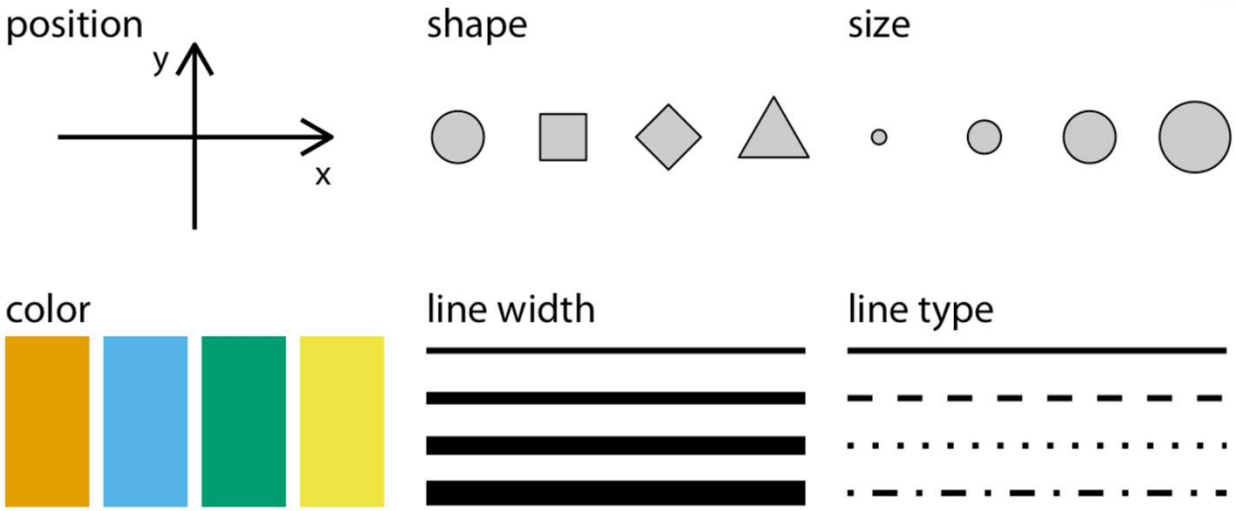
STIKOM BALI

Aesthetics and Types of Data

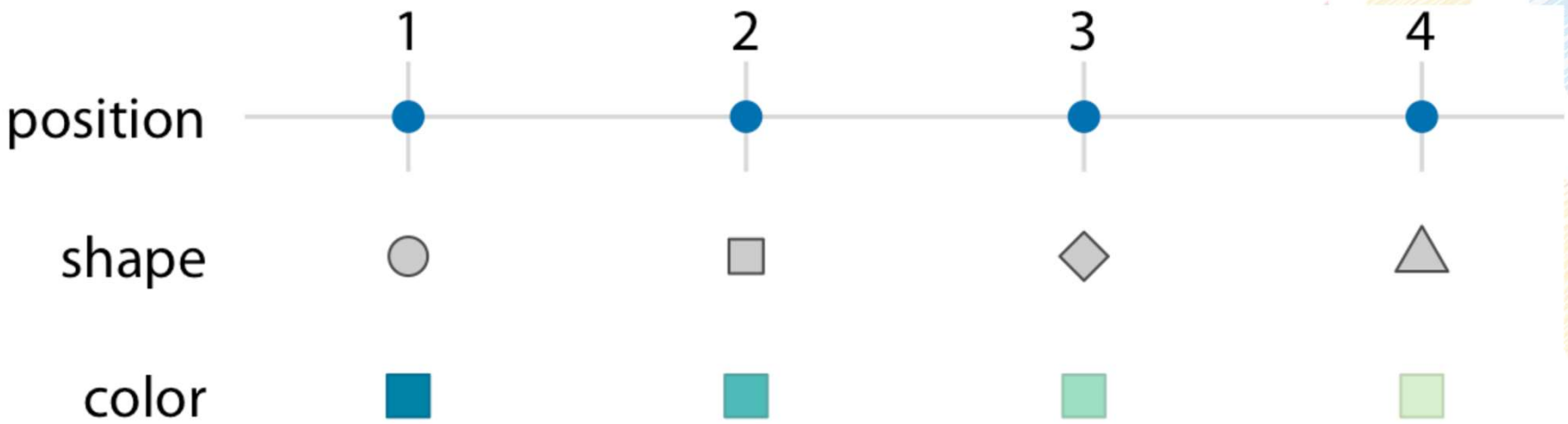
Pertemuan – 3

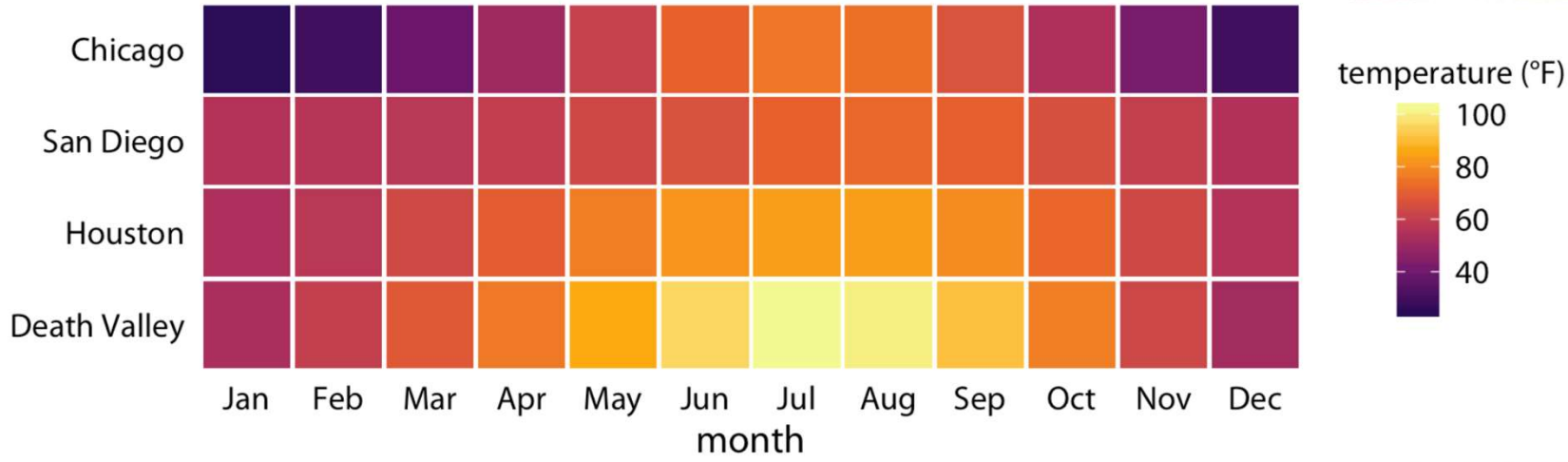
Aesthetics and Types of Data

