Week-9:Code-along + Challenge

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tidy vs non-tidy (slide #8)

```
library(tidyverse)
```

```
## -- Attaching core tidyverse packages ---------------------- tidyverse 2.0.0 --
## v dplyr     1.1.3     v readr     2.1.4
## v forcats   1.0.0     v stringr   1.5.0
## v ggplot2   3.4.3     v tibble    3.2.1
## v lubridate 1.9.2     v tidyr     1.3.0
## v purrr     1.0.2
## -- Conflicts ---------------------------------------- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```
tidydata <- tribble(
~country, ~year, ~cases, ~population,
"Afghanistan", 1999, 745, 19987071,
"Afghanistan", 2000, 2666, 20595360,
"Brazil", 1999, 37737, 172006362,
"Brazil", 2000, 80488, 174504898,
"China", 1999, 212258, 1272915272,
"China", 2000, 213766, 1280428583)

tidydata
```

```
## # A tibble: 6 x 4
##   country      year  cases population
##   <chr>       <dbl> <dbl>      <dbl>
## 1 Afghanistan  1999    745   19987071
## 2 Afghanistan  2000   2666   20595360
## 3 Brazil       1999  37737  172006362
## 4 Brazil       2000  80488  174504898
## 5 China        1999 212258 1272915272
## 6 China        2000 213766 1280428583
```

```
nontidydata <- tribble(
 ~country,~year,~rate,
"Afghanistan", 1999, "745/19987071",
```

```
"Afghanistan", 2000, "2666/20595360",
"Brazil", 1999, "37737/172006362",
"Brazil", 2000, "80488/174504898",
"China", 1999, "212258/1272915272",
"China", 2000, "213766/1280428583")

nontidydata
```

```
## # A tibble: 6 x 3
##   country      year rate
##   <chr>       <dbl> <chr>
## 1 Afghanistan  1999 745/19987071
## 2 Afghanistan  2000 2666/20595360
## 3 Brazil       1999 37737/172006362
## 4 Brazil       2000 80488/174504898
## 5 China        1999 212258/1272915272
## 6 China        2000 213766/1280428583
```

Tidy-ing data: Example 1 (Slide #11)

```
library(dplyr)

tidieddata <- nontidydata %>%
 separate(rate, into = c("cases",
 "population"),
 sep = "/")

tidieddata
```

```
## # A tibble: 6 x 4
##   country      year cases  population
##   <chr>       <dbl> <chr>  <chr>
## 1 Afghanistan  1999 745    19987071
## 2 Afghanistan  2000 2666   20595360
## 3 Brazil       1999 37737  172006362
## 4 Brazil       2000 80488  174504898
## 5 China        1999 212258 1272915272
## 6 China        2000 213766 1280428583
```

```
newtidieddata <- tidieddata %>%
 pivot_longer(
 cols = cases:population,
 names_to = "measurement"
,
 values_to = "value"
 )

newtidieddata
```

```
## # A tibble: 12 x 4
```

```
##    country      year measurement value
##    <chr>       <dbl> <chr>        <chr>
##  1 Afghanistan  1999 cases        745
##  2 Afghanistan  1999 population   19987071
##  3 Afghanistan  2000 cases        2666
##  4 Afghanistan  2000 population   20595360
##  5 Brazil       1999 cases        37737
##  6 Brazil       1999 population   172006362
##  7 Brazil       2000 cases        80488
##  8 Brazil       2000 population   174504898
##  9 China        1999 cases        212258
## 10 China        1999 population   1272915272
## 11 China        2000 cases        213766
## 12 China        2000 population   1280428583
```

Tidy-ing data: Example 2 (Slide #14)

```r
df <- tribble(
  ~id, ~bp1, ~bp2,
  "A", 100, 120,
  "B", 140, 115,
  "C", 120, 125
)

df
```

```
## # A tibble: 3 x 3
##   id      bp1   bp2
##   <chr> <dbl> <dbl>
## 1 A       100   120
## 2 B       140   115
## 3 C       120   125
```

```r
df %>%
  pivot_longer(
    cols = bp1:bp2,
    names_to = "measurement",
    values_to = "value"
  )
```

```
## # A tibble: 6 x 3
##   id    measurement value
##   <chr> <chr>       <dbl>
## 1 A     bp1           100
## 2 A     bp2           120
## 3 B     bp1           140
## 4 B     bp2           115
## 5 C     bp1           120
## 6 C     bp2           125
```

Reshaping data: Example-3 (Slide #18-19)

```
newtidieddata
```

```
## # A tibble: 12 x 4
##    country      year measurement value
##    <chr>       <dbl> <chr>       <chr>
##  1 Afghanistan  1999 cases       745
##  2 Afghanistan  1999 population  19987071
##  3 Afghanistan  2000 cases       2666
##  4 Afghanistan  2000 population  20595360
##  5 Brazil       1999 cases       37737
##  6 Brazil       1999 population  172006362
##  7 Brazil       2000 cases       80488
##  8 Brazil       2000 population  174504898
##  9 China        1999 cases       212258
## 10 China        1999 population  1272915272
## 11 China        2000 cases       213766
## 12 China        2000 population  1280428583
```

```
newtidieddata %>%
 pivot_wider(names_from="measurement",
 values_from="value")
```

```
## # A tibble: 6 x 4
##   country      year cases   population
##   <chr>       <dbl> <chr>   <chr>
## 1 Afghanistan  1999 745     19987071
## 2 Afghanistan  2000 2666    20595360
## 3 Brazil       1999 37737   172006362
## 4 Brazil       2000 80488   174504898
## 5 China        1999 212258  1272915272
## 6 China        2000 213766  1280428583
```

