



FTDS // DATA VISUALIZATION

Hacktiv8 DS
Curriculum
Team

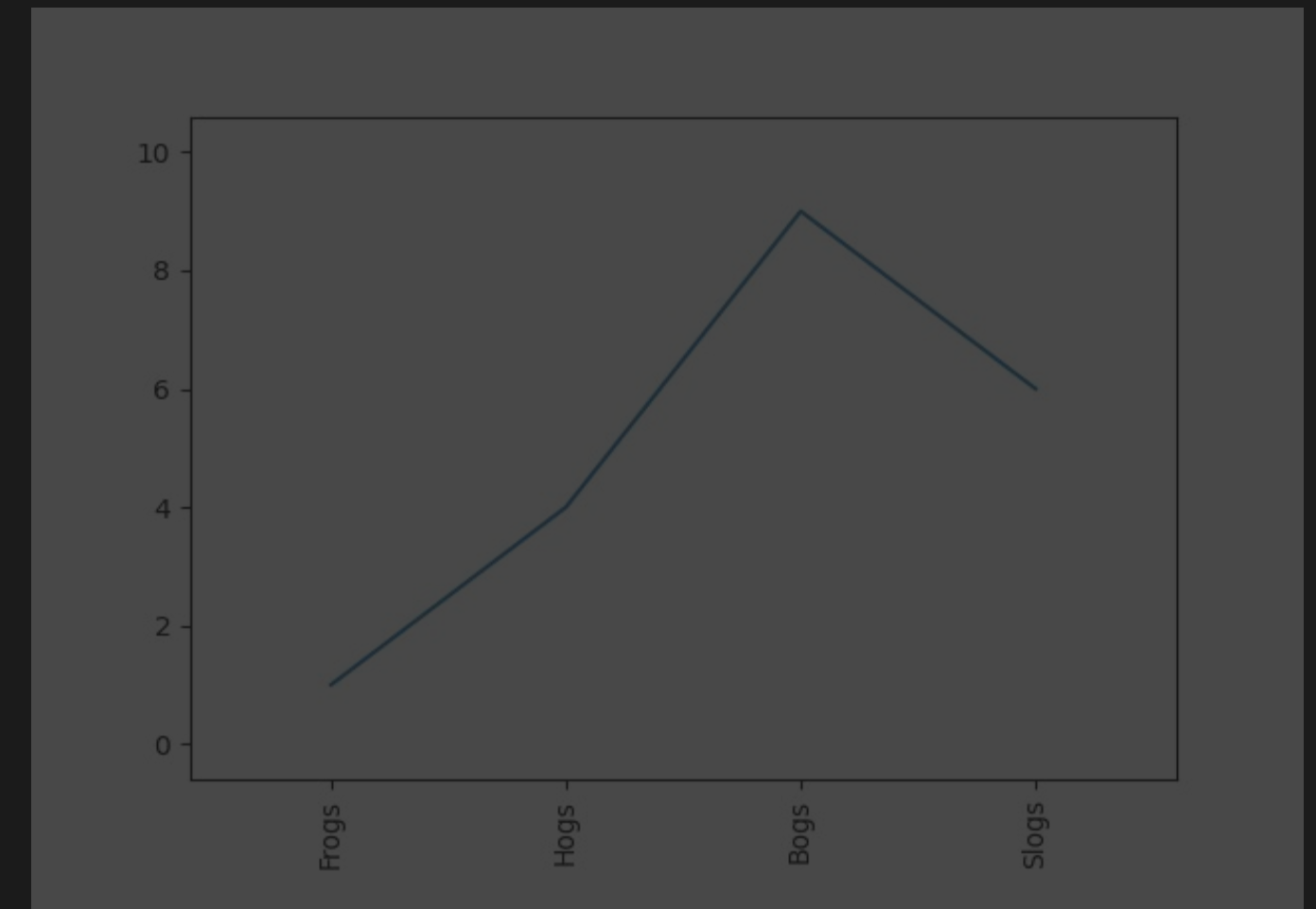
Phase 0
Learning
Materials



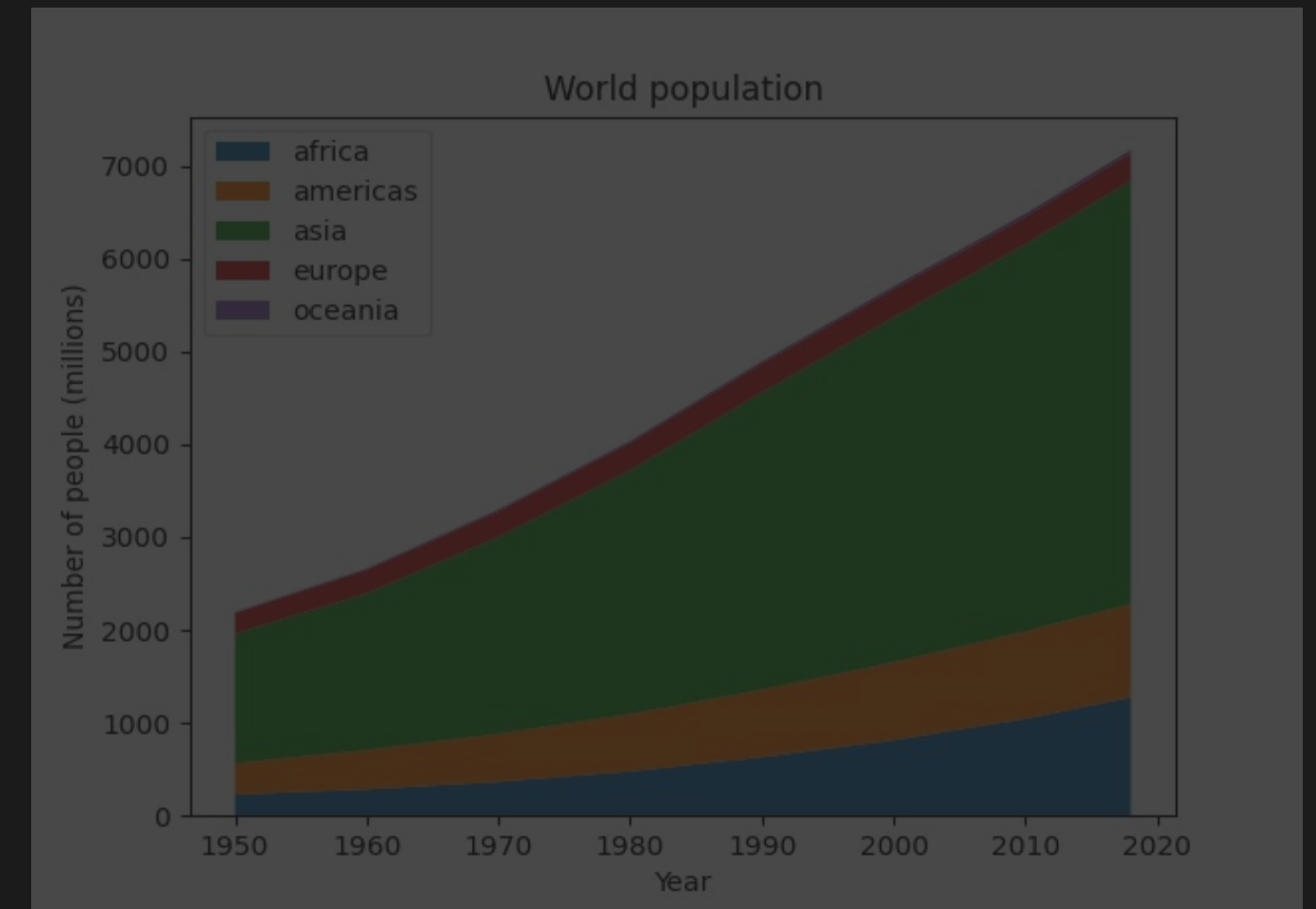
- grasp the matplotlib plotting
- basic understanding of basic visualization plot
- able to make plot using matplotlib
- basic understanding of advanced visualization plot
- able to make map using folium
- able to make wordcloud
- grasp the seaborn plotting
- basic understanding of basic to advanced visualization plot using seaborn
- able to make plot using seaborn
- grasp the plotly plotting
- basic understanding of basic to advanced visualization plot using plotly
- able to make plot using plotly

Matplotlib is a plotting library for the Python programming language and its numerical mathematics extension NumPy. It provides an object-oriented API for embedding plots into applications using general-purpose GUI toolkits like Tkinter, wxPython, Qt, or GTK.

