessons
  - How to get data (upload, wget, etc)
  - Google Packages
- Implement in notebook (or script)





# Can you?

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