

↑
 ↗
 ↘

show(data)
 str(data)

1. Uni-vis

- 1. histogram (single variable)
- 2. box plot (check distribution and outlier)
- 3. density (smoothed version of a histogram)
- 4. bar

2. Biv-vis

- 1. Scatterplot: relationship between 2 variable, Point

ggplot(---, aes(x=---, y=---) +
 geom_point()

- 2. Line plot (for time-series)

- 3. correlation heatmap, for correlations between 2 contin vari:

library(corrplot)

corr-matrix <- cor(data[, c('varia 1', 'varia 2')])

corrplot(corr-matrix)

3. Multi-vis

- 1) pairs (data)

(method = "n")

eg: Simpson's paradox
 ↓ using facet

4. Spatial Vis

- 1) Leaflet (for interactive maps)

leaflet(data) >

addTiles() >

addMarkers (lat = longitude, lon = latitude)

↓

ggplot(data) +

geom_sf()

frame = x, y
 layers.
 scales:
 facet
 a theme

fill,
 Note: bin width, color
 (add after geom_)

quantitative
 (need, new
 axis)
 categorical
 (way of group)
 eg: color

Types of spatial Vis

Point Map: location

Contour Map: density

Choropleth map: area come

for different region

eg: ggplot(data) +

geom_sf +

geom_point (data = , aes

theme map

5. Effective vis

1) Facet : split data into smaller subsets for visualization

```
ggplot(data, aes(...)) +
```

```
geom_... +
```

```
facet_wrap(~ group-variable)
```

vis.

→ lab(x=..., y=...,
c=...)

Basic principles: 1.) professionalism : meaningful axis is table

2.) Accessibility : have alt text → #/ fig-cap: ?

3.) Design details

4.) Ethics

#/ fig-alt: "

Data Wrangling

1. Filter: rows based on conditions

```
closed_data <- data |>
```

```
filter(V, )
```

2. Mutate : create new v.

```
mutate(new-variable = Vx, ...)
```

3. arrange

4. select

5. summarize

6. group-by

= = equal to

!= not equal

> greater

>=

<

<=

%in% c(?, ?)

a list of multiple values

Date: V-today's date

as.Date(today())

year

month

month(today, label = Tmp)