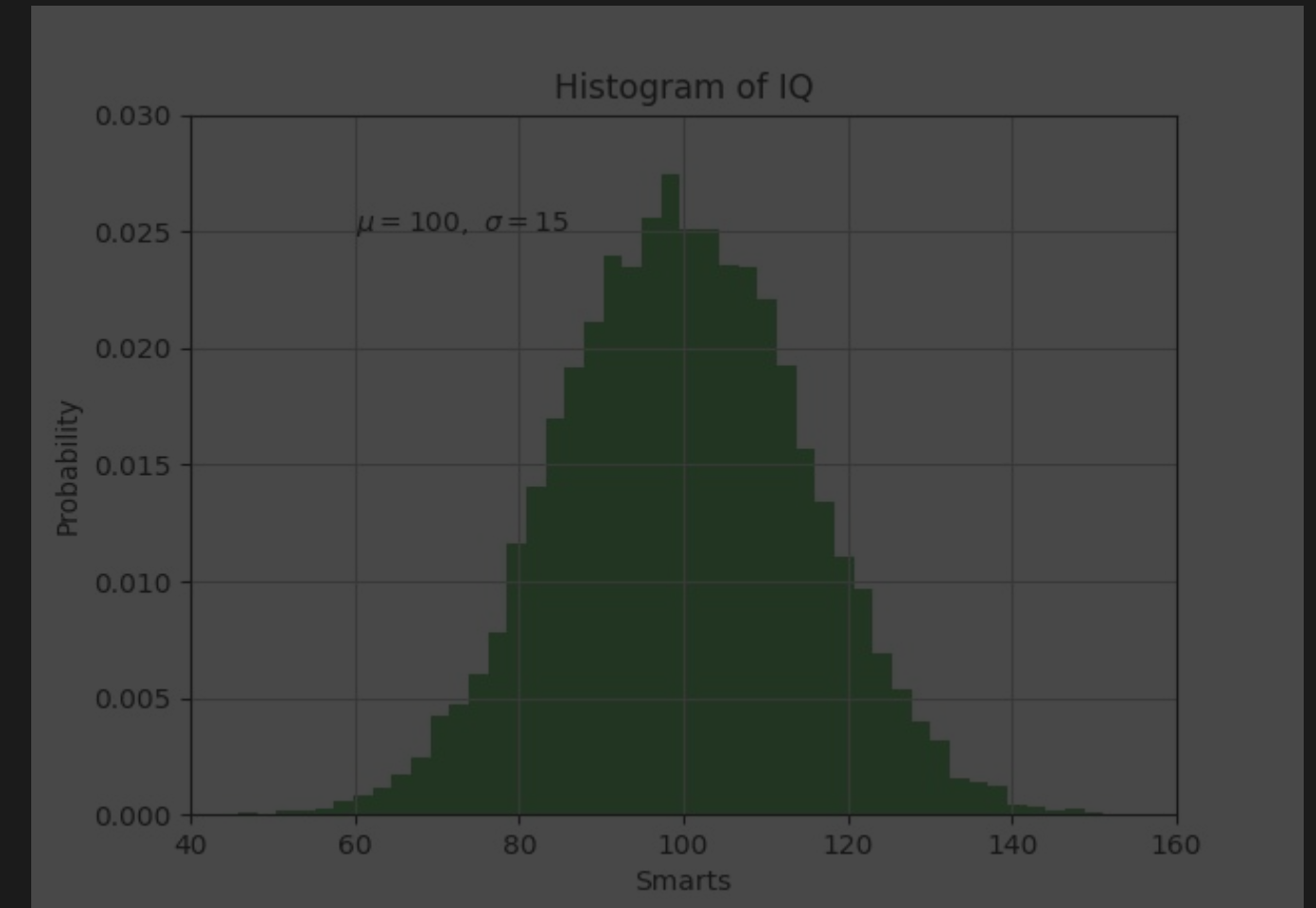
A line chart or line plot or line graph or curve chart is a type of chart which displays information as a series of data points called 'markers' connected by straight line segments.



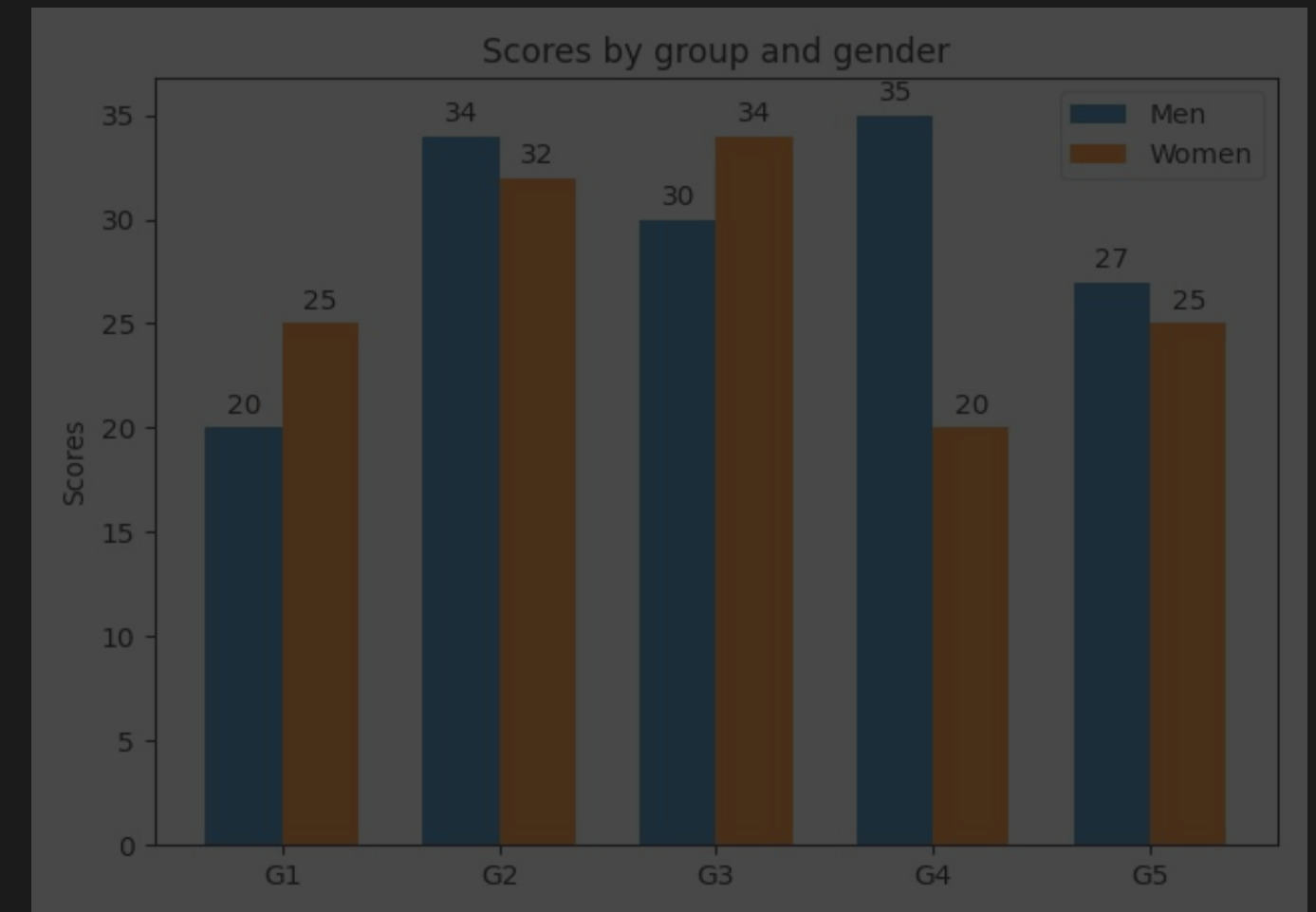
An area chart or area graph displays graphically quantitative data. It is based on the line chart. The area between axis and line are commonly emphasized with colors, textures and hatchings.



