Code Along and Challenge 9

Chee Ting

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```
library(tidyverse)
```

```
## Warning: package 'tidyverse' was built under R version 4.2.3
```

```
## Warning: package 'ggplot2' was built under R version 4.2.3
```

```
## Warning: package 'tibble' was built under R version 4.2.3
```

```
## Warning: package 'tidyr' was built under R version 4.2.3
```

```
## Warning: package 'readr' was built under R version 4.2.3
```

```
## Warning: package 'purrr' was built under R version 4.2.2
```

```
## Warning: package 'dplyr' was built under R version 4.2.3
```

```
## Warning: package 'stringr' was built under R version 4.2.2
```

```
## Warning: package 'forcats' was built under R version 4.2.3
```

```
## Warning: package 'lubridate' was built under R version 4.2.3
```

```
## ── Attaching core tidyverse packages ──────────────────────── tidyverse 2.0.0 ──
## ✓ dplyr     1.1.2     ✓ readr     2.1.4
## ✓ forcats   1.0.0     ✓ stringr   1.5.0
## ✓ ggplot2   3.4.3     ✓ tibble    3.2.1
## ✓ lubridate 1.9.2     ✓ tidyr     1.3.0
## ✓ purrr     1.0.1
## ── Conflicts ────────────────────────────────────────── tidyverse_conflicts() ──
## ✖ dplyr::filter() masks stats::filter()
## ✖ dplyr::lag()    masks stats::lag()
## ℹ Use the ]8;;http://conflicted.r-lib.org/conflicted package]8;; to force all conflict
s 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 × 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 × 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
```

```
tidydata %>%
group_by(year) %>%
summarize(total_cases = sum(cases))
```

```
## # A tibble: 2 × 2
##    year total_cases
##   <dbl>       <dbl>
## 1  1999      250740
## 2  2000      296920
```

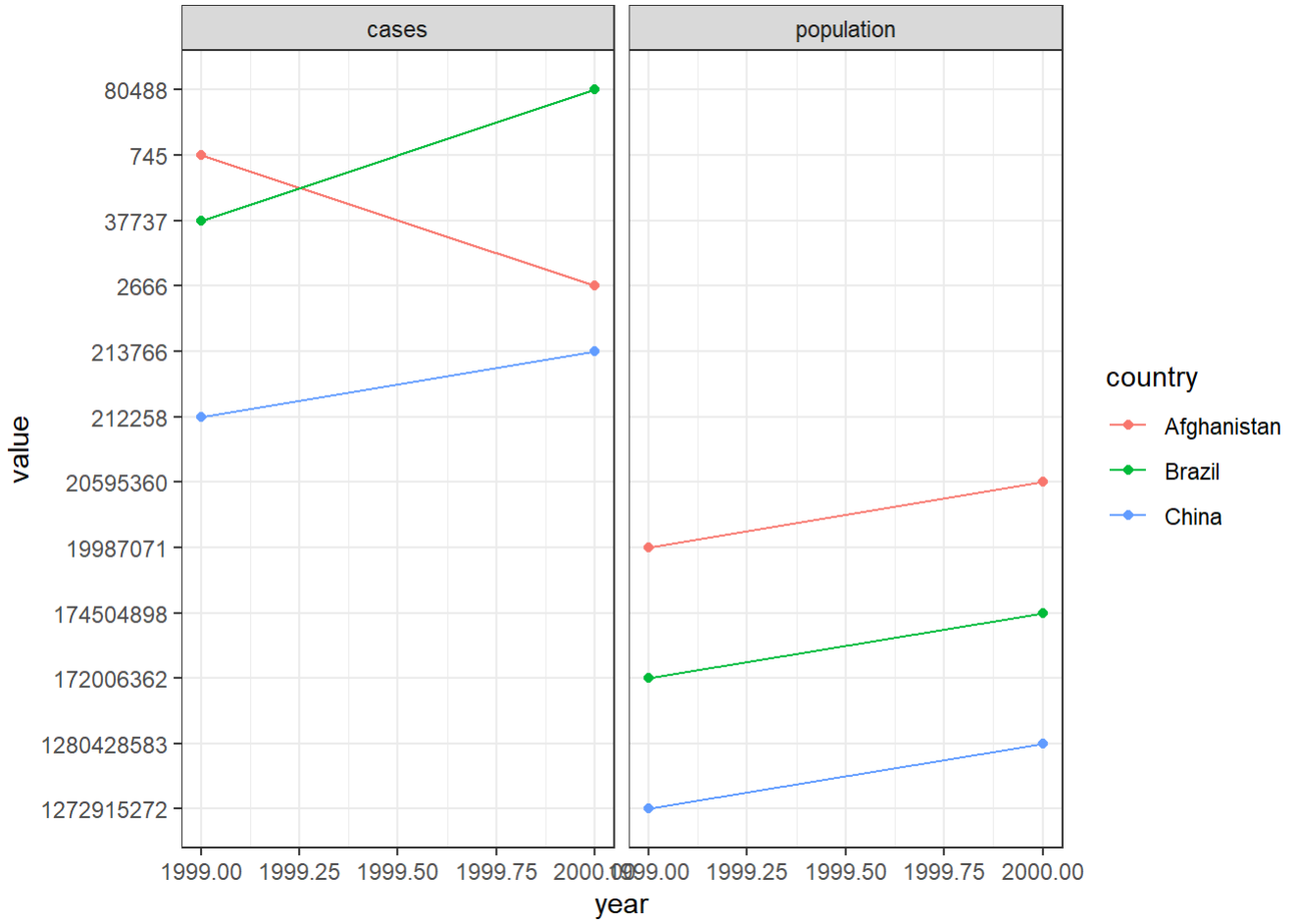
```
tidieddata <- nontidydata %>%
separate(rate, into = c("cases",
"population"),
sep = "/")
tidieddata
```