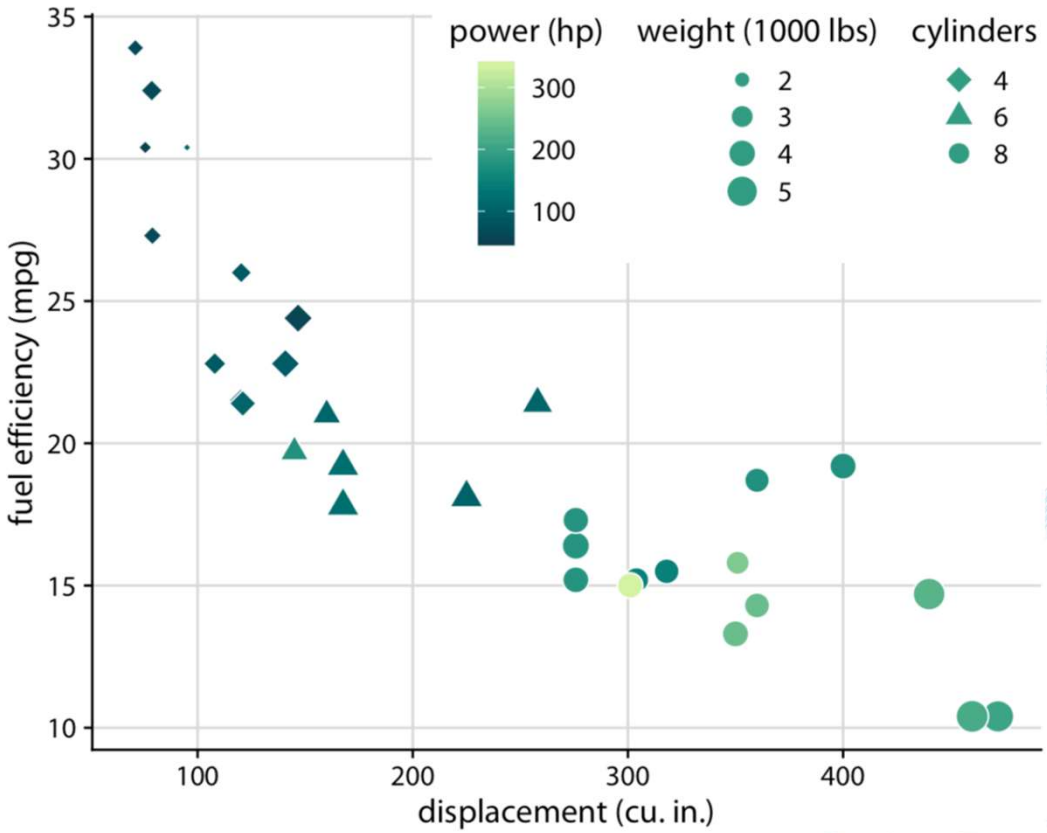
- Shapes



Scales Map Data Values onto Aesthetics



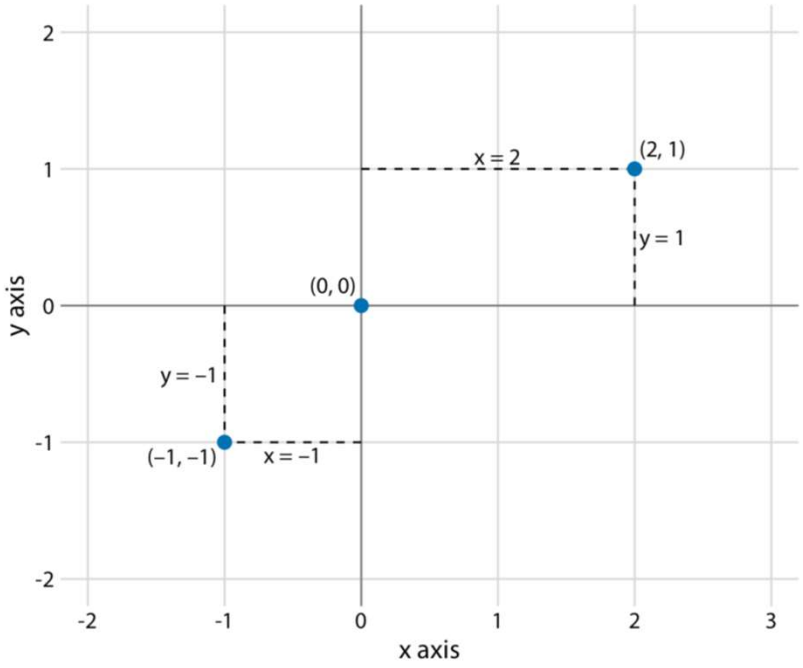

Chicago
San Diego
Houston
Death Valley
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