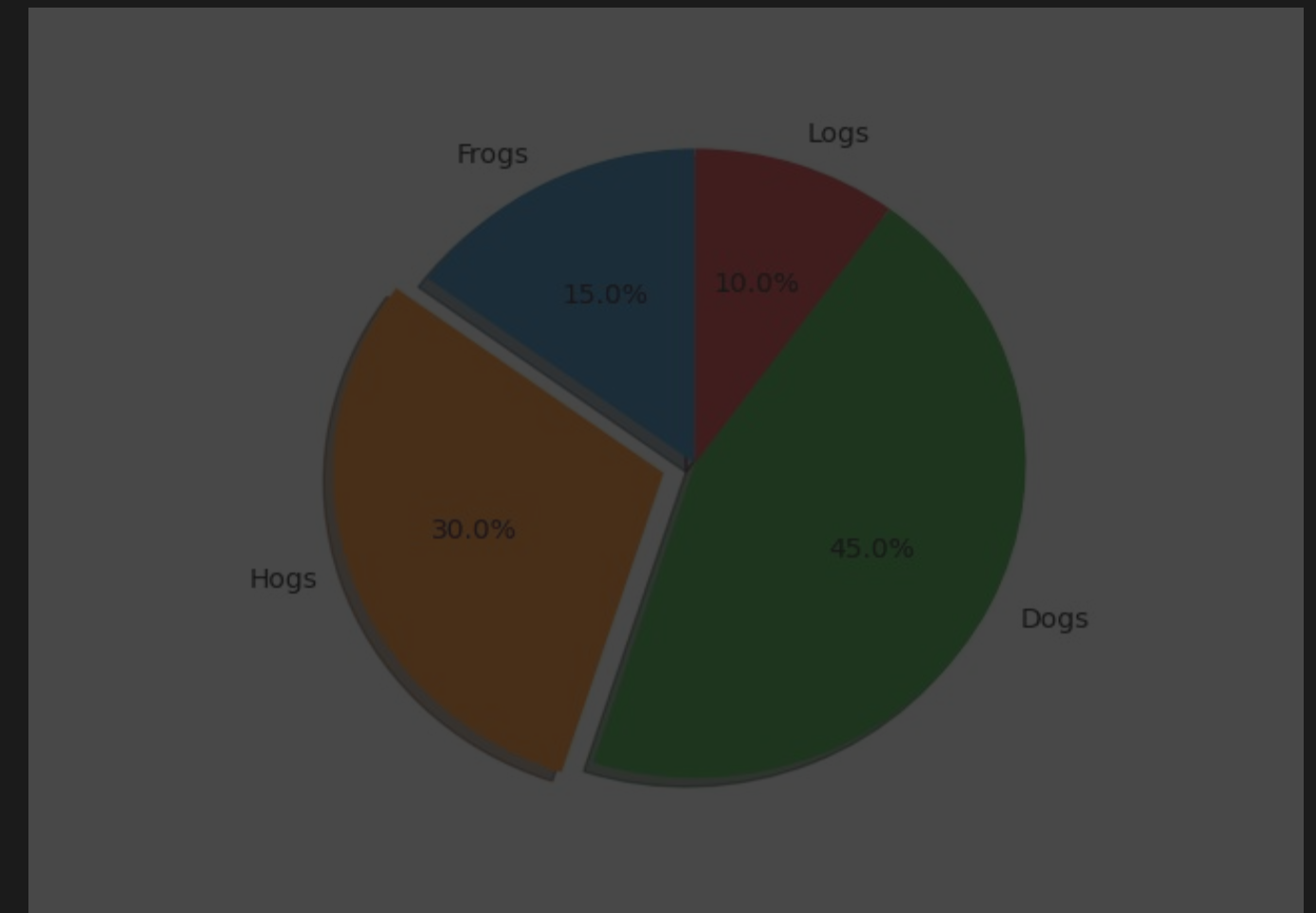
A histogram is an approximate representation of the distribution of numerical data.



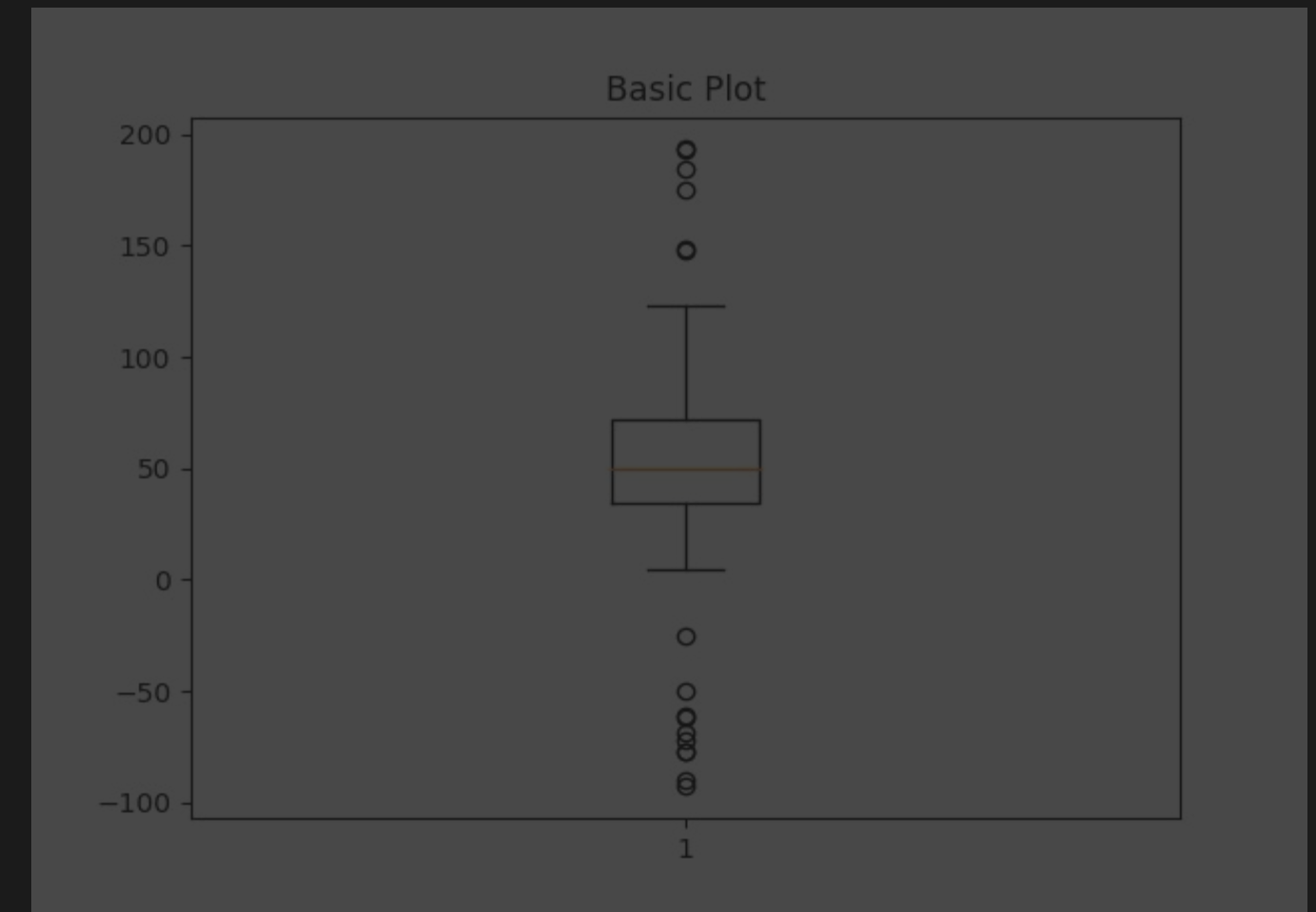
A bar chart or bar graph is a chart or graph that presents categorical data with rectangular bars with heights or lengths proportional to the values that they represent. The bars can be plotted vertically or horizontally.