```
## # A tibble: 6 × 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 × 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
```

```
ggplot(newtidieddata) +
aes(x=year,y=value, colour=country) +
geom_point() +
geom_line(aes(group = country))+
facet_wrap(~measurement) +
theme_bw()
```




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

```
## # A tibble: 3 × 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 × 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
```

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

```
## # A tibble: 6 × 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
```

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

```
## # A tibble: 5 × 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 × 4
##   id      bp1   bp2   bp3
##   <chr> <dbl> <dbl> <dbl>
## 1 A       100   120   105
## 2 B       140   115    NA
```

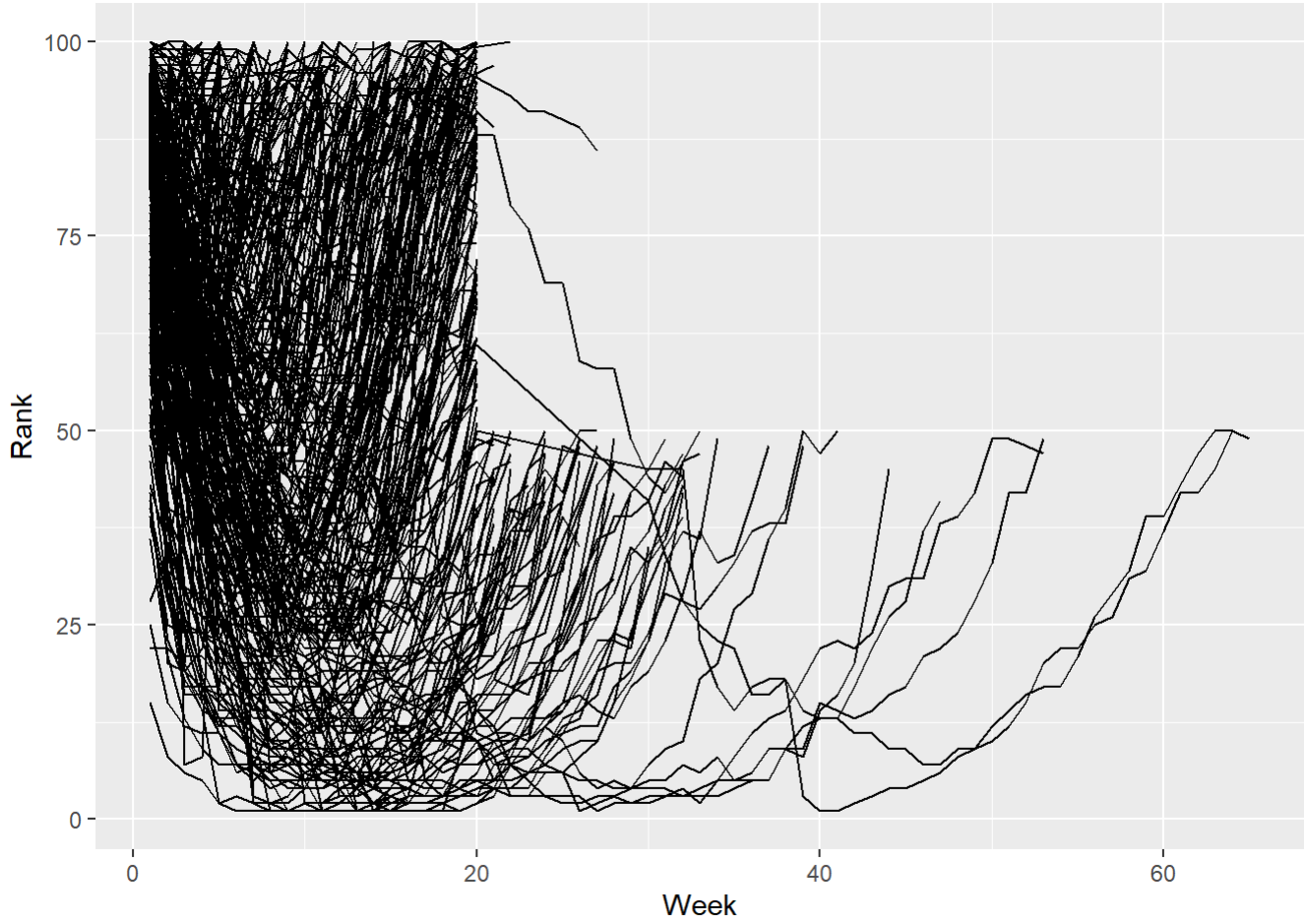
Question 1

```
billboard_pivot <- billboard %>%
pivot_longer(
cols = starts_with("wk"),
names_to = "Week",
values_to = "Rank",
values_drop_na = TRUE
) %>%
