RWorksheet_Sanceda-4B

2024-12-09

```
#1
vector <- c(1, 2, 3, 4, 5)
matrix_ <- matrix(0, nrow = 5, ncol = 5)


for (i in 1:5) {
  for (j in 1:5) {
    matrix_[i, j] <- vector [abs(i - j) + 1]
  }
}

matrix_
```

```
##      [,1] [,2] [,3] [,4] [,5]
## [1,]    1    2    3    4    5
## [2,]    2    1    2    3    4
## [3,]    3    2    1    2    3
## [4,]    4    3    2    1    2
## [5,]    5    4    3    2    1
```

```
#2
rows <- 5


for (i in 1:rows) {
  cat(rep("*", i), sep = " ")
  cat("\n")
}
```

```
## *
## * *
## * * *
## * * * *
## * * * * *
```

```
#3
fnum <- as.integer(readline(prompt = "Enter first number for fibonacci sequence(1 - 500): "))
```

```
## Enter first number for fibonacci sequence(1 - 500):
```

```r
fibonacci <- c(0,1)

repeat {
  next_fib <- sum(tail(fibonacci, 2))
  if (next_fib > 500) {
    break
  }
  fibonacci <- c(fibonacci, next_fib)
}

output <- fibonacci[fibonacci >= fnum]
cat("Fibonacci sequence from",fnum, "up to 500:", output, "\n")
```

```
## Fibonacci sequence from NA up to 500: NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
```

```r
#4
#a
library(readxl)
data <- read.csv("Shoes_Tble.csv")
head(data, 6)
```

```
##   Shoe.size Height Gender
## 1       6.5   66.0      F
## 2       9.0   68.0      F
## 3       8.5   64.5      F
## 4       8.5   65.0      F
## 5      10.5   70.0      M
## 6       7.0   64.0      F
```

```r
#b
fdata <- subset(data, Gender == "F")
