

```
library(tidyverse)
```

```
# import data
```

```
Weather <- read.csv("weather.csv")
```

```
# check out first 6 rows
```

```
head(Weather)
```

```
# units of observation 每一個地點的時間
```

```
# how many data points do we have
```

```
nrow(Weather)
```

```
# types of variable
```

```
str(Weather)
```

Point maps

```
ggplot(cma_boundaries) +
```

```
geom_sf() +
```

```
geom_point(data=starbucks_cma,
```

```
aes(x=Longitude, y=Latitude), alpha=
```

```
0.3, size=0.2, color="darkgreen") +
```

```
coord_sf(xlim=c(-179.14, -50), ylim=c(14.54, 83.11)) +
```

```
theme_map()
```

```
ggplot(Weather, aes(y=temperature, x=temperature)) +  
  geom_point() + # give R.R. color
```

```
facet_wrap(~ rainToday)
```



- location
 - Hobart
 - Ulverstone
 - Maitland

還原地圖

直線

geom_smooth

= FALSE, method="lm")

Is Graph effective

- right for data

- appropriate for story

- clear purpose

- appropriate for audience

- unbiased/inclusive

- not misleading

temp_garm

Is Graph complete

- title

- subtitle

- x-axis label

- x-axis marks

- y-axis label/mark

- legend title/labels

- caption (author, date,

source)

- data labels

Is Graph Plausible

- color

- date-text

- text size



Scalps:

The characteristics

we add to

Choropleth map

用不同色塊表示

Contour map

```
ggplot(cma_boundaries) +
```

```
geom_sf() +
```

```
geom_density_2d(data=starbucks_cma,
```

```
aes(x=Longitude, y=Latitude),
```

```
size=0.2,
```

```
color="darkgreen") +
```

```
coord_sf(xlim=c(-179.14, -50), ylim=c(14.54, 83.11)) +
```

```
theme_map()
```

tracing:

the splitting

of data

```
ggplot(elections_by_countries,
```

```
aes(map_id=country_fips,
```

```
tilt=median_rent)) +
```

e

```
expand_limits(x=country_map$long,
```

```
y=country_map$lat, +
```

```
theme_map() +
```

```
theme(legend.position="right") +
```

```
coord_equal() +
```

```
scale_fill_gradient(name
```



A frame - the variable that

define the axes and gridlines of canvas

="median rent", colors =

"white", "lightgreen", "darkgreen"

At layer

The geometric elements we add to canvas to represent either
dots or patterns

{ independent (x) = predictor, explanatory

dependent (y) = response, outcome

1 Categorical

+ bar chart
+ proportion

Stacked

dodge

Toolt

1 Numerical



1 + Categorical

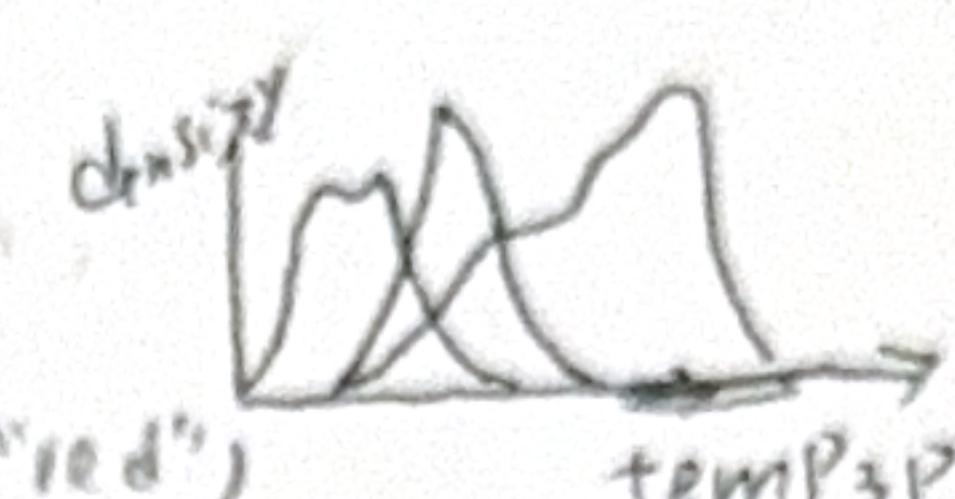
density box violin
histogram facet geom-violin
facet ridges