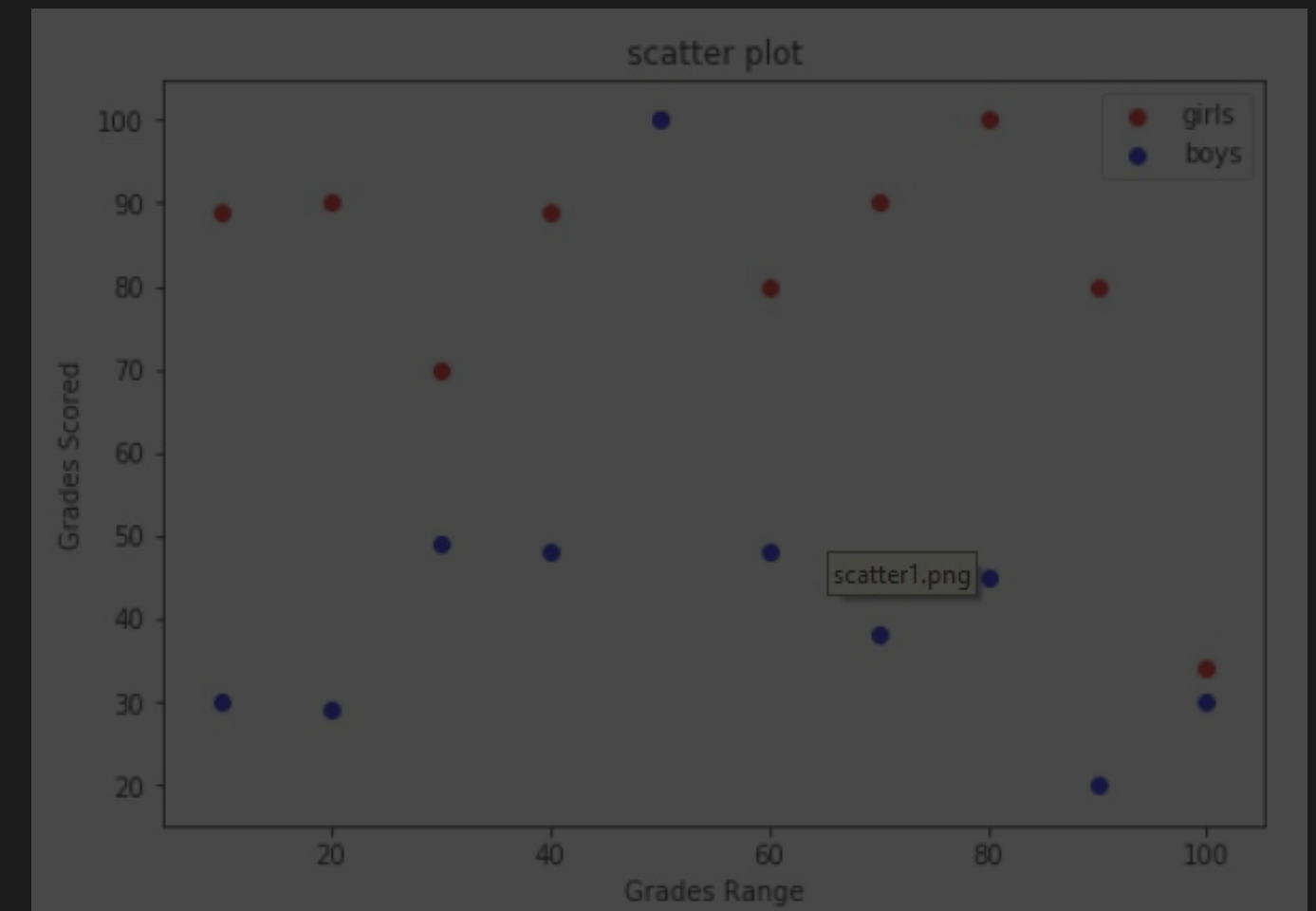
A pie chart is a **circular statistical graphic**, which is divided into slices to illustrate numerical proportion. In a pie chart, the arc length of each slice, is proportional to the quantity it represents.



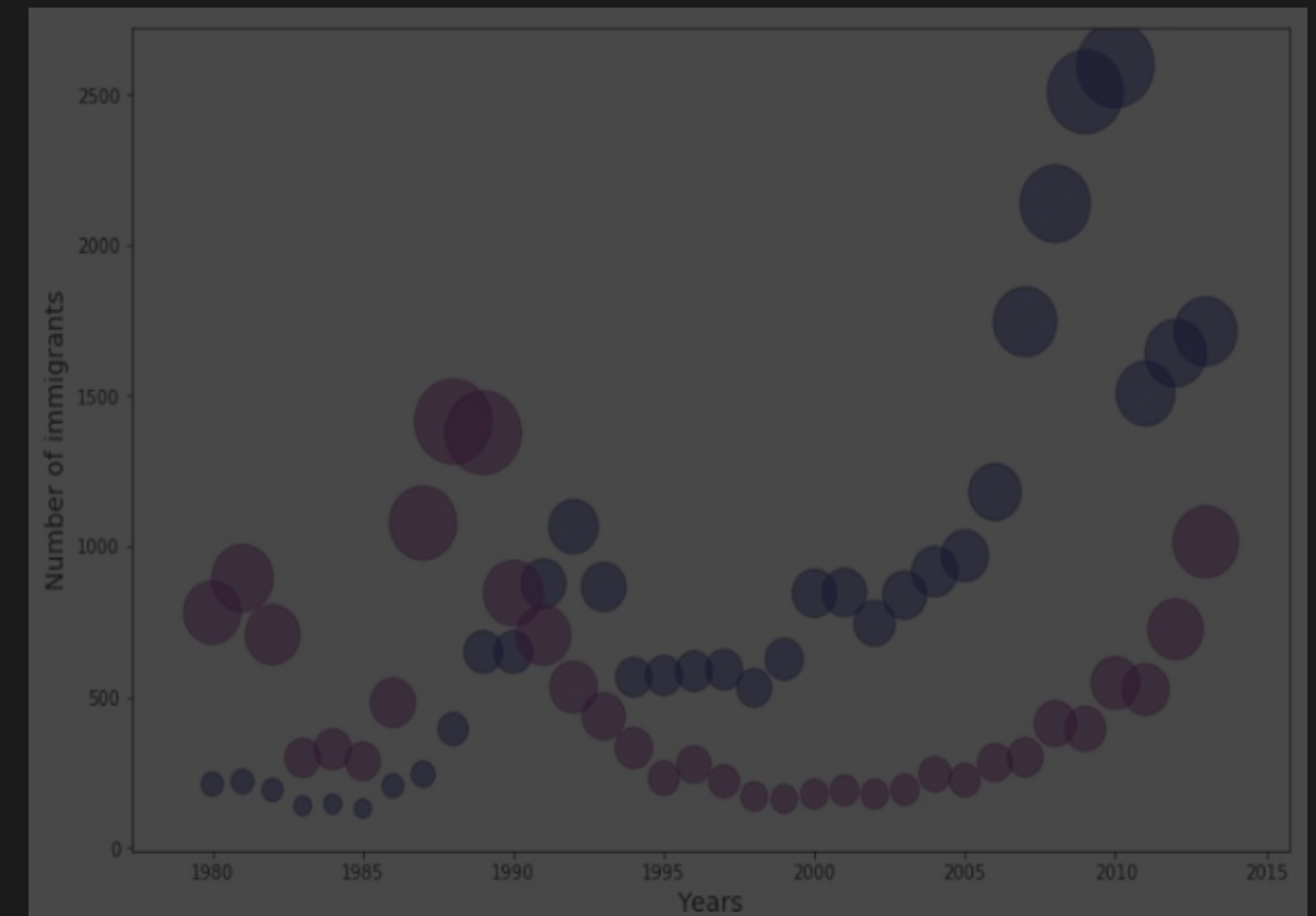
A Box plot or boxplot is a method for graphically depicting groups of numerical data through their quartiles. Box plots may also have lines extending from the boxes indicating variability outside the upper and lower quartiles, hence the terms box-and-whisker plot and box-and-whisker diagram.



