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# Case Study Pea Protein Burger #  
# Dr. S.A. Sadownik  
# Topic: Descriptive Statistics #  
# Date: June 11, 2023 (c) 2023 #
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```
setwd("~/Desktop")  
getwd()  
dataset = read.csv("Flamin 50-50-Burger-Sales-Sept-2022-March-2023-1.csv")  
#dataset = read.csv("Cove 50-50-Burger-Sales-Sept-2022-March-2023-1.csv")  
#dataset = read.csv("50-50-Burger-Sales-Sept-2022-March-2023-1.csv")  
# Alternatively, you can use the following to open a file browse window  
dataset = read.csv(file.choose(),header=TRUE)
```

```
View(dataset)
```

```
# LOAD PACKAGES
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```
library(psych) # need this package to use the describe function  
library(car) # need this package to use the leveneTest function  
library(effectsize) # need this package to use the cohens_f function and the eta-squared  
library(DescTools) # need this package to use the Dunnett's function
```

```
#### === Single Factor Between Groups ANOVA === ####
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```
# RESEARCH QUESTION AND INFORMATION ABOUT THE VARIABLES
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```
#Null hypothesis there will be no difference in average sales in proximity to Climate Change  
events on campus
```

```
#Alternative hypothesis there will be a difference in average sales in proximity to Climate  
Change events on campus
```

```
# DEFINE THE VARIABLES
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```
DV <- dataset$Sum.of.Product.Quantity
```

```
IV <- as.factor(dataset$Profit.Center.Name) # we turn our IV into a factor
```

```
levels(IV) <- list(Cove="1",FlaminGoodGrill="2") # we name our factors for easier interpretation
```

```
# DESCRIPTIVE STATISTICS
```

```
# Get the descriptive measures for the DV using the IV as a grouping factor
```

```
# Note, we use describeBy instead of describe
```

```
describeBy(DV,IV)
```

```
# DEFINE THE VARIABLES
```

```
DV <- dataset$Sum.of.Product.Quantity
IV <- as.factor(dataset$Month) # we turn our IV into a factor
levels(IV) <- list(Jan="1",Feb="2", Mar='3', Sep='9', Oct='10', Nov='11', Dec='12') # we name our
factors for easier interpretation
```

```
# DESCRIPTIVE STATISTICS
```

```
# Get the descriptive measures for the DV using the IV as a grouping factor
# Note, we use describeBy instead of describe
describeBy(DV,IV)
```

```
##### === Data Visualization === #####
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```
if(length(find.package('ggplot2', quiet=TRUE)) == 0) {install.packages('ggplot2', dependencies =
TRUE, type = "binary")}
library(ggplot2) # need this package to plot data
```

```
# GRAPH THE RESULTS
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```
# We can create a bar graph of the means to display the difference between the two groups
plot <- ggplot(dataset, aes(x=IV, y=DV)) +
  geom_bar(position = "dodge", # ensures that the position of the bars do not overlap
(dodge,duck,dip,dive,dodge)
  stat = "summary", # displays the bar height based on a summary statistic, in this
case we request the mean; fun="mean"
  fun = "mean") +
  ylab("Burger Sales") + # add title to y-axis
  xlab("Month") + # add title to x-axis
  scale_x_discrete(limits=levels(IV)) # label x-axis with category response to IV (instead of
numeric response of '1' and '2')
```

```
# Display figure
plot
```

```
# Once you create your figure, you can export it in a few ways.
# For now, click on the 'Export' tab above where the plot is generated.
# From the drop-down menu you can either save the figure as an image, pdf, or "Copy to
Clipboard..." to paste elsewhere (e.g., a word document).
```