2 Numerical



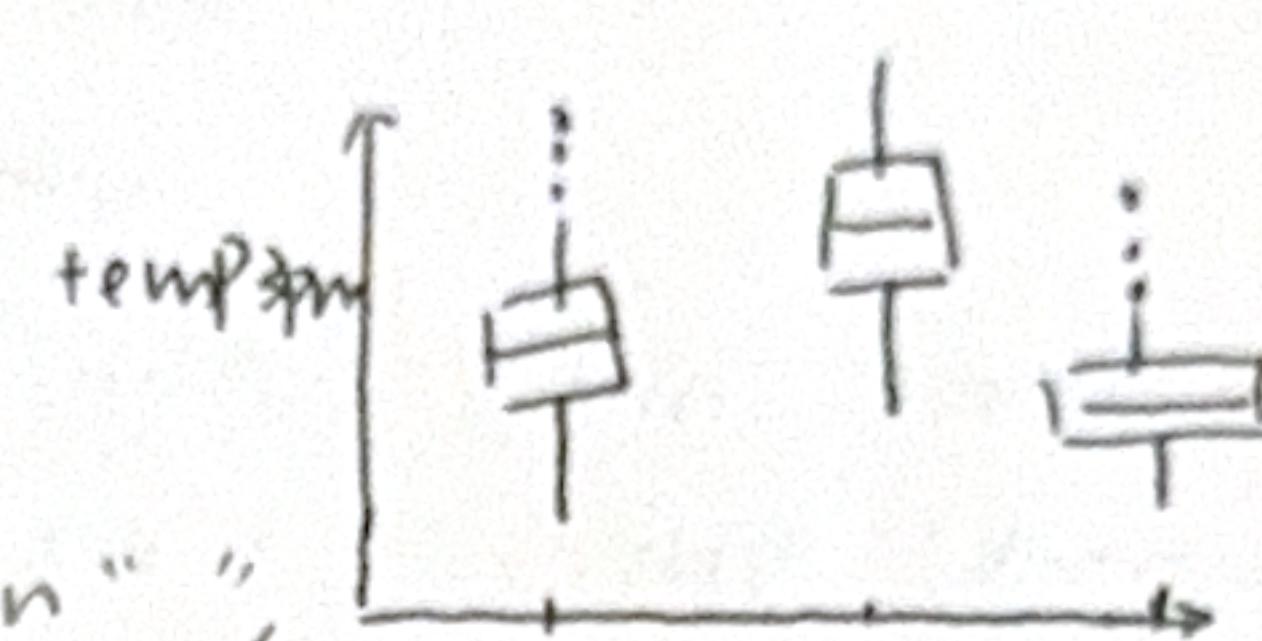
TL

- ggplot(Weather, aes(x = temp3pm, fill = location)) +
geom_density(alpha = 0.5) +