month
temperature (°F)
100
80
60
40

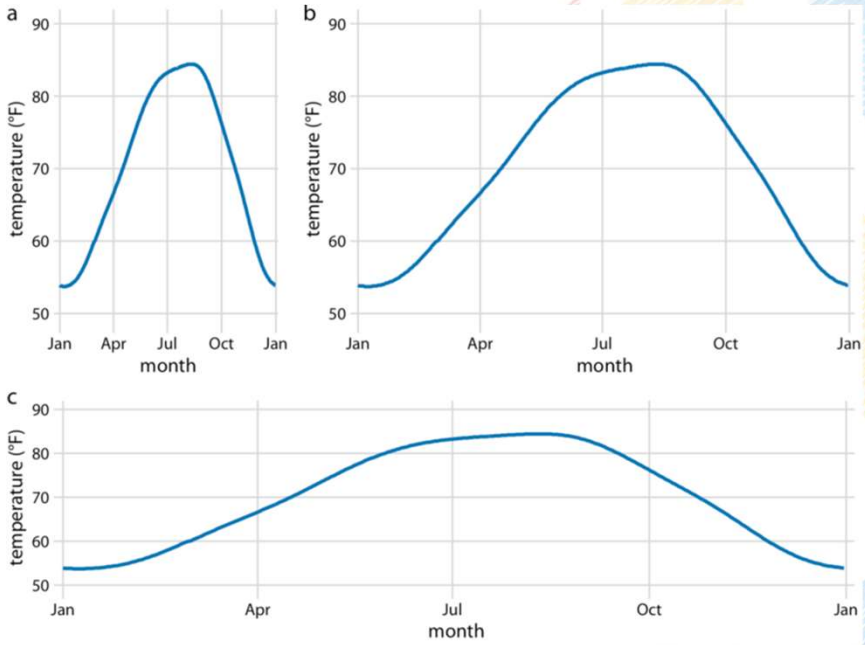

power (hp)
300
200
100
weight (1000 lbs)
2
3
4
5
cylinders
4
6
8
fuel efficiency (mpg)
35
30
25
20
15
10
100
200
300
400
displacement (cu. in.)

