W9-code-along-challenge

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II. Code to edit and execute using the Code-along-9.Rmd file

A. Code Along

1a. Tidy data (Slide #8)

```
# tidy data

library(tidyverse)
```

```
## -- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
## v dplyr     1.1.2     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
```

1b. Untidy data (Slide #8)

```
# untidy data

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
```

2. Tidy-ing data EG 1 (Slide #11)

```
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
```

3. Tidy-ing data EG 1 continued (Slide #12)

```
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
```

4. Tidy-ing data EG 2 (Slide #14)

```
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
```

```
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
```

6. Reshaping data EG 3 (Slides #18)

```
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
```

7. Reshaping data EG 4 (Slides #19)

```
df <- tribble(
 ~id, ~measurement, ~value,
 "A", "bp1", 100,
 "B", "bp1", 140,
 "B", "bp2", 115,
 "A", "bp2", 120,
 "A", "bp3", 105
)
df
```

```
## # A tibble: 5 x 3
##   id    measurement value
##   <chr> <chr>       <dbl>
## 1 A     bp1           100
## 2 B     bp1           140
## 3 B     bp2           115
## 4 A     bp2           120
## 5 A     bp3           105
```

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

```
## # A tibble: 2 x 4
##   id      bp1   bp2   bp3
##   <chr> <dbl> <dbl> <dbl>
## 1 A       100   120   105
## 2 B       140   115    NA
```

B. Challenge

1. Billboard

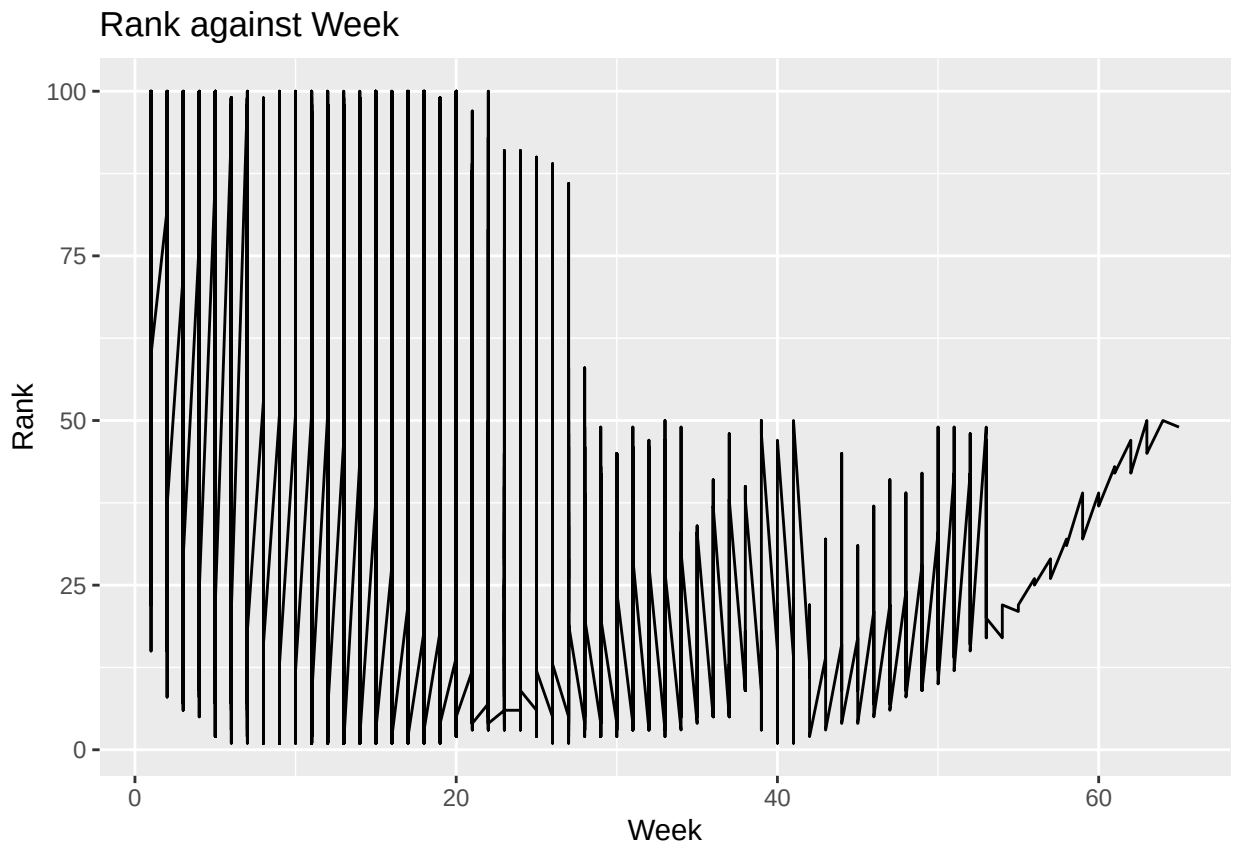
```
billboard
```

```
## # A tibble: 317 x 79
##    artist     track date.entered   wk1   wk2   wk3   wk4   wk5   wk6   wk7   wk8
##    <chr>      <chr> <date>       <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
##  1 2 Pac      Baby~ 2000-02-26      87    82    72    77    87    94    99    NA
##  2 2Ge+her    The ~ 2000-09-02      91    87    92    NA    NA    NA    NA    NA
##  3 3 Doors D~ Kryp~ 2000-04-08      81    70    68    67    66    57    54    53
##  4 3 Doors D~ Loser 2000-10-21      76    76    72    69    67    65    55    59
##  5 504 Boyz   Wobb~ 2000-04-15      57    34    25    17    17    31    36    49
##  6 98^0       Give~ 2000-08-19      51    39    34    26    26    19     2     2
##  7 A*Teens    Danc~ 2000-07-08      97    97    96    95   100    NA    NA    NA
##  8 Aaliyah    I Do~ 2000-01-29      84    62    51    41    38    35    35    38
##  9 Aaliyah    Try ~ 2000-03-18      59    53    38    28    21    18    16    14
## 10 Adams, Yo~ Open~ 2000-08-26      76    76    74    69    68    67    61    58
## # i 307 more rows
## # i 68 more variables: wk9 <dbl>, wk10 <dbl>, wk11 <dbl>, wk12 <dbl>,
## #   wk13 <dbl>, wk14 <dbl>, wk15 <dbl>, wk16 <dbl>, wk17 <dbl>, wk18 <dbl>,
## #   wk19 <dbl>, wk20 <dbl>, wk21 <dbl>, wk22 <dbl>, wk23 <dbl>, wk24 <dbl>,
## #   wk25 <dbl>, wk26 <dbl>, wk27 <dbl>, wk28 <dbl>, wk29 <dbl>, wk30 <dbl>,
## #   wk31 <dbl>, wk32 <dbl>, wk33 <dbl>, wk34 <dbl>, wk35 <dbl>, wk36 <dbl>,
## #   wk37 <dbl>, wk38 <dbl>, wk39 <dbl>, wk40 <dbl>, wk41 <dbl>, wk42 <dbl>, ...
```

```
library(dplyr)
library(tidyr)
library(ggplot2)
```

```
billboard_long <- billboard %>%
  pivot_longer(cols = starts_with("wk"),
               names_to = "week",
               values_drop_na = TRUE) %>%
  mutate(week = parse_number(week))
```

```
ggplot(data = billboard_long,
 mapping = aes(x = week, y = value)) +
 geom_line() +
 labs(title = "Rank against Week",
      x = "Week", y = "Rank")
```