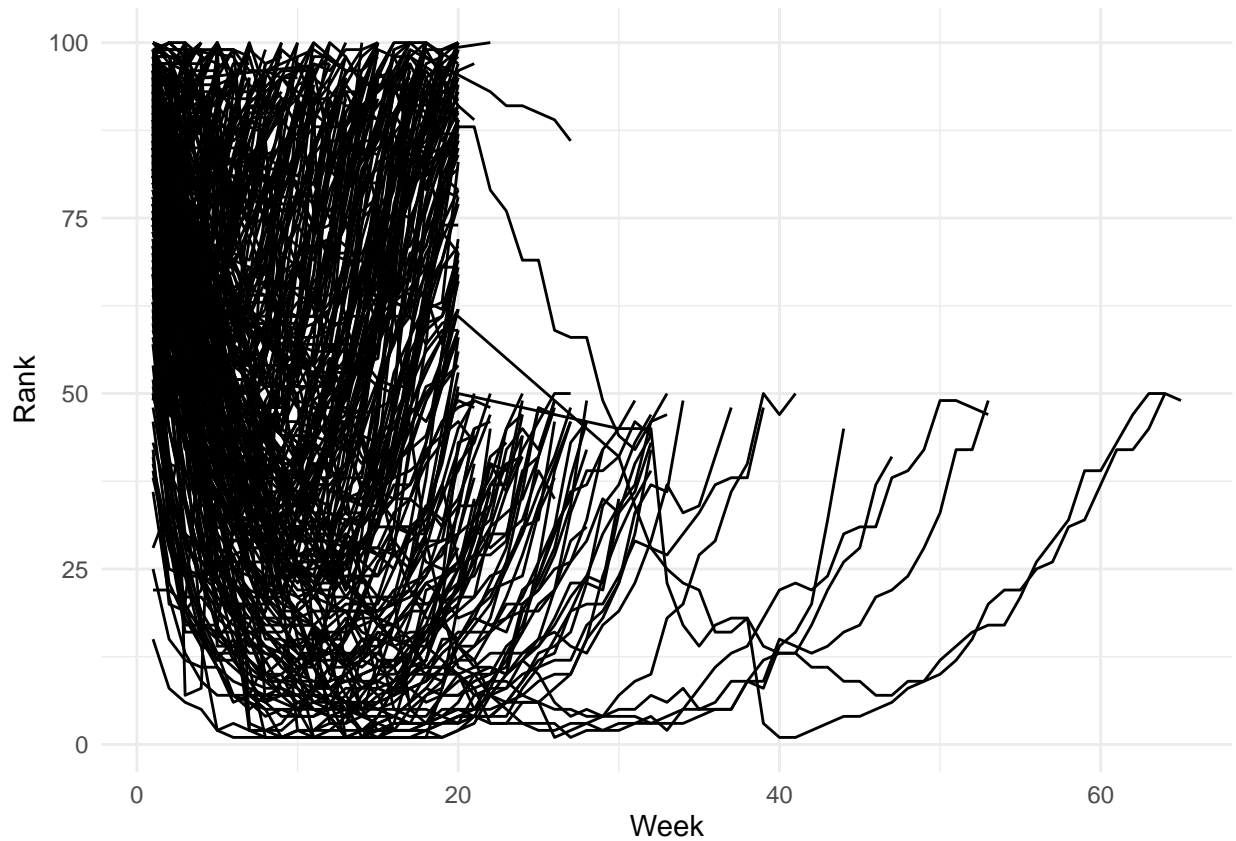**Challenge 9 (Part 1)**

```r
# Load the tidyverse package
library(tidyverse)

# Load the Billboard dataset
data("billboard")

# Pivot the data
billboard_long <- billboard %>%
  pivot_longer(cols = starts_with("wk"), names_to = "week", values_to = "rank", values_drop_na = TRUE)

# Clean the data
billboard_long <- billboard_long %>%
  mutate(week = parse_number(week))
```

```
# Create a line plot
ggplot(billboard_long, aes(x = week, y = rank, group = track)) +
  geom_line() +
  labs(x = "Week", y = "Rank") +
  theme_minimal()
```


Challenge 9 (Part 2)

```
# Load the tidyverse package
library(tidyverse)

# Assuming you have the cms_patient_experience dataset available
# If not, you need to load the dataset first

# Pivot the dataset using pivot_wider
cms_patient_experience_wide <- cms_patient_experience %>%
  pivot_wider(
    names_from = measure_cd,
    values_from = prf_rate,
    id_cols = starts_with("org")
  )

# Print the resulting dataset
print(cms_patient_experience_wide)
```

```
## # A tibble: 95 x 8
##    org_pac_id org_nm CAHPS_GRP_1 CAHPS_GRP_2 CAHPS_GRP_3 CAHPS_GRP_5 CAHPS_GRP_8
##    <chr>      <chr>        <dbl>       <dbl>       <dbl>       <dbl>       <dbl>
##  1 0446157747 USC C~          63          87          86          57          85
##  2 0446162697 ASSOC~          59          85          83          63          88
##  3 0547164295 BEAVE~          49          NA          75          44          73
##  4 0749333730 CAPE ~          67          84          85          65          82
##  5 0840104360 ALLIA~          66          87          87          64          87
##  6 0840109864 REX H~          73          87          84          67          91
##  7 0840513552 SCL H~          58          83          76          58          78
##  8 0941545784 GRITM~          46          86          81          54          NA
##  9 1052612785 COMMU~          65          84          80          58          87
## 10 1254237779 OUR L~          61          NA          NA          65          NA
## # i 85 more rows
## # i 1 more variable: CAHPS_GRP_12 <dbl>
```