Coordinate Systems and Axes - Cartesian Coordinates

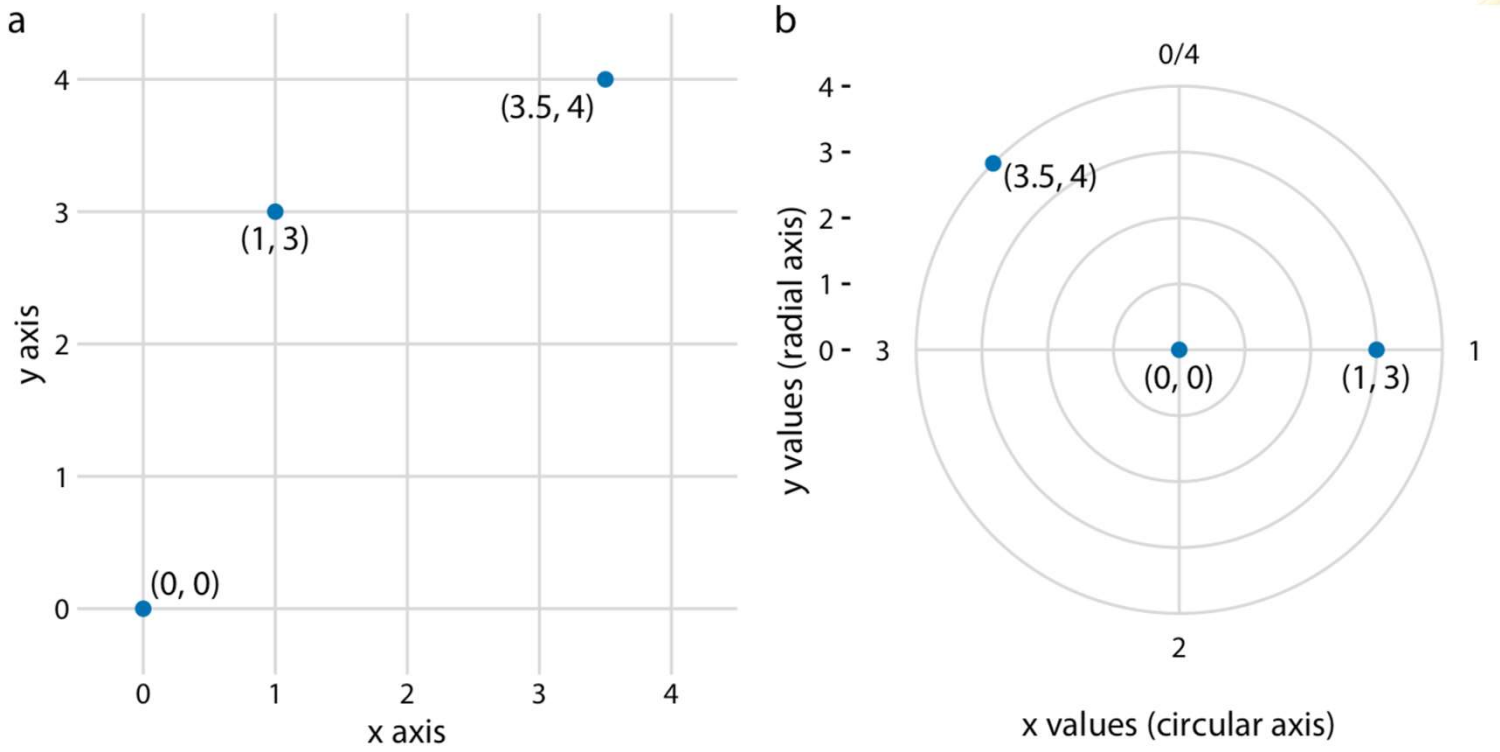
- The most widely used coordinate system for data visualization is the 2D *Cartesian coordinate system*, where each location is uniquely specified by an x and a y value. The x and y axes run orthogonally to each other, and data values are placed in an even spacing along both axes