2. CMS Patient Experience

```
cms_patient_experience
```

```
## # A tibble: 500 x 5
##    org_pac_id org_nm                          measure_cd measure_title prf_rate
##    <chr>      <chr>                           <chr>      <chr>            <dbl>
##  1 0446157747 USC CARE MEDICAL GROUP INC      CAHPS_GRP~ CAHPS for MI~       63
##  2 0446157747 USC CARE MEDICAL GROUP INC      CAHPS_GRP~ CAHPS for MI~       87
##  3 0446157747 USC CARE MEDICAL GROUP INC      CAHPS_GRP~ CAHPS for MI~       86
```

```
##  4 0446157747 USC CARE MEDICAL GROUP INC       CAHPS_GRP~ CAHPS for MI~       57
##  5 0446157747 USC CARE MEDICAL GROUP INC       CAHPS_GRP~ CAHPS for MI~       85
##  6 0446157747 USC CARE MEDICAL GROUP INC       CAHPS_GRP~ CAHPS for MI~       24
##  7 0446162697 ASSOCIATION OF UNIVERSITY PHYSI~ CAHPS_GRP~ CAHPS for MI~       59
##  8 0446162697 ASSOCIATION OF UNIVERSITY PHYSI~ CAHPS_GRP~ CAHPS for MI~       85
##  9 0446162697 ASSOCIATION OF UNIVERSITY PHYSI~ CAHPS_GRP~ CAHPS for MI~       83
## 10 0446162697 ASSOCIATION OF UNIVERSITY PHYSI~ CAHPS_GRP~ CAHPS for MI~       63
## # i 490 more rows
```

```r
# Step 1: Pivot the data using pivot_wider
reshaped_data <- cms_patient_experience %>%
  pivot_wider(
    names_from = measure_cd,
    values_from = prf_rate
  )

reshaped_data
```

```
## # A tibble: 500 x 9
##    org_pac_id org_nm           measure_title CAHPS_GRP_1 CAHPS_GRP_2 CAHPS_GRP_3
##    <chr>      <chr>            <chr>               <dbl>       <dbl>       <dbl>
##  1 0446157747 USC CARE MEDICA~ CAHPS for MI~          63          NA          NA
##  2 0446157747 USC CARE MEDICA~ CAHPS for MI~          NA          87          NA
##  3 0446157747 USC CARE MEDICA~ CAHPS for MI~          NA          NA          86
##  4 0446157747 USC CARE MEDICA~ CAHPS for MI~          NA          NA          NA
##  5 0446157747 USC CARE MEDICA~ CAHPS for MI~          NA          NA          NA
##  6 0446157747 USC CARE MEDICA~ CAHPS for MI~          NA          NA          NA
##  7 0446162697 ASSOCIATION OF ~ CAHPS for MI~          59          NA          NA
##  8 0446162697 ASSOCIATION OF ~ CAHPS for MI~          NA          85          NA
##  9 0446162697 ASSOCIATION OF ~ CAHPS for MI~          NA          NA          83
## 10 0446162697 ASSOCIATION OF ~ CAHPS for MI~          NA          NA          NA
## # i 490 more rows
## # i 3 more variables: CAHPS_GRP_5 <dbl>, CAHPS_GRP_8 <dbl>, CAHPS_GRP_12 <dbl>
```

```r
reshaped_data <- cms_patient_experience %>%
  pivot_wider(
    id_cols = starts_with("org"),
    names_from = measure_cd,
    values_from = prf_rate
  )

reshaped_data
```

```
## # 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>
```