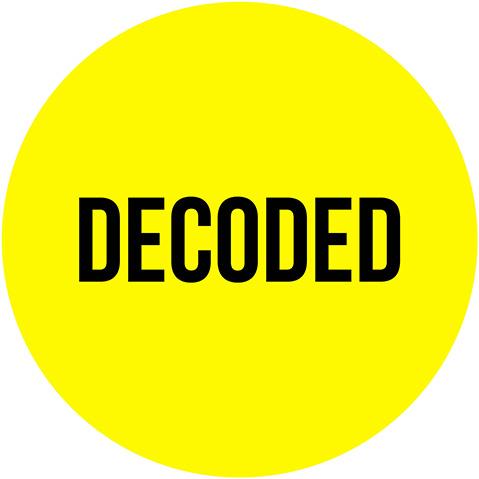
Data Academy: Visualisation

VISUALISATION IN PYTHON & R

A Guide for Visualisation Libraries

There are many different visualisation packages that can be used to improve your projects, and in the long-term, how you present your findings on a day-to-day basis at work. Below is a table describing the various packages available (Python and R), and their most useful functions.

Python Libraries

|  |  |  |
| --- | --- | --- |
| Python | Uses | Resources |
| Matplotlib | * Basic Python library * General, all-purpose * Variety of visuals | * [Machine Learning Plus: Top 50 Visualisations](https://www.machinelearningplus.com/plots/top-50-matplotlib-visualizations-the-master-plots-python/#47.-Dendrogram) * [Matplotlib Article: quick and easy visuals](https://towardsdatascience.com/5-quick-and-easy-data-visualizations-in-python-with-code-a2284bae952f) |
| Seaborn | * Built on Matplotlib * Visually appealing defaults * Higher-level: easier code for heat maps, violin plots, time series | * [Seaborn website](https://seaborn.pydata.org/) * [Seaborn tutorial](https://elitedatascience.com/python-seaborn-tutorial) * [Seaborn on Github](https://github.com/mwaskom/seaborn) |
| ggplot | * Based on “Grammar of Graphics” * Python version of R package ggplot2 * Construct using high-level code * Compared to Matplotlib, can layer components to make a full plo. * “Intuitive” method for plotting | * [ggplot website](https://pypi.org/project/ggplot/) * [ggplot on Github](https://github.com/hadley/ggplot) |
| Bokeh | * Based on “Grammar of Graphics” * Supports streaming and real-time data * Create interactive, web-ready plots (output: JSON, HTML, or web apps) * 3 levels of interfaces for varying degrees of control | * [Bokeh website](https://bokeh.pydata.org/en/latest/) * [Getting started with Bokeh, part 1 (article)](https://towardsdatascience.com/data-visualization-with-bokeh-in-python-part-one-getting-started-a11655a467d4) * [Bokeh on Github](https://github.com/bokeh/bokeh) |
| Plotly | * Interactive, publication-quality graphs * Offers charts not found in most libraries (e.g., contour plots) * Also has an online platform for data visualisation | * [Plotly website](https://plot.ly/python/) * [Plotly online dashboard](https://plot.ly/dash/) * [Plotly Article (with links to example codes)](https://towardsdatascience.com/the-next-level-of-data-visualization-in-python-dd6e99039d5e) |
| Pygal | * Interactive plots that can be embedded in a web browser * Distinct in that outputs charts as SVGs (note: can be slow and have rendering issues with large datasets * Can create graphs with little code * Appealing built-in styles | * [Pygal website](http://pygal.org/en/stable/index.html) |
| Altair | * Simple, friendly visualization library based on [Vega-lite (JSON)](https://vega.github.io/vega-lite/) * Declarative - only need to mention links between data columns (e.g., x-axis, y-axis, color) and the plotting details are handled automatically * Easy to make and design beautiful visualizations with minimal code | * [Altair website](https://altair-viz.github.io/) |
| Geoplotlib | * Plot geographical data, map creation * Many map types, (e.g., dot density plots, choropleths, heatmaps, * Requires installation of Pyglet * Providing a set of in-built tools for common tasks (e.g., spatial graphs, shape files, density visualization) * Good alternative as most Python libraries don’t offer maps | * [Geoplotlib installation](https://pypi.org/project/geoplotlib/) * [Geoplotlib on Github](https://github.com/andrea-cuttone/geoplotlib) |
| Gleam | * Inspired by R’s Shiny package * Can create interactive web apps * Works with any Python data visualisation library * Create a plot, then build fields on top of the plot to filter and sort data | * [Gleam installation](https://pypi.org/project/gleam/#description) * [Gleam on Github](https://github.com/dgrtwo/gleam) |
| Missingno | * Gauge completeness of a dataset * Can filter and sort data based on completion, or spot correlations with a heat map or a dendrogram | * [Missingno installation](https://pypi.org/project/missingno/) * [Missingno on Github](https://github.com/ResidentMario/missingno) |

Resources

* [Show Me Shiny: A collection of Shiny Dashboards (R)](https://www.showmeshiny.com/)
* [11 Visualisation libraries (Python and R)](https://www.analyticsvidhya.com/blog/2019/08/11-data-visualizations-python-r-tableau-d3js/)
* [Data to Viz: Choosing the right graph (R example code)](https://www.data-to-viz.com/)
* [Fusion Charts: the best Python visualisation libraries (Python)](https://www.fusioncharts.com/blog/best-python-data-visualization-libraries/)
* [Seaborn vs. Matplotlib (Python)](https://jakevdp.github.io/PythonDataScienceHandbook/04.14-visualization-with-seaborn.html)
* [Python Graph Gallery (Python)](https://python-graph-gallery.com/)