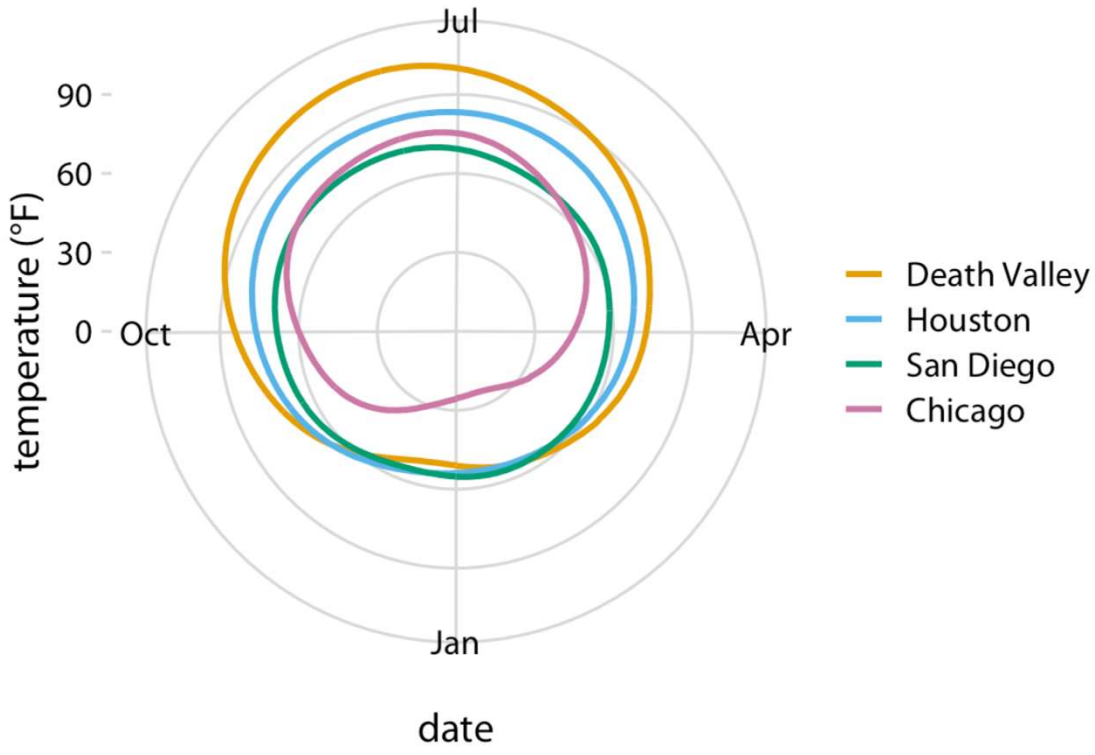
Simple Cartesian Coordinate





Coordinate systems with curved axes

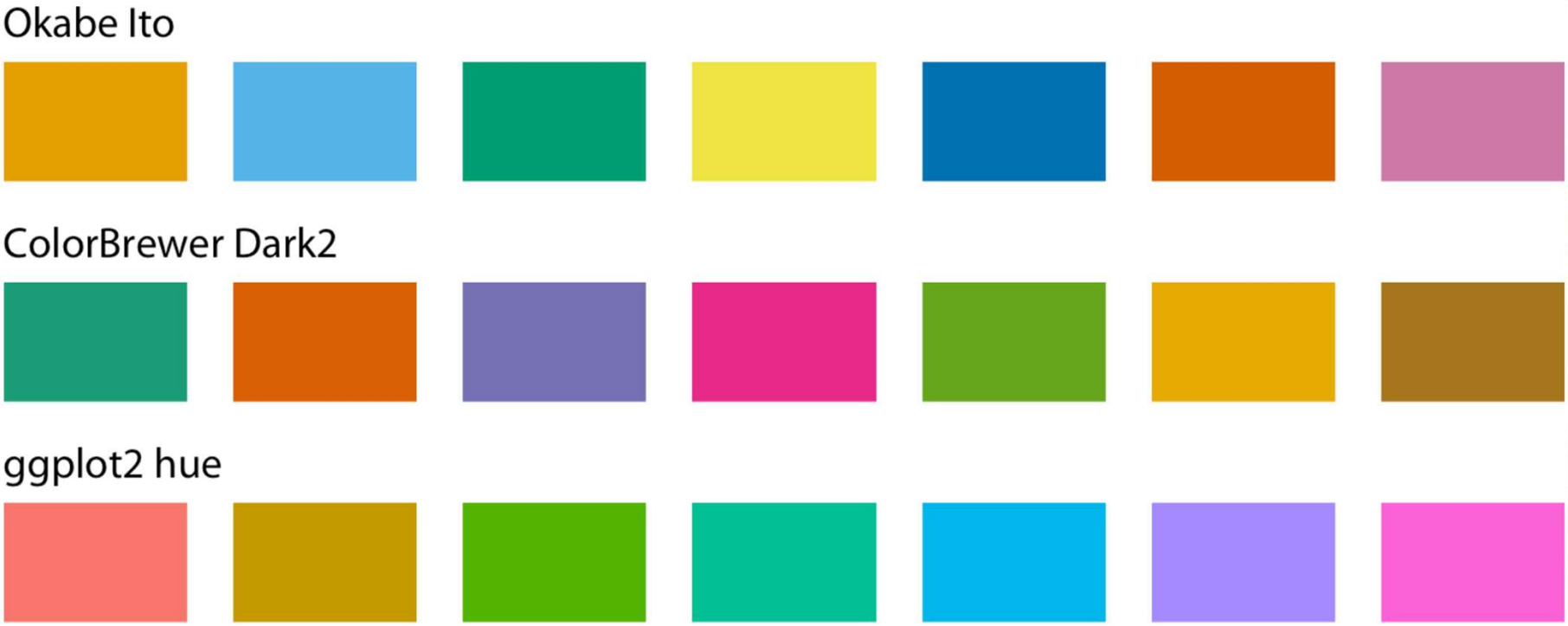