mdata <- subset(data, Gender == "M")

females <- nrow(fdata )
males <- nrow(mdata)

cat("Number of Female observations:", females , "\n")
```

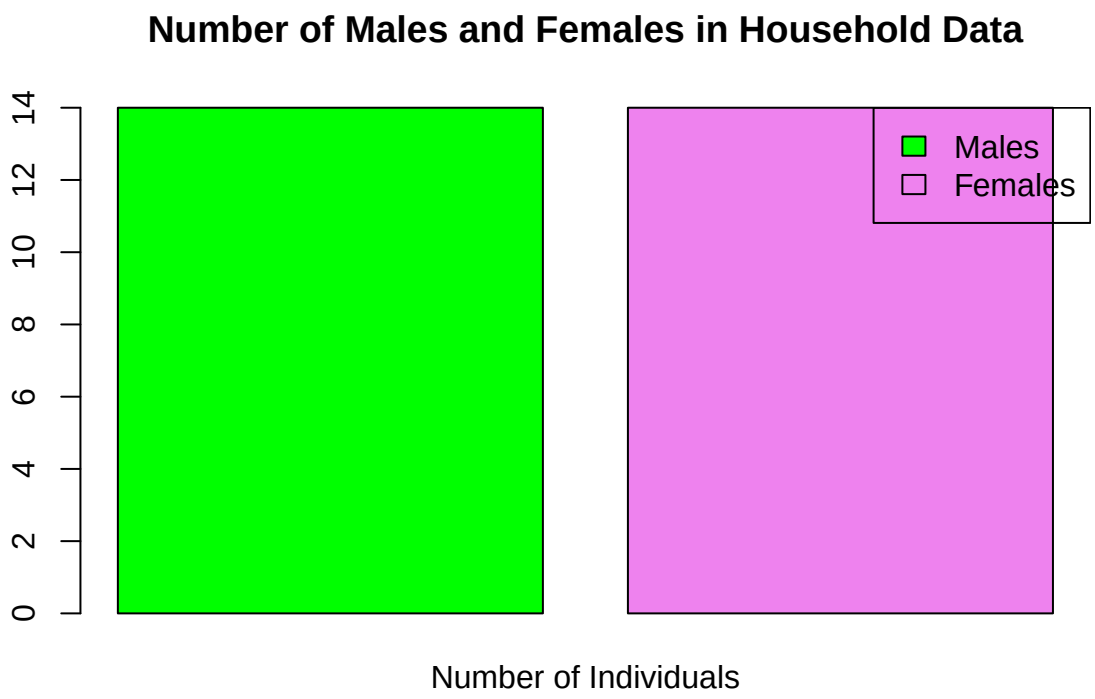
```
## Number of Female observations: 14
```

```r
cat("Number of Male observations:",males , "\n")
```

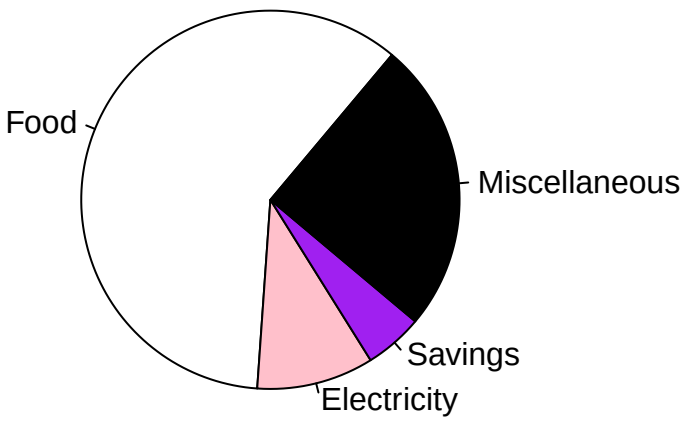
```
## Number of Male observations: 14
```

```r
#c
G_Count <- c(Males = 14, Females = 14)


barplot(
  G_Count, names.arg = "Number of Individuals",
  main = "Number of Males and Females in Household Data",
```

```
  col = c("green", "violet"))

legend("topright",
       legend = names(G_Count),
       fill = c("green", "violet"))
```




```
#5
colors <- c("white", "pink", "purple", "black")
x <- c(60, 10, 5, 25)
mylabel <- c("Food", "Electricity", "Savings", "Miscellaneous")
pie(x, label = mylabel, main = "Dela Cruz Family Monthly Expenses", init.angle = 50, col = colors)
```




```
#6
#a
data(iris)
str(iris)
```

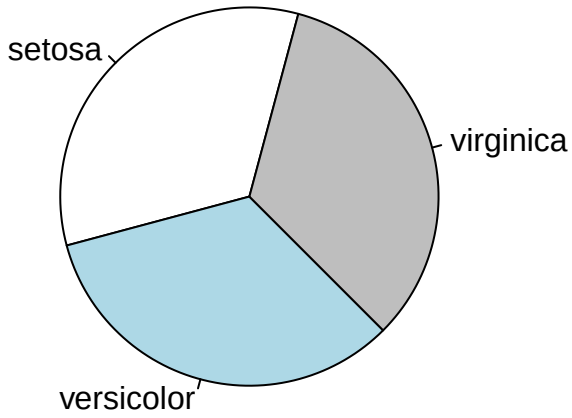
```
## 'data.frame':    150 obs. of  5 variables:
##  $ Sepal.Length: num  5.1 4.9 4.7 4.6 5 5.4 4.6 5 4.4 4.9 ...
##  $ Sepal.Width : num  3.5 3 3.2 3.1 3.6 3.9 3.4 3.4 2.9 3.1 ...
##  $ Petal.Length: num  1.4 1.4 1.3 1.5 1.4 1.7 1.4 1.5 1.4 1.5 ...
##  $ Petal.Width : num  0.2 0.2 0.2 0.2 0.2 0.4 0.3 0.2 0.2 0.1 ...
##  $ Species     : Factor w/ 3 levels "setosa","versicolor",..: 1 1 1 1 1 1 1 1 1 1 ...
```

