

HPAM 7660 Data Assignment 1

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```
library(dplyr)
```

```
##  
## Attaching package: 'dplyr'  
  
## The following objects are masked from 'package:stats':  
##  
##   filter, lag  
  
## The following objects are masked from 'package:base':  
##  
##   intersect, setdiff, setequal, union
```

```
library(readr)  
library(tidyr)  
library(nycflights13)  
library(fivethirtyeight)
```

```
## Some larger datasets need to be installed separately, like senators and  
## house_district_forecast. To install these, we recommend you install the  
## fivethirtyeightdata package by running:  
## install.packages('fivethirtyeightdata', repos =  
## 'https://fivethirtyeightdata.github.io/drat/', type = 'source')
```

Question 2:

```
glimpse(drinks)
```

```
## Rows: 193  
## Columns: 5  
## $ country      <chr> "Afghanistan", "Albania", "Algeria", "And~  
## $ beer_servings <int> 0, 89, 25, 245, 217, 102, 193, 21, 261, 2~  
## $ spirit_servings <int> 0, 132, 0, 138, 57, 128, 25, 179, 72, 75,~  
## $ wine_servings <int> 0, 54, 14, 312, 45, 45, 221, 11, 212, 191~  
## $ total_litres_of_pure_alcohol <dbl> 0.0, 4.9, 0.7, 12.4, 5.9, 4.9, 8.3, 3.8, ~
```

Question 3:

?drinks

Question 4: In the context of R and data analysis, a data set is considered “tidy” if it follows a specific structure that makes it easy to perform data analysis and visualization. This includes column, rows, and observational units within those columns and rows. Wide data has each row representing a unique observation, but multiple variables are spread across columns. Long data has each variable and its corresponding values are stored in separate rows.

Question 5: This data is not tidy because it is not broken down into servings per spirit. The values spread throughout various columns. Making it tidy will show a more complete breakdown of the table and avoid over counting.

```
drinks_smaller <- drinks %>%  
  filter(country %in% c("USA", "China", "Italy", "Saudi Arabia")) %>%  
  select(-total_litres_of_pure_alcohol) %>%  
  rename(beer = beer_servings, spirit = spirit_servings, wine = wine_servings)  
drinks_smaller
```

```
## # A tibble: 4 x 4  
##   country      beer spirit  wine  
##   <chr>      <int> <int> <int>  
## 1 China         79   192    8  
## 2 Italy         85    42   237  
## 3 Saudi Arabia    0     5     0  
## 4 USA         249   158   84
```

Question 6:

```
drinks_smaller %>%  
  pivot_longer(names_to = "type",  
               values_to = "servings",  
               cols = beer:wine)
```

```
## # A tibble: 12 x 3  
##   country      type  servings  
##   <chr>      <chr>    <int>  
## 1 China      beer      79  
## 2 China      spirit    192  
## 3 China      wine      8  
## 4 Italy       beer     85  
## 5 Italy       spirit    42  
## 6 Italy       wine    237  
## 7 Saudi Arabia beer      0  
## 8 Saudi Arabia spirit     5  
## 9 Saudi Arabia wine      0  
## 10 USA       beer    249  
## 11 USA       spirit   158  
## 12 USA       wine     84
```

Question 7:

```
View("drinks_smaller")
```

Question 8:

```
airline_safety_smaller <- airline_safety %>%
  select(airline, starts_with("fatalities"))
airline_safety_smaller
```

```
## # A tibble: 56 x 3
##   airline      fatalities_85_99 fatalities_00_14
##   <chr>          <int>          <int>
## 1 Aer Lingus           0             0
## 2 Aeroflot          128            88
## 3 Aerolineas Argentinas 0             0
## 4 Aeromexico          64             0
## 5 Air Canada           0             0
## 6 Air France          79            337
## 7 Air India          329            158
## 8 Air New Zealand       0             7
## 9 Alaska Airlines       0            88
## 10 Alitalia           50             0
## # i 46 more rows
```

```
airline_safety_smaller_tidy <-airline_safety %>%
  pivot_longer(
    cols = c(fatalities_85_99,fatalities_00_14),
    names_to = "fatalities",
    values_to = "count" )
```

```
View("airline_safety_smaller_tidy")
```

Question 9:

```
dem_score <- read_csv("https://moderndive.com/data/dem_score.csv")
```

```
## Rows: 96 Columns: 10
## -- Column specification -----
## Delimiter: ","
## chr (1): country
## dbl (9): 1952, 1957, 1962, 1967, 1972, 1977, 1982, 1987, 1992
##
## i Use 'spec()' to retrieve the full column specification for this data.
## i Specify the column types or set 'show_col_types = FALSE' to quiet this message.
```

```
dem_score
```

```
## # A tibble: 96 x 10
##   country    '1952' '1957' '1962' '1967' '1972' '1977' '1982' '1987' '1992'
##   <chr>      <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
## 1 Albania    -9     -9     -9     -9     -9     -9     -9     -9      5
```

```
## 2 Argentina      -9      -1      -1      -9      -9      -9      -8      8      7
## 3 Armenia        -9      -7      -7      -7      -7      -7      -7      -7      7
## 4 Australia       10      10      10      10      10      10      10      10      10
## 5 Austria         10      10      10      10      10      10      10      10      10
## 6 Azerbaijan     -9      -7      -7      -7      -7      -7      -7      -7      1
## 7 Belarus         -9      -7      -7      -7      -7      -7      -7      -7      7
## 8 Belgium         10      10      10      10      10      10      10      10      10
## 9 Bhutan          -10     -10     -10     -10     -10     -10     -10     -10     -10
## 10 Bolivia        -4      -3      -3      -4      -7      -7      8      9      9
## # i 86 more rows
```

Question 10:

```
View("dem_score")
```

Question 11: This is not tidy. If this were to be in a tidy format, the years would be separated in one column called which would describes all the years as one variable.