A Scatter plot is a type of plot or mathematical diagram using Cartesian coordinates to display values for typically two variables for a set of data.



A bubble chart is a type of chart that displays three dimensions of data. Each entity with its triplet of associated data is plotted as a disk that expresses two of the v_i values through the disk's xy location and the third through its size



A waffle chart shows progress towards a target or a completion percentage. There is a grid of small cells, of which coloured cells represent the data.

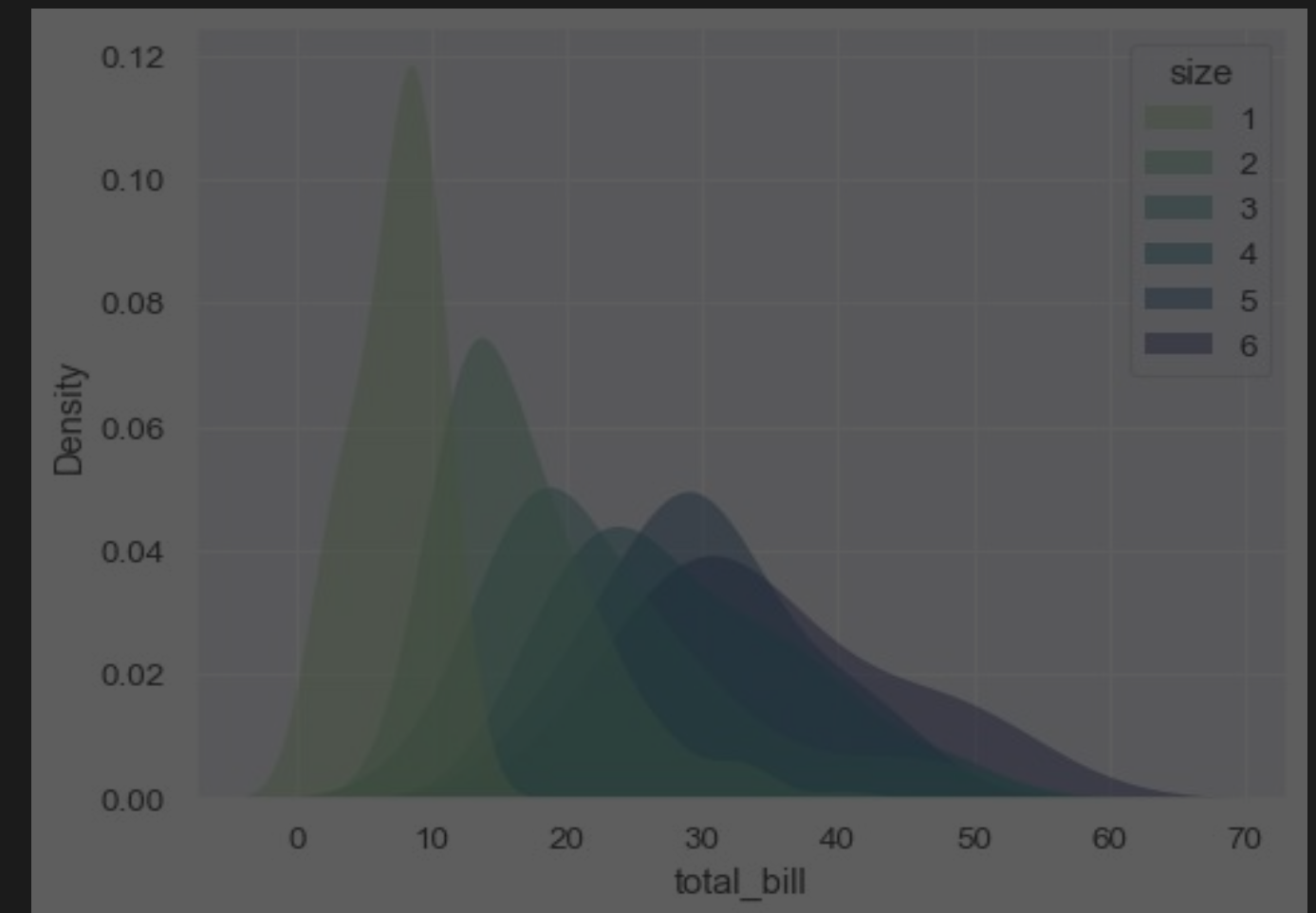


Word Cloud is a data visualization technique used for representing text data in which the size of each word indicates its frequency or importance. Significant textual data points can be highlighted using a word cloud.