```
# The output is the structure of the object.
```

```
#b
mean <- c(
  Mean_Sepal_Length = mean(iris$Sepal.Length),
  Mean_Sepal_Width = mean(iris$Sepal.Width),
  Mean_Petal_Length = mean(iris$Petal.Length),
  Mean_Petal_Width = mean(iris$Petal.Width)
)

mean
```

```
## Mean_Sepal_Length  Mean_Sepal_Width Mean_Petal_Length  Mean_Petal_Width
##          5.843333          3.057333          3.758000          1.199333
```

```r
#c
colors <- c("white", "lightblue", "gray")
Species <- table(iris$Species)

pie(Species, main = "Species Distribution in Iris Dataset", init.angle = 75, col = colors)
```




```r
#d
data(iris)
Sts <- iris[iris$Species == "Setosa", ]
Vrsclr <- iris[iris$Species == "Versicolor", ]
Vgnca <- iris[iris$Species == "Virginica", ]

setosa <- tail(Sts, 6)
versicolor <- tail(Vrsclr, 6)
virginica <- tail(Vgnca, 6)

cat("Setosa:\n")
```

```
## Setosa:
```

```r
print(setosa)
```

```
## [1] Sepal.Length Sepal.Width  Petal.Length Petal.Width  Species
## <0 rows> (or 0-length row.names)
```

```r
cat("\n Versicolor:\n")
```

```
##
##  Versicolor:
```

```r
print(versicolor)
```

```
## [1] Sepal.Length Sepal.Width  Petal.Length Petal.Width  Species
## <0 rows> (or 0-length row.names)
```

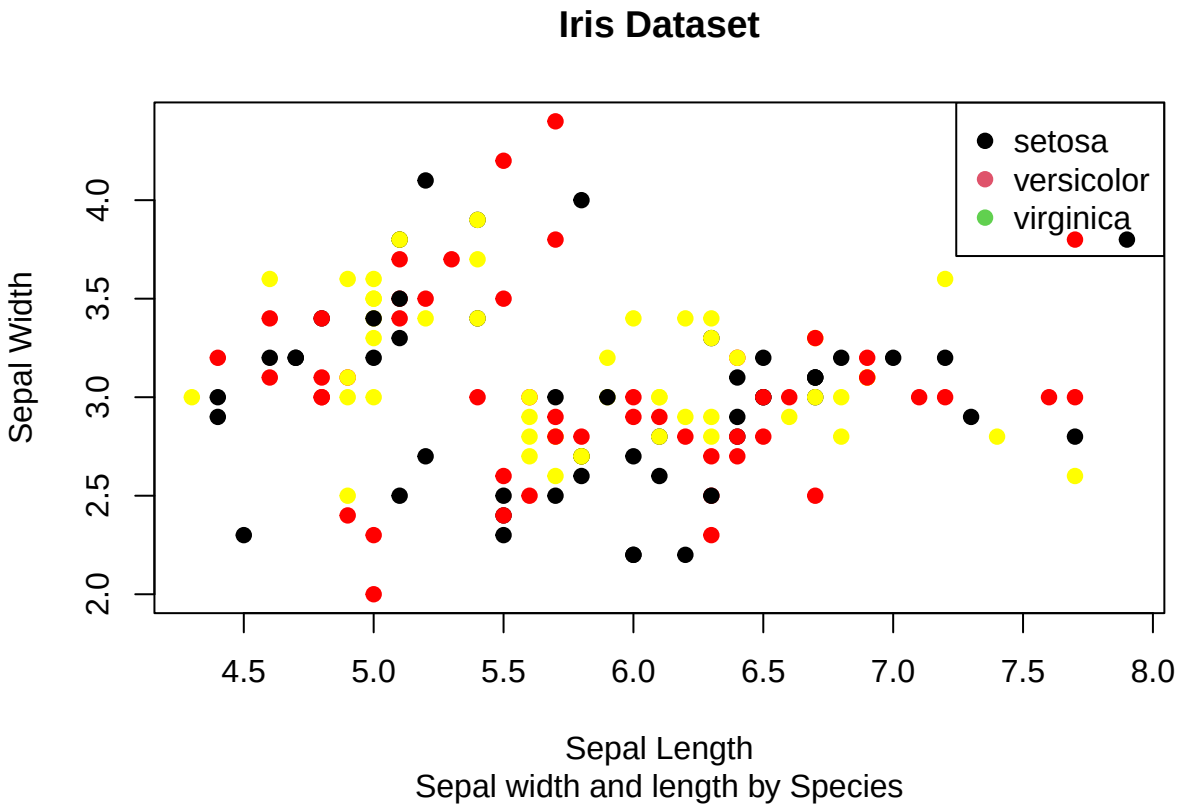
```r
cat("\nVirginica:\n")
```

```
##
## Virginica:
```

```r
print(virginica)
```

```
## [1] Sepal.Length Sepal.Width  Petal.Length Petal.Width  Species
## <0 rows> (or 0-length row.names)
```

```r
data(iris)

plot(iris$Sepal.Length, iris$Sepal.Width,
     col = c("red","yellow","black"),
     pch = 19,
     xlab = "Sepal Length",
     ylab = "Sepal Width",
     main = "Iris Dataset",
     sub = "Sepal width and length by Species"
)

legend("topright", legend = levels(iris$Species),
       col = 1:3, pch = 19)
```




```
#7
library(readxl)
alexa_dtst <- read_excel("~/alexa_file.xlsx")
alexa_dtst
```

```
