Shrub-Volume-Data-Set Day 2 Homework

2023-03-21

#Exercise 8: Joining data tables 1.

```
shrub_data <- read.csv("../data raw/shrub-volume-data.csv")
shrub_volume_experiments <- read.csv("../data raw/shrub-volume-experiments.csv")
shrub_volume_sites <- read.csv("../data raw/shrub-volume-sites.csv")
```

2.

```
shrub_data_combined <- inner_join(shrub_data, shrub_volume_experiments, by = "experiment")
shrub_data_fullcombined <- inner_join(shrub_data_combined, shrub_volume_sites, by = "site")
shrub_data_fullcombined
```

```
##    site experiment length width height manipulation latitude longitude
## 1     1          1    2.2   1.3    9.6      control    29.65    -82.32
## 2     1          2    2.1   2.2    7.6         burn    29.65    -82.32
## 3     1          3    2.7   1.5    2.2      rainout    29.65    -82.32
## 4     2          1    3.0   4.5    1.5      control    29.26    -82.42
## 5     2          2    3.1   3.1    4.0         burn    29.26    -82.42
## 6     2          3    2.5   2.8    3.0      rainout    29.26    -82.42
## 7     3          1    1.9   1.8    4.5      control    29.80    -82.15
## 8     3          2    1.1   0.5    2.3         burn    29.80    -82.15
## 9     3          3    3.5   2.0    7.5      rainout    29.80    -82.15
## 10    4          1    2.9   2.7    3.2      control    29.99    -82.62
## 11    4          2    4.5   4.8    6.5         burn    29.99    -82.62
## 12    4          3    1.2   1.8    2.7      rainout    29.99    -82.62
##    elevation
## 1         54
## 2         54
## 3         54
## 4         50
## 5         50
## 6         50
## 7         57
## 8         57
## 9         57
## 10        62
## 11        62
## 12        62
```

#Exercise 9: Vectors

```r
length <- c(2.2, 2.1, 2.7, 3.0, 3.1, 2.5, 1.9, 1.1, 3.5, 2.9)
width <- c(1.3, 2.2, 1.5, 4.5, 3.1, NA, 1.8, 0.5, 2.0, 2.7)
height <- c(9.6, 7.6, 2.2, 1.5, 4.0, 3.0, 4.5, 2.3, 7.5, 3.2)

#Smallest Values of Length, Width, Height (Length = 1.1, Width = 0.5, Height = 1.5  )
min(length, na.rm = TRUE)
```

```
## [1] 1.1
```

```r
min(width, na.rm = TRUE)
```

```
## [1] 0.5
```

```r
min(height, na.rm = TRUE)
```

```
## [1] 1.5
```

```r
#The largest value of length, width and height. (Length = 3.5, Width = 4.5, Height = 9.6)
max(length, na.rm = TRUE)
```

```
## [1] 3.5
```

```r
max(width, na.rm = TRUE)
```

```
## [1] 4.5
```

```r
max(height, na.rm = TRUE)
```

```
## [1] 9.6
```

```r
#The sum of the values length, width and height, separately. (Length = 25, Width = 19.6, Height = 45.4
sum(length, na.rm = TRUE)
```

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

```r
sum(width, na.rm = TRUE)
```

```
## [1] 19.6
```

```r
sum(height, na.rm = TRUE)
```

```
## [1] 45.4
```

```r
#The average of the length, width and height.(Length = 2.5, Width = 2.18, Height = 4.54)
mean(length, na.rm = TRUE)
```

```
## [1] 2.5
```

```r
mean(width, na.rm = TRUE)
```

```
## [1] 2.177778
```

```r
mean(height, na.rm = TRUE)
```

```
## [1] 4.54
```

```r
#The volume of each shrub (length × width × height).
volume <- length*width*height
volume
```

```
##  [1] 27.456 35.112  8.910 20.250 38.440     NA 15.390  1.265 52.500 25.056
```

```r
#The sum of the volume of all of the shrubs. (sum = 224.379)
sum(volume, na.rm = TRUE)
```

```
## [1] 224.379
```

```r
#A vector of the height of shrubs with lengths > 2.5.
height2.5 <- subset(height, height > 2.5)
height2.5
```

```
## [1] 9.6 7.6 4.0 3.0 4.5 7.5 3.2
```

```r
#A vector of the height of shrubs with heights > 5.
height5 <- subset(height, height > 5)
height5
```

```
## [1] 9.6 7.6 7.5
```

```r
#A vector of the heights of the first 5 shrubs (using []).
first_5_height <- height[1:5]
first_5_height
```

```
## [1] 9.6 7.6 2.2 1.5 4.0
```

```r
#A vector of the volumes of the first 3 shrubs (using []).
first_3_volume <- volume[1:3]
first_3_volume
```

```
## [1] 27.456 35.112  8.910
```

```r
#A vector of the volumes of the last 5 shrubs with the code written so that it will return the last 5 v
last_5_volume <- tail(volume, n = 5)
last_5_volume
```

```
## [1]     NA 15.390  1.265 52.500 25.056
```

#Exercise 10: Data Frames Challenge

```r
shrub_dimensions_labeled <- read.csv("../data raw/shrub-dimensions-labeled.csv")
shrub_length <- shrub_dimensions_labeled$length
shrub_height <- shrub_dimensions_labeled$height
shrub_width <- shrub_dimensions_labeled$width
volume_dimensions <- shrub_length*shrub_height*shrub_width

dataframe_id_height <- select(shrub_dimensions_labeled, shrubID, height)
dataframe_2nd_row <- shrub_dimensions_labeled[2,]
dataframe_first_5_rows <- shrub_dimensions_labeled[1:5,]
```