Quiz 2 preparation solution

Answer the following questions.

These questions relate to the homework problem 12.2.1 Exercise 2. Use what you know from Chapter 13 to answer the questions for *table4a* and *table4b*.

1. Using *table4a* and *table4b* from the *tidyverse* R package, merge the two dataframes into one and create a column, rate per 10000 variable, for each year.

```
library(tidyverse)
table4a
```

```
## # A tibble: 3 x 3
##   country     `1999` `2000`
## * <chr>        <int>  <int>
## 1 Afghanistan    745   2666
## 2 Brazil       37737  80488
## 3 China       212258 213766
```

```
table4b
```

```
## # A tibble: 3 x 3
##   country         `1999`     `2000`
## * <chr>            <int>      <int>
## 1 Afghanistan   19987071   20595360
## 2 Brazil       172006362  174504898
## 3 China       1272915272 1280428583
```

```
table_new2 <- table4a %>% inner_join(table4b, by = c("country"))
table_new2
```

```
## # A tibble: 3 x 5
##   country     `1999.x` `2000.x`   `1999.y`   `2000.y`
##   <chr>          <int>    <int>      <int>      <int>
## 1 Afghanistan      745     2666   19987071   20595360
## 2 Brazil         37737    80488  172006362  174504898
## 3 China         212258   213766 1272915272 1280428583
```

```
table_new2a <- table_new2 %>% mutate(
rate.1999 = (`1999.x`/`1999.y`)*10000,
rate.2000 = (`2000.x`/`2000.y`)*10000
) %>%
select(country, rate.1999, rate.2000)
table_new2a
```

```
## # A tibble: 3 x 3
##   country     rate.1999 rate.2000
##   <chr>           <dbl>     <dbl>
## 1 Afghanistan     0.373      1.29
## 2 Brazil          2.19       4.61
## 3 China           1.67       1.67
```

2. Is your final dataframe for questions 1 tidy? Yes or no, explain.

Answer: No. The *table_new2a* is not tidy. The rates are in two columns.

3. Convert your final dataframe for question 1 into a tidy dataframe with three columns country, year and rate.

Answer: Gather the columns into year and rate columns.

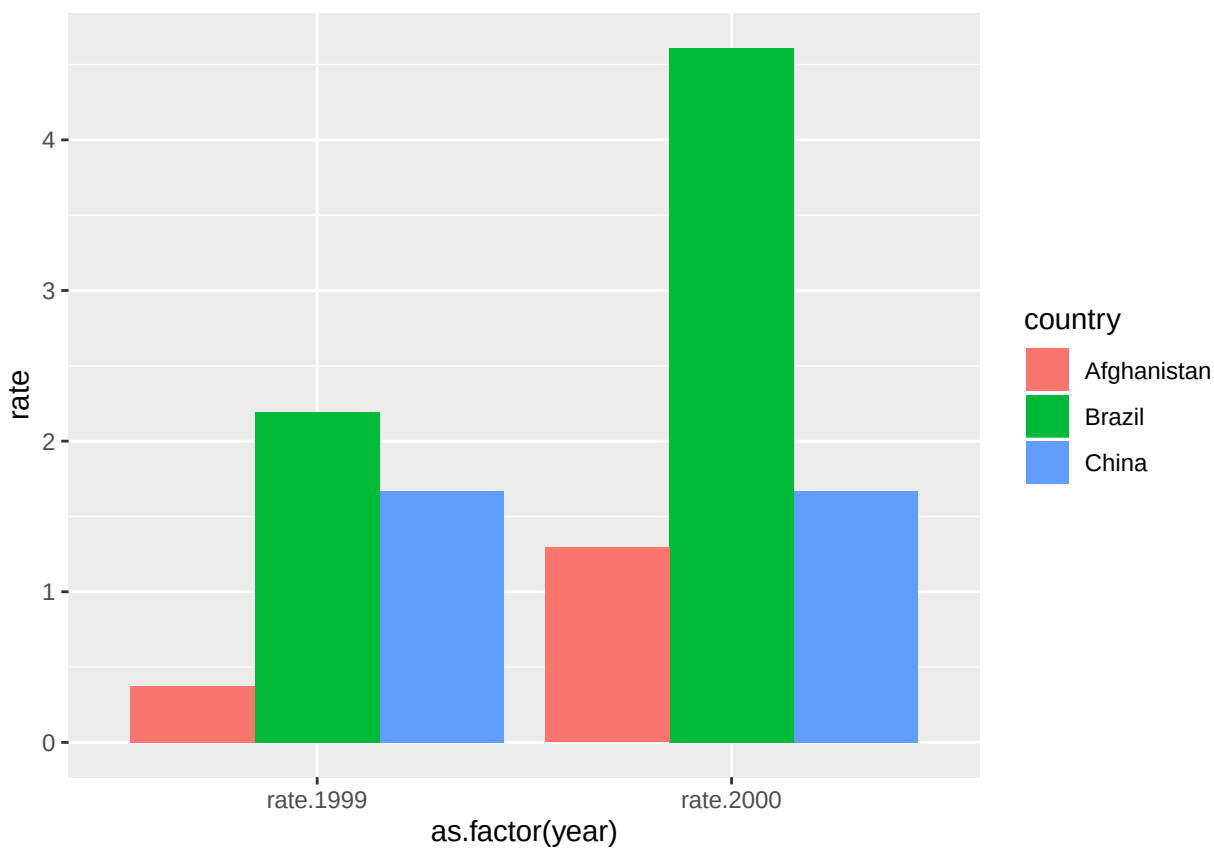
```
table_new2a %>% gather(rate.1999, rate.2000, key = "year", value = "rate")
```

```
## # A tibble: 6 x 3
##   country     year       rate
##   <chr>       <chr>     <dbl>
## 1 Afghanistan rate.1999 0.373
## 2 Brazil      rate.1999 2.19
## 3 China       rate.1999 1.67
## 4 Afghanistan rate.2000 1.29
## 5 Brazil      rate.2000 4.61
## 6 China       rate.2000 1.67
```

4. Make a clustered bar graph displaying the data.

Note the use of the as.factor() function.

```
table_new2a %>% gather(rate.1999, rate.2000, key = "year", value = "rate") %>%
  ggplot(aes(x = as.factor(year), y = rate, fill = country) ) +
  geom_bar(position="dodge", stat="identity")
```



The next question relates to Chapter 14.

```
library(stringr)
```

5. For the string "Today is the second quiz."

a. Use an *str_?* R function to count the length of the string.

b. Use an *str_* R function to change all of the letters to lower case.

c. Use an *str_?* R function to subset the string into separate words.

```r
x <- "Today is the second quiz."
x
```

```
## [1] "Today is the second quiz."
```

```r
# a.
str_count(x)
```

```
## [1] 25
```

```r
# b.
str_to_lower(x)
```

```
## [1] "today is the second quiz."
```

```r
# c.
str_split(x, " ")
```

```
## [[1]]
## [1] "Today"  "is"     "the"    "second" "quiz."
```