## # A tibble: 3,150 x 5
##    rating date                variation           verified_reviews      feedback
##     <dbl> <dttm>              <chr>               <chr>                    <dbl>
##  1      5 2018-07-31 00:00:00 Charcoal Fabric     Love my Echo!                1
##  2      5 2018-07-31 00:00:00 Charcoal Fabric     Loved it!                    1
##  3      4 2018-07-31 00:00:00 Walnut Finish       Sometimes while play~        1
##  4      5 2018-07-31 00:00:00 Charcoal Fabric     I have had a lot of ~        1
##  5      5 2018-07-31 00:00:00 Charcoal Fabric     Music                        1
##  6      5 2018-07-31 00:00:00 Heather Gray Fabric I received the echo ~        1
##  7      3 2018-07-31 00:00:00 Sandstone Fabric    Without having a cel~        1
##  8      5 2018-07-31 00:00:00 Charcoal Fabric     I think this is the ~        1
##  9      5 2018-07-30 00:00:00 Heather Gray Fabric looks great                  1
## 10      5 2018-07-30 00:00:00 Heather Gray Fabric Love it! I've listen~        1
## # i 3,140 more rows
```

```
table(alexa_dtst$variation)
```

```
##
##                        Black                  Black  Dot
##                          261                        516
```

```
##                   Black  Plus                   Black  Show
##                             270                           265
##                   Black  Spot               Charcoal Fabric
##                             241                           430
## Configuration: Fire TV Stick           Heather Gray Fabric
##                             350                           157
##                     Oak Finish              Sandstone Fabric
##                              14                            90
##                 Walnut Finish                         White
##                              9                            91
##                    White  Dot                   White  Plus
##                             184                            78
##                   White  Show                   White  Spot
##                              85                           109
```

```
  alexa_dtst$variation <- gsub("Black\\s+Dot", "Black Dot", alexa_dtst$variation)
  alexa_dtst$variation <- gsub("Black\\s+Plus", "Black Plus", alexa_dtst$variation)
  alexa_dtst$variation <- gsub("Black\\s+Show", "Black Show", alexa_dtst$variation)