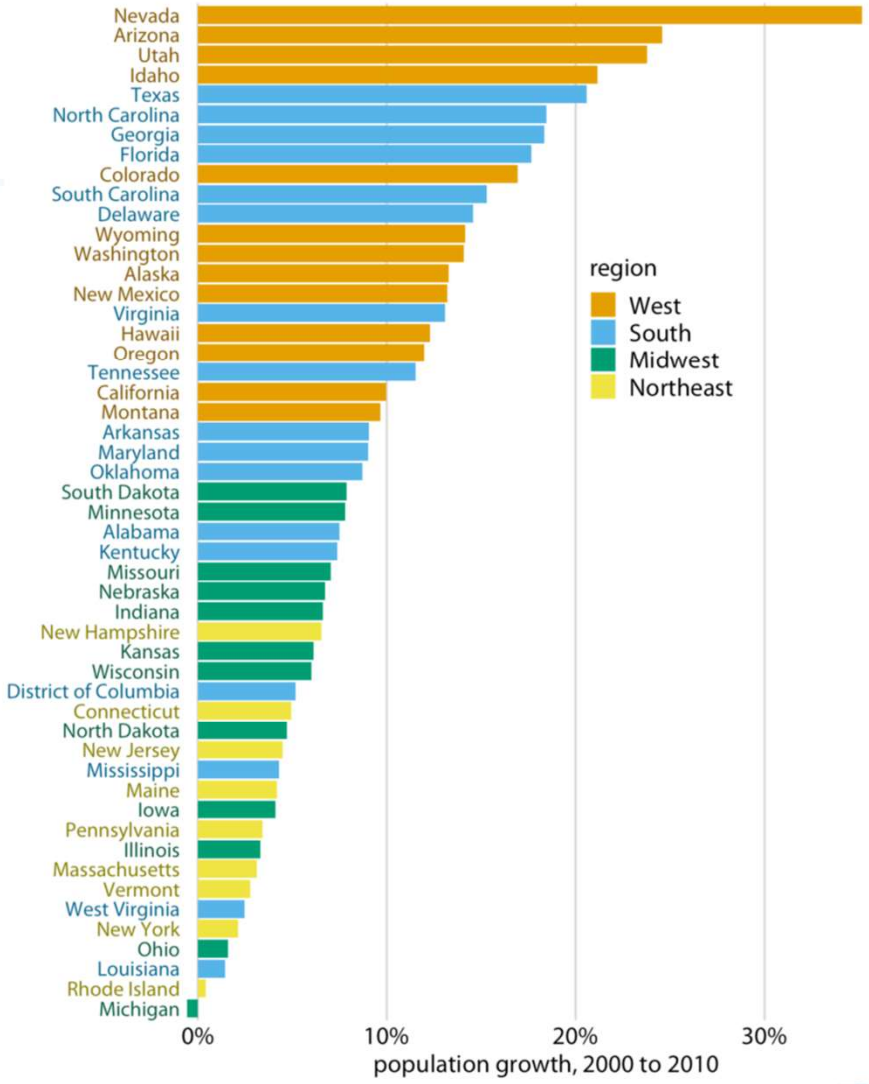

Jul
90
60
30
0
Oct
Apr
Jan
temperature (°F)
date
Death Valley
Houston
San Diego
Chicago