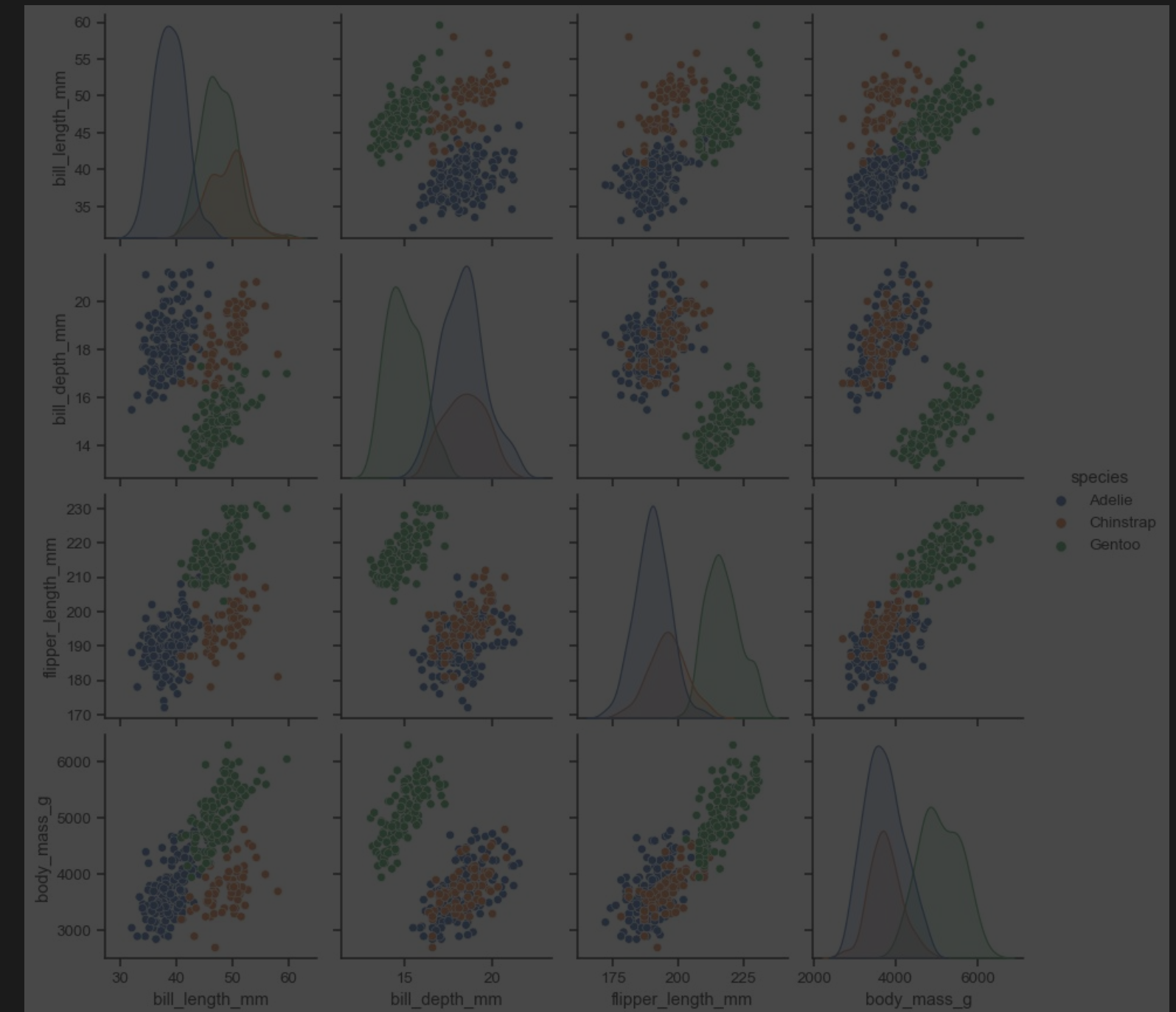
Folium makes it easy to visualize data that's been manipulated in Python on an **interactive leaflet map**. It enables both the binding of data to a map for choropleth visualizations as well as passing rich vector/raster/HTML visualizations as markers on the map.

Seaborn is a Python data visualization library based on matplotlib. It provides a high-level interface for drawing attractive and informative statistical graphics.

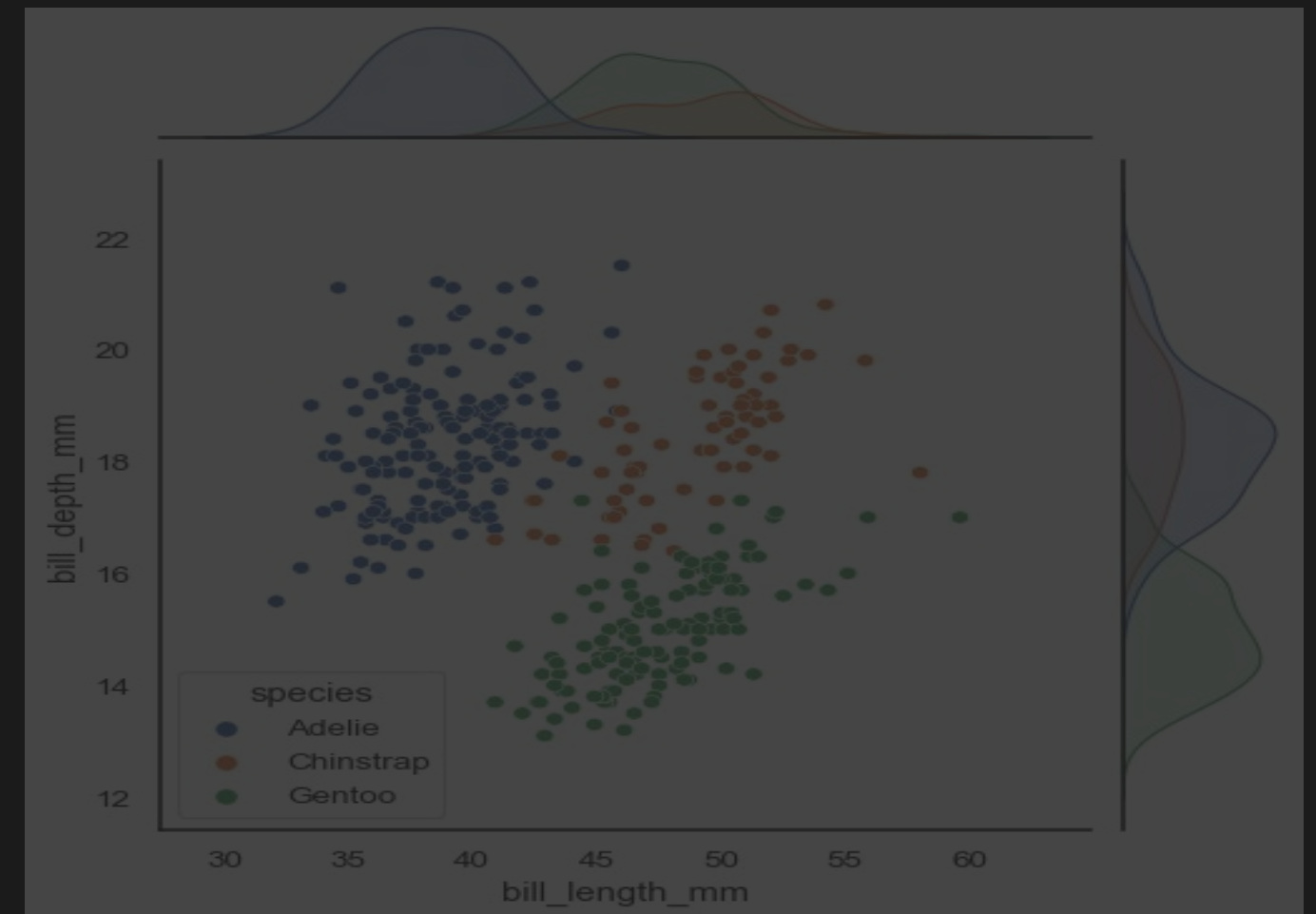
A kernel density estimate (KDE) plot is a method for visualizing the distribution of observations in a dataset, analogous to a histogram. KDE represents the data using a continuous probability density curve in one or more dimensions.