  alexa_dtst$variation <- gsub("Black\\s+Spot", "Black Spot", alexa_dtst$variation)
  alexa_dtst$variation <- gsub("White\\s+Dot", "White Dot", alexa_dtst$variation)
  alexa_dtst$variation <- gsub("White\\s+Plus", "White Plus", alexa_dtst$variation)
  alexa_dtst$variation <- gsub("White\\s+Show", "White Show", alexa_dtst$variation)
  alexa_dtst$variation <- gsub("White\\s+Spot", "White Spot", alexa_dtst$variation)


  table(alexa_dtst$variation)
```

```
##
##                        Black                    Black Dot
##                          261                          516
##                   Black Plus                   Black Show
##                          270                          265
##                   Black Spot               Charcoal Fabric
##                          241                          430
## Configuration: Fire TV Stick           Heather Gray Fabric
##                          350                          157
##                   Oak Finish              Sandstone Fabric
##                           14                           90
##                Walnut Finish                        White
##                           9                           91
##                    White Dot                   White Plus
##                          184                           78
##                   White Show                   White Spot
##                           85                          109
```

```
#b
library(dplyr)
```

```
## Warning: package 'dplyr' was built under R version 4.4.2
```

```
##
## 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
```

```
vrtns_count <-alexa_dtst %>%
  count(variation, name = "Total")


save(vrtns_count, file = "variations.RData")


print(vrtns_count)
```

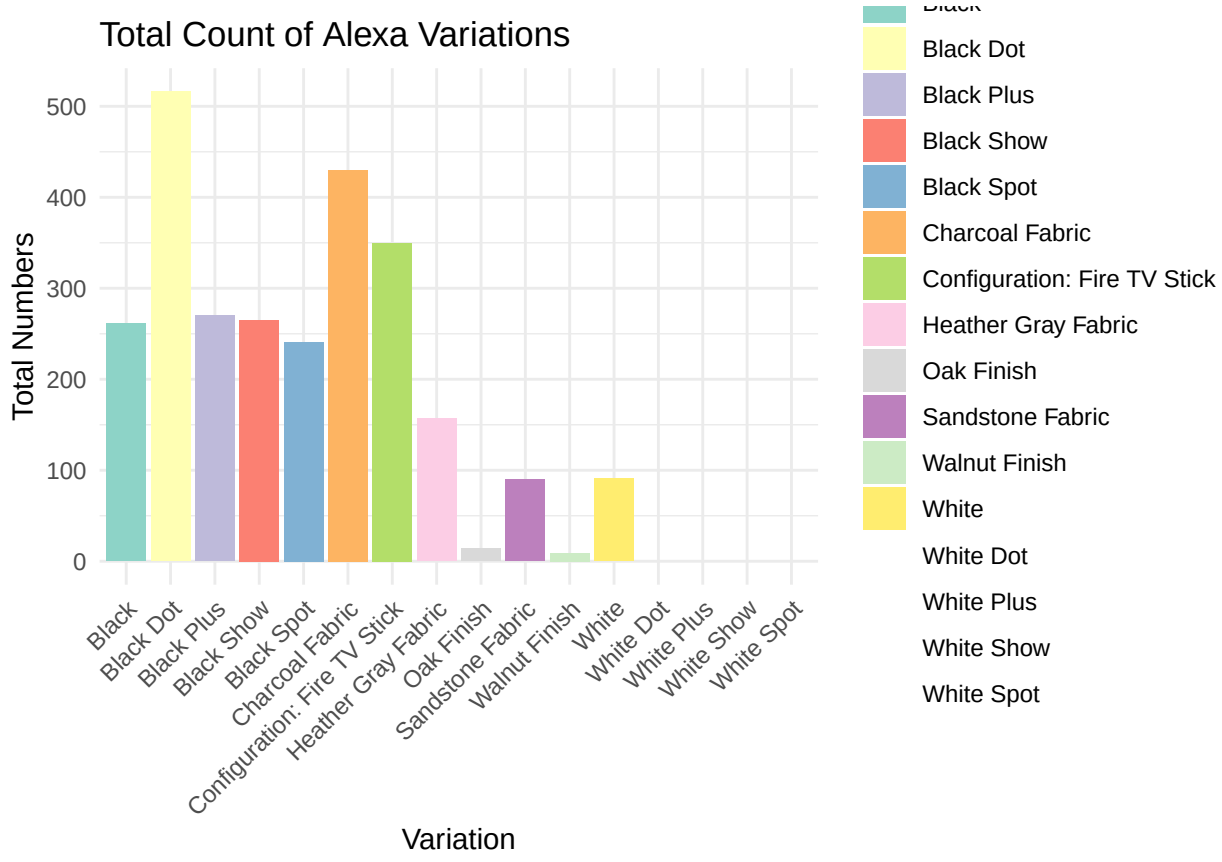
```
## # A tibble: 16 x 2
##    variation                    Total
##    <chr>                        <int>
##  1 Black                          261
##  2 Black Dot                      516
##  3 Black Plus                     270
##  4 Black Show                     265
##  5 Black Spot                     241
##  6 Charcoal Fabric                430
##  