Color Scales

- Color to Represent Data Values : Color can also be used to represent quantitative data values, such as income, temperature, or speed. In this case, we use a *sequential* color scale. Such a scale contains a sequence of colors that clearly indicate which values are larger or smaller than which other ones, and how distant two specific values are from each other. The second point
- *Example qualitative color scales.*
  - *The Okabe Ito scale is the default scale used throughout this book [Okabe and Ito 2008].*
  - *The ColorBrewer Dark2 scale is provided by the ColorBrewer project [Brewer 2017].*
  - *The ggplot2 hue scale is the default qualitative scale in the widely used plotting software ggplot2*

Example Qualitative Color Scale

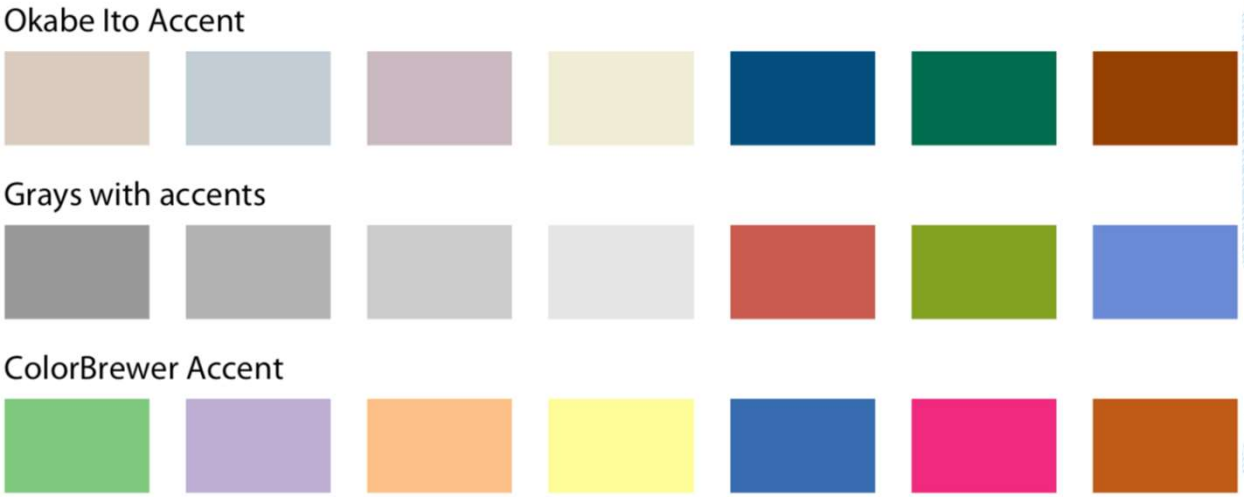


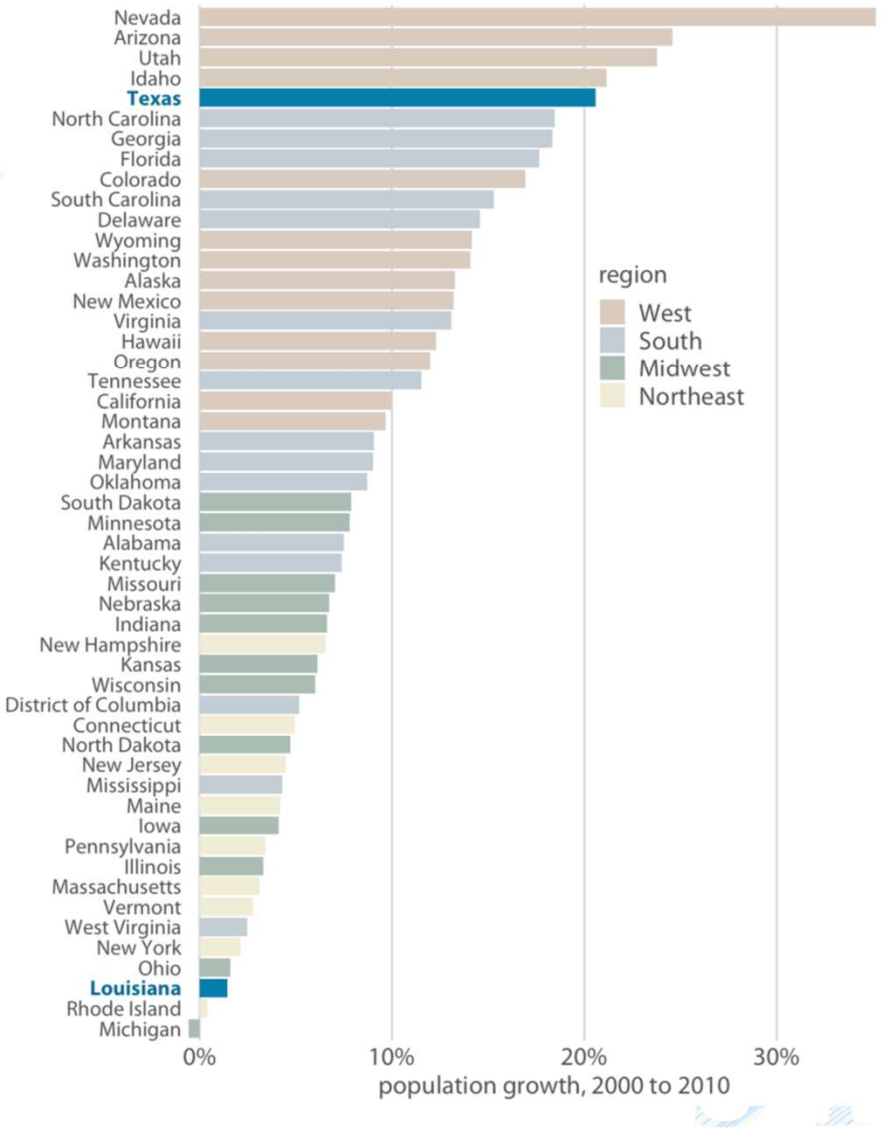

Nevada
Arizona
Utah
Idaho
Texas
North Carolina
Georgia
Florida
Colorado
South Carolina
Delaware
Wyoming
Washington
Alaska
New Mexico
Virginia
Hawaii
Oregon
Tennessee
California
Montana
Arkansas
Maryland
Oklahoma
South Dakota
Minnesota
Alabama
Kentucky
Missouri
Nebraska
Indiana
New Hampshire
Kansas
Wisconsin
District of Columbia
Connecticut
North Dakota
New Jersey
Mississippi
Maine
Iowa
Pennsylvania
Illinois
Massachusetts
Vermont
West Virginia
New York
Ohio
Louisiana
Rhode Island
Michigan
region
West
South
Midwest
Northeast
0%
10%
20%
30%
population growth, 2000 to 2010