  mutate(Week = parse_number(Week))
billboard_pivot
```

```
## # A tibble: 5,307 × 5
##    artist  track                   date.entered  Week  Rank
##    <chr>   <chr>                   <date>       <dbl> <dbl>
##  1 2 Pac   Baby Don't Cry (Keep... 2000-02-26       1    87
##  2 2 Pac   Baby Don't Cry (Keep... 2000-02-26       2    82
##  3 2 Pac   Baby Don't Cry (Keep... 2000-02-26       3    72
##  4 2 Pac   Baby Don't Cry (Keep... 2000-02-26       4    77
##  5 2 Pac   Baby Don't Cry (Keep... 2000-02-26       5    87
##  6 2 Pac   Baby Don't Cry (Keep... 2000-02-26       6    94
##  7 2 Pac   Baby Don't Cry (Keep... 2000-02-26       7    99
##  8 2Ge+her The Hardest Part Of ... 2000-09-02       1    91
##  9 2Ge+her The Hardest Part Of ... 2000-09-02       2    87
## 10 2Ge+her The Hardest Part Of ... 2000-09-02       3    92
## # ℹ 5,297 more rows
```

```
ggplot(billboard_pivot, aes(x = Week, y = Rank, group=track)) +

geom_line()
```



Question 2

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

)
```

```
## # A tibble: 95 × 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>
```