7 Configuration: Fire TV Stick   350
##  8 Heather Gray Fabric            157
##  9 Oak Finish                      14
## 10 Sandstone Fabric                90
## 11 Walnut Finish                    9
## 12 White                           91
## 13 White Dot                      184
## 14 White Plus                      78
## 15 White Show                      85
## 16 White Spot                     109
```

```
#c
library(ggplot2)
```

```
## Warning: package 'ggplot2' was built under R version 4.4.2
```

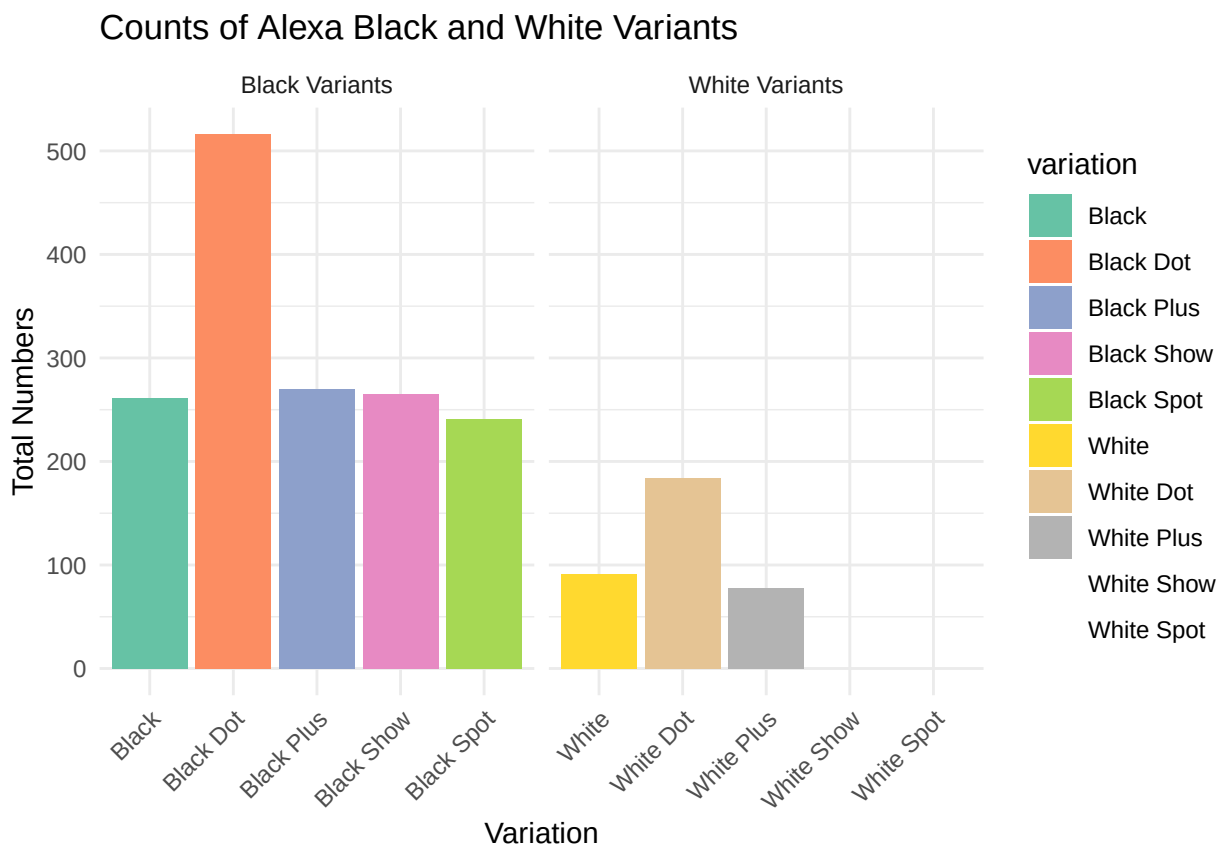
```
load("variations.RData")


ggplot(vrtns_count, aes(x = variation, y = Total, fill = variation)) +
  geom_bar(stat = "identity") +
  ggtitle("Total Count of Alexa Variations") +
  xlab("Variation") +
  ylab("Total Numbers") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1)) +
  scale_fill_brewer(palette = "Set3")
```

```
## Warning in RColorBrewer::brewer.pal(n, pal): n too large, allowed maximum for palette Set3 is 12
## Returning the palette you asked for with that many colors
```




```
#d
vrtns_count$Category <- ifelse(grepl("Black", vrtns_count$variation), "Black Variants",
                               ifelse(grepl("White", vrtns_count$variation), "White Variants", NA))

vrnts <-vrtns_count %>% filter(!is.na(Category))


ggplot(vrnts, aes(x = variation, y = Total, fill = variation)) +
  geom_bar(stat = "identity") +
  facet_wrap(~ Category, scales = "free_x") +
  ggtitle("Counts of Alexa Black and White Variants") +
  xlab("Variation") +
  ylab("Total Numbers") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1)) +
  scale_fill_brewer(palette = "Set2")
```

```
## Warning in RColorBrewer::brewer.pal(n, pal): n too large, allowed maximum for palette Set2 is 8
## Returning the palette you asked for with that many colors
```


Counts of Alexa Black and White Variants
Black Variants
White Variants
Total Numbers
500
400
300
200
100
0
Black
Black Dot
Black Plus
Black Show
Black Spot
White
White Dot
White Plus
White Show
White Spot
Variation
variation
Black
Black Dot
Black Plus
Black Show
Black Spot
White
White Dot
White Plus
White Show
White Spot