Sequential scales can be based on a single hue (e.g., from dark blue to light blue) or on multiple hues (e.g., from dark red to light yellow) (Figure 4-3). Multihue scales tend to follow color gradients that can be seen in the natural world, such as dark red, green, or blue to light yellow, or dark purple to light green. The reverse (e.g., dark yellow to light blue) looks unnatural and doesn't make a useful se quential scale.

Color as a Tool to Highlight

- Color can also be an effective tool to highlight specific elements in the data. There may be specific categories or values in the dataset that carry key information about the story we want to tell, and we can strengthen the story by emphasizing the relevant figure elements to the reader.




Nevada
Arizona
Utah
Idaho
Texas
North Carolina
Georgia
Florida
Colorado
South Carolina
Delaware
Wyoming
Washington
Alaska
New Mexico
Virginia
Hawaii
Oregon
Tennessee
California
Montana
Arkansas
Maryland
Oklahoma
South Dakota
Minnesota
Alabama
Kentucky
Missouri
Nebraska
Indiana
New Hampshire
Kansas
Wisconsin
District of Columbia
Connecticut
North Dakota
New Jersey
Mississippi
Maine
Iowa
Pennsylvania
Illinois
Massachusetts
Vermont
West Virginia
New York
Ohio
Louisiana
Rhode Island
Michigan
region
West
South
Midwest
Northeast
0%
10%
20%
30%
population growth, 2000 to 2010

Sample Implementation

Hidup Layak di Pulau Jawa

Survei ini menggunakan data-data UMK 2020 di seluruh Pulau Jawa dan Survei Biaya Hidup (2012) yang disesuaikan dengan Indeks Harga Konsumen (IHK) tiap tahun hingga tahun 2020.

- https://louislugas.github.io/umk-sbh-jawa-map/index.html