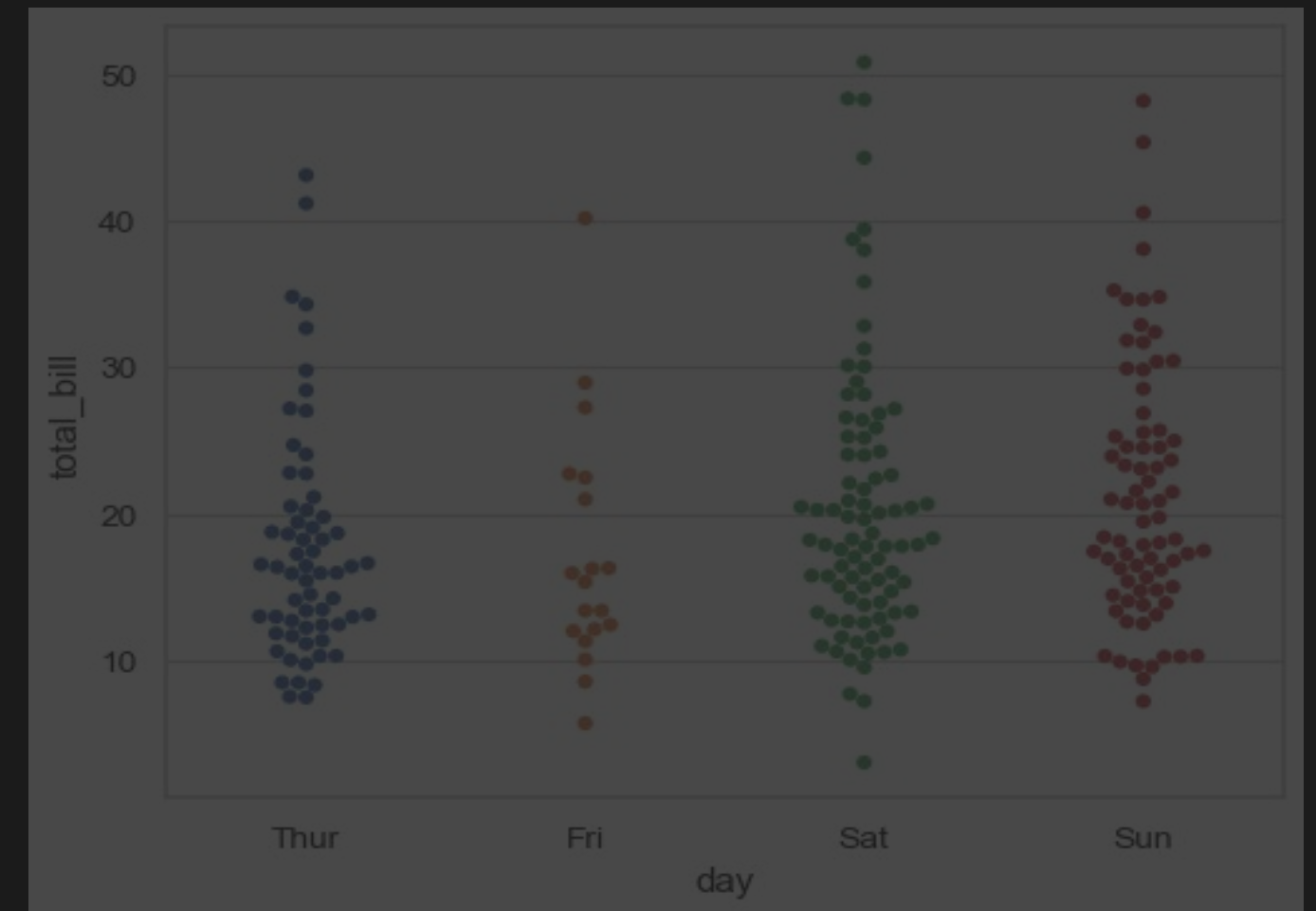
Plot pairwise relationships in a dataset.



Draw a plot of two variables with bivariate and univariate graphs.

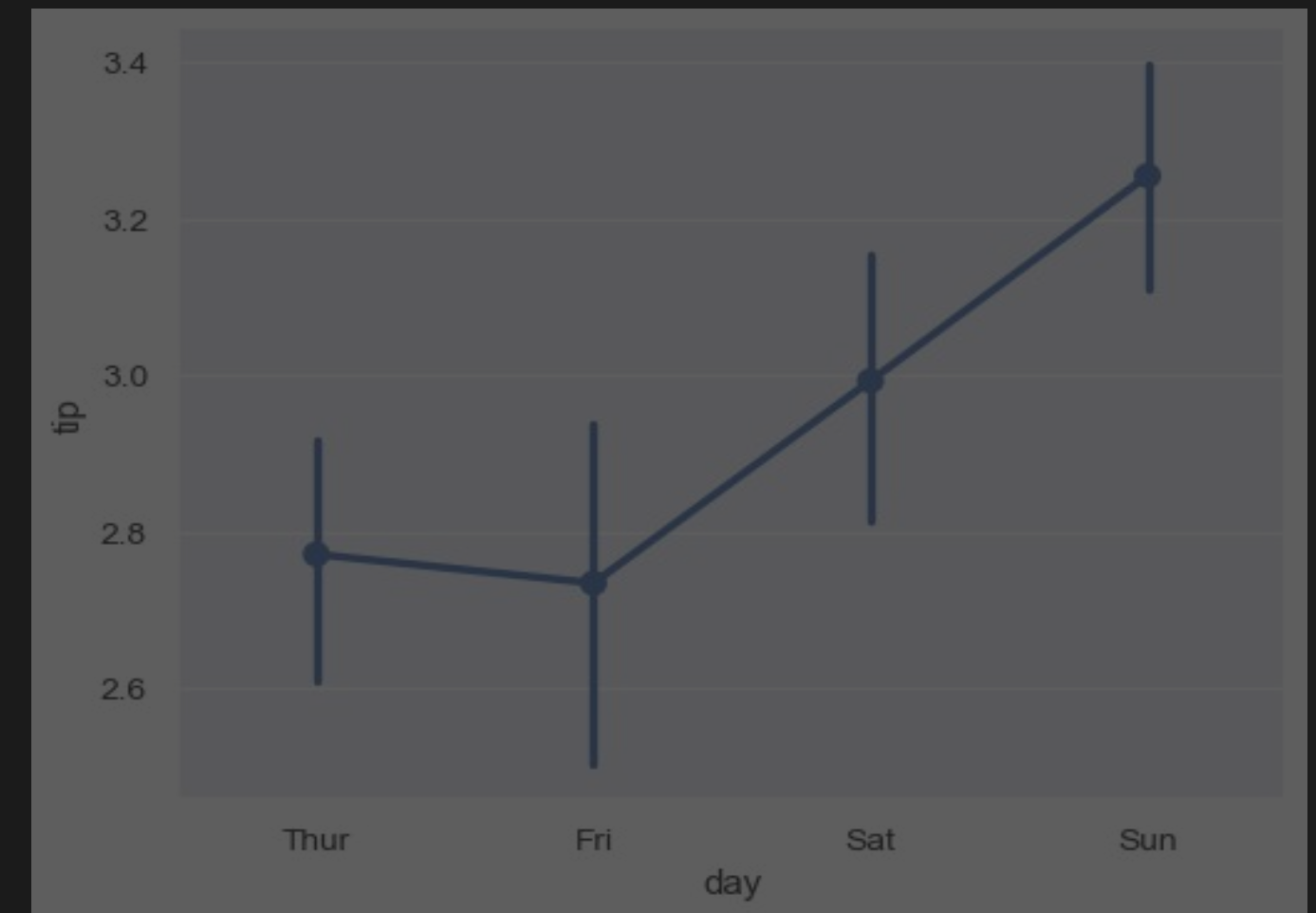


Draw a categorical scatterplot with
non-overlapping points.