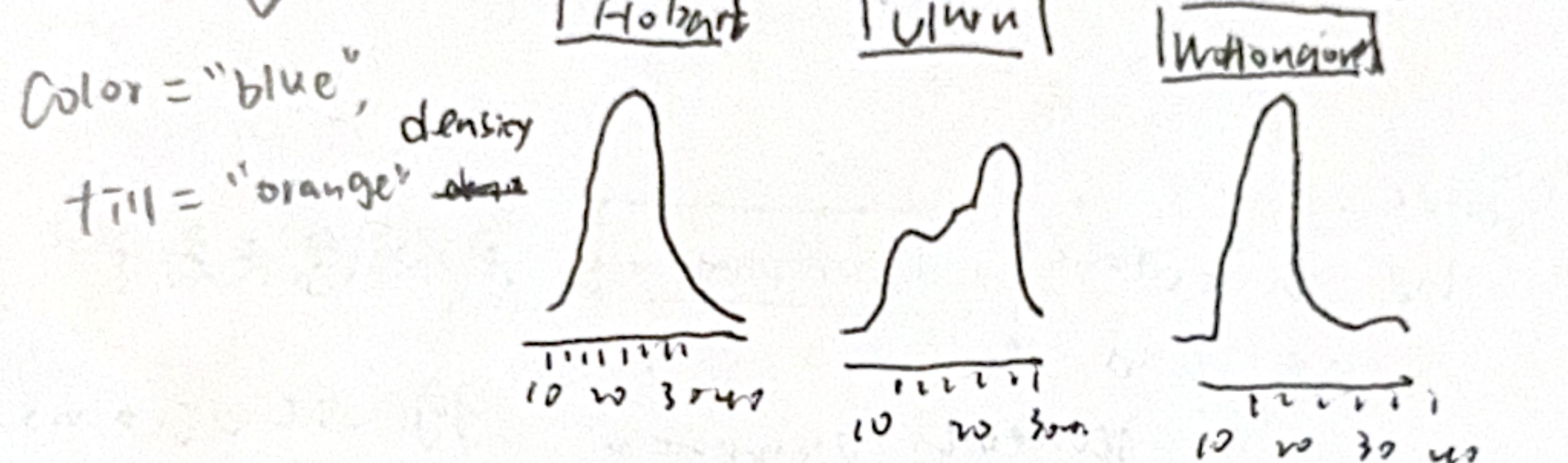


location
Hobart
Uluru
Wollongong

- ggplot(Weather, aes(y = temp3pm, x = location)) +
geom_boxplot() +



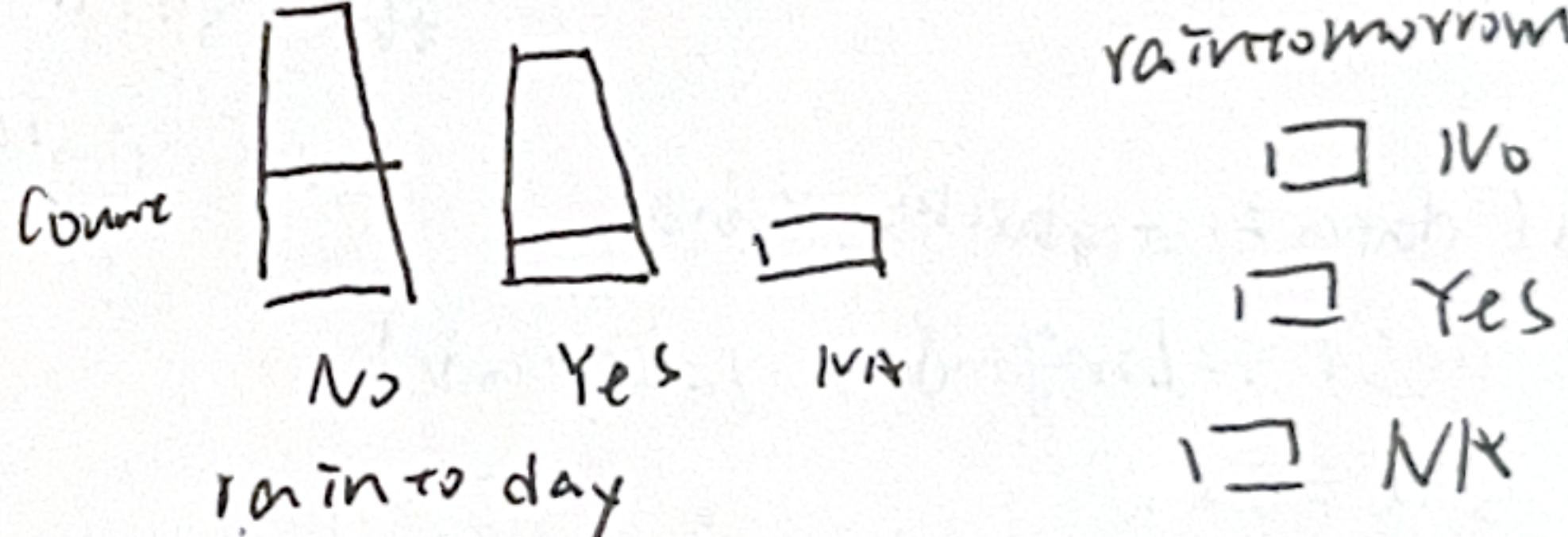
- ggplot(Weather, aes(x = temp3pm, fill = location)) +
geom_density(alpha = 0.5) +
facet_wrap(~ location)



