"Tidy data" ← 1 row per observation, 1 column per data piece
1 value per cell

Graphics Components:

- Frame: Variables that define axes and gridlines
- Layer: Geometric elements that represent pieces of data, or trends, each different shape ⇒ diff. layer
- Scale: Aesthetics (color, shape, size, etc.) of geoms to represent categories.
- Facet: Splitting data into subplots to represent groups of data individually
- Theme: Other aesthetics font, bg color, etc.

Data Graphics

Univariate Viz:

- Categorical: Bar chart
- Quantitative: Boxplot, Histogram, Density Plot

Visualizations

Bivariate Viz:

- Quant x Quant: Scatterplot (geom_smooth → trendline, method="lm")
- Cat. x Quant.: Side-by-side boxplots, hists., density plots (or facet-wrapped), violin plots (one per cat.; colors)
- Cat x Cat: Mosaic plots (proportion and count) Stacked bar (Proportion and count), Stacked relative frequency (Proportion), Faceted Bar plot, side-by-side bars

fill = x

Position = "fill"

Position = "dodge"

Multivariate (3+ variables) Viz:

- Regardless of combination, find some way to combine different scales (color, size, etc.) and facet-wrapping to represent any number of variables

Spatial + Effective Viz:

- Choropleth Maps: geom_map color → spread of data, can have points (map = bg)
- Contour map: geom_density_2d
- leaflet map: leaflet(data) + addTiles (map) + addMarkers (datapoint)

geom_sf(maps) + geom_point or geom_density_2d