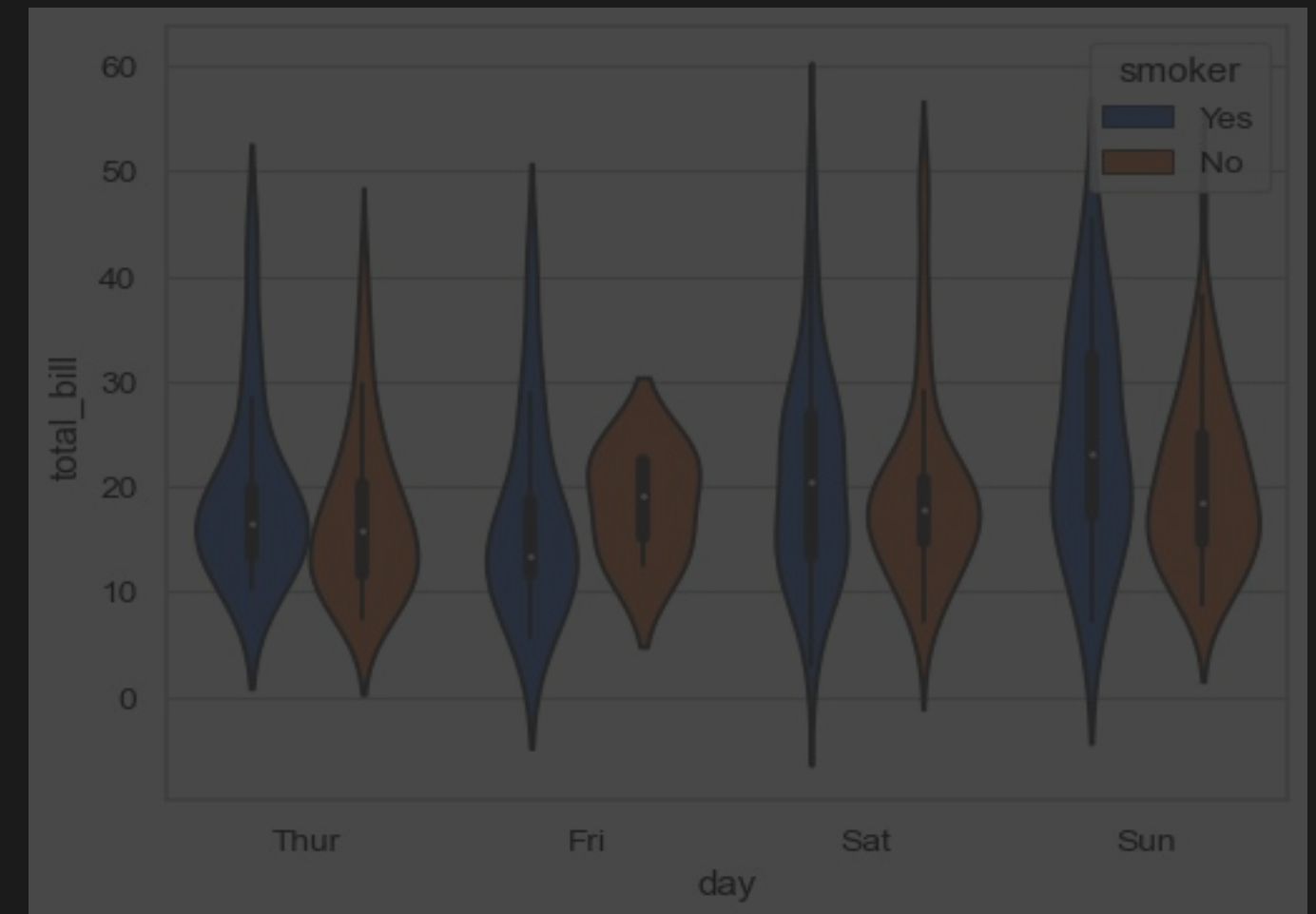
Show point estimates and confidence intervals using scatter plot glyphs.

A point plot represents an estimate of central tendency for a numeric variable by the position of scatter plot points and provides some indication of the uncertainty around that estimate using error bars.

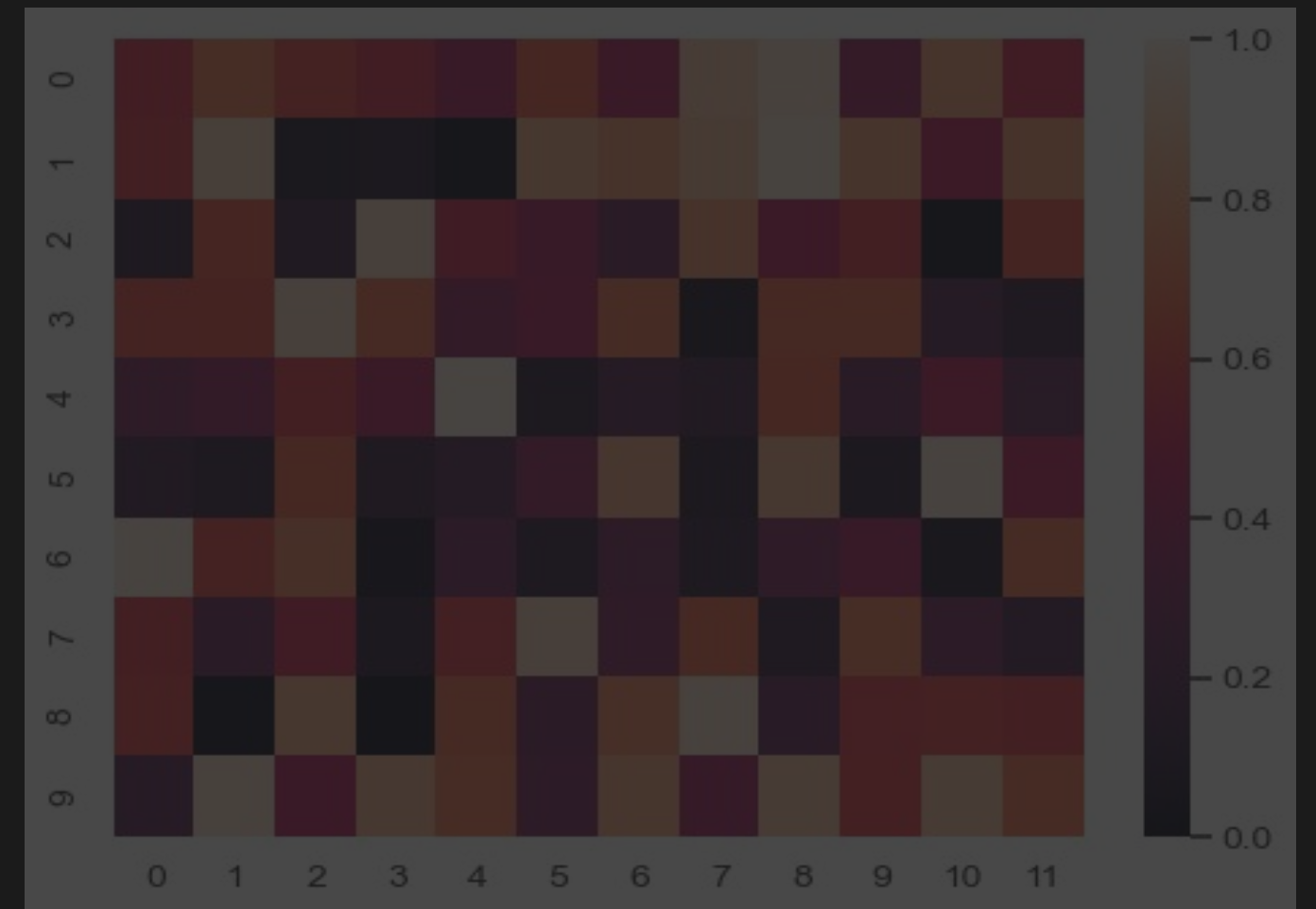


Draw a combination of boxplot and kernel density estimate.

A violin plot plays a similar role as a box and whisker plot. It shows the distribution of quantitative data across several levels of one (or more) categorical variables such that those distributions can be compared.



Plot rectangular data as a color-encoded matrix.



plotly.py is an interactive, open-source, and browser-based graphing library for Python.

Built on top of plotly.js, plotly.py is a high-level, declarative charting library. plotly.js ships with over 30 chart types, including scientific charts, 3D graphs, statistical charts, SVG maps, financial charts, and more.

```
import plotly.express as px
```

```
fig = px.line(x=["a","b","c"], y=[1,3,2], title="sample figure")
```

```
fig.show()
```


External References

Colab Link Basic	Visit Here
Colab Link Advanced	Visit Here
Colab Link Seaborn	Visit Here
Colab Link Plotly	Visit Here