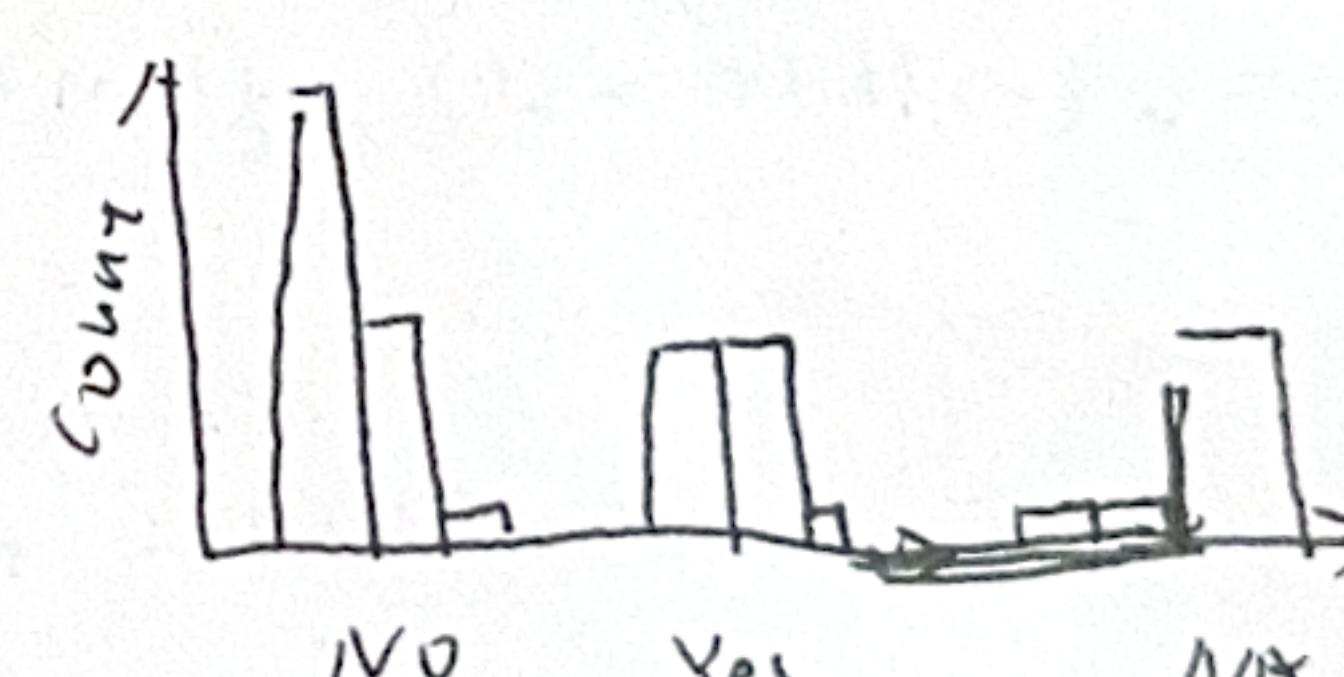
- ggplot(wol, aes(x = raintoday)) +

geom_bar(aes(fill = raintomorrow))

- = ggplot(wol, aes(x = raintoday, fill = raintomorrow)) +
geom_bar()

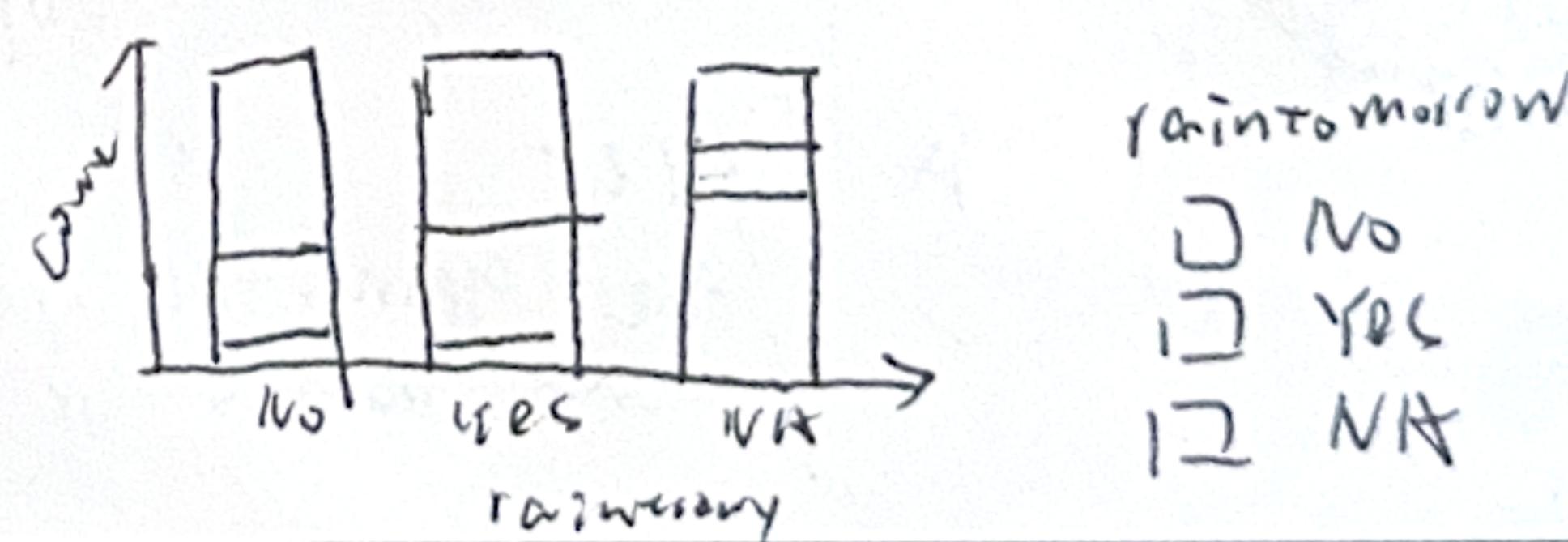


- ggplot(wol, aes(x = raintoday, fill = raintomorrow)) +
geom_bar(position = "dodge")



raintomorrow
No
Yes
NA

- ggplot(wol, aes(x = raintoday, fill = raintomorrow)) +
geom_bar(position = "fill")



raintomorrow
No
Yes
NA