Activity 14

Stat 184

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0.1 Armed Forces Data Wrangling Redux

0.1.1 Male Service Members Frequency Table

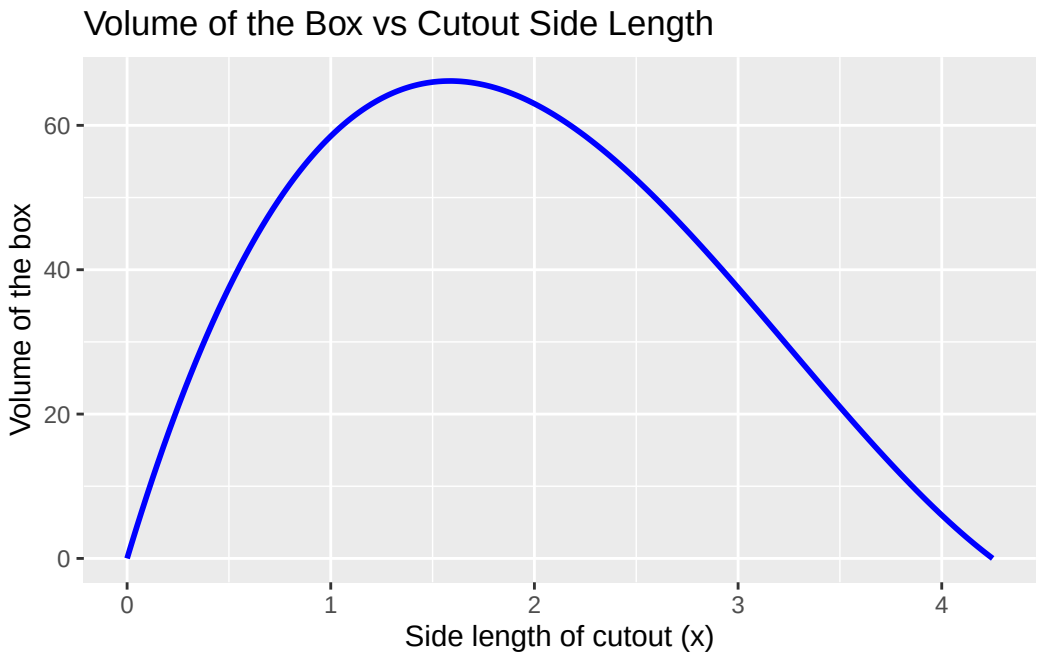
Rank/Branch	Army	Total
First Sergeant OR Master Sergeant	5.72%	5.72%
Private	17.97%	17.97%
Private First Class	26.43%	26.43%
Sergeant First Class	18.27%	18.27%
Sergeant Major OR Command Sergeant Major	1.73%	1.73%
Staff Sergeant	29.88%	29.88%
Total	100.00%	100.00%

0.1.2 Female Service Members Frequency Table

Rank/Branch	Army	Total
First Sergeant OR Master Sergeant	4.98%	4.98%
Private	19.17%	19.17%
Private First Class	34.64%	34.64%
Sergeant First Class	14.93%	14.93%
Sergeant Major OR Command Sergeant Major	1.33%	1.33%
Staff Sergeant	24.93%	24.93%
Total	100.00%	100.00%

0.2 Popularity of Baby Names

0.3 Plotting a Mathematical Function



0.4 What You Feel You've Learned So Far

0.5 Code Appendix

```
# Appendix: Code

All Code used to create this report follows here:

::: {.cell}

```{.r .cell-code}
# Armed Forces Table Making ----
## Goal: To create two well formatted frequency tables from the individual cased Armed forces
##one for males and one for females, in which the cases are organized by rank and branch.
## For this display, I will filter to only include enlisted officers from the Army

## Step 1: Load Packages ----
```
```

```
### Needed Packages: {tidyverse}
library(tidyverse)
library(dplyr)
library(janitor)

## Step 2 Load Data ----
armed_forces_indiv_data <- read.csv("Individual_Army_Data.csv",
  header = TRUE,
  sep = ",",
  skip = 0
)

## Step 4: Make Male Table ----
male_table <- armed_forces_indiv_data %>%
  filter(Sex == "Male",
         Branch == "Army",
         Rank %in% c("Private", "Private First Class", "Coporal Or Specialist", "Segeant", "S
  tabyl(Rank, Branch) %>%
  adorn_totals(where = c("row", "col")) %>%
  adorn_percentages(denominator = "all") %>%
  adorn_pct_formatting(digits = 2) %>%
  adorn_title(
    placement = "combined",
    row_name = "Rank",
    col_name = "Branch"
  )

## Step 5: Make Female Table ----
female_table <- armed_forces_indiv_data %>%
  filter(Sex == "Female",
         Branch == "Army",
         Rank %in% c("Private", "Private First Class", "Coporal Or Specialist", "Segeant", "S
  tabyl(Rank, Branch) %>%
  adorn_totals(where = c("row", "col")) %>%
  adorn_percentages(denominator = "all") %>%
  adorn_pct_formatting(digits = 2) %>%
  adorn_title(
    placement = "combined",
    row_name = "Rank",
    col_name = "Branch"
  )
```

```
## Step 6: Print Tables

### Male Service Members Frequency Table

#knitr::kable(male_table)

### Female Service Members Frequency Table

#knitr::kable(female_table)

# Making a Plot

library(ggplot2)

# Volume function
getVolume <- function(length, width, cutoutSideLength){
  volume <- (length - 2*cutoutSideLength) * (width - 2*cutoutSideLength) * (cutoutSideLength)
  return(volume)
}

L <- 8.5
W <- 11


# Make data frame
side_length_interval <- seq(from = 0, to = 4.25, by = 0.01)
volume_df <- data.frame(
  x = side_length_interval,
  volume = getVolume(L, W, side_length_interval)
)

# Plot
ggplot(volume_df, aes(x = x, y = volume)) +
  geom_line(color = "blue", size = 1) +
  labs(
    title = "Volume of the Box vs Cutout Side Length",
    x = "Side length of cutout (x)",
    y = "Volume of the box"
  )
```

:::