Shopify DS

Victoria Okoro

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```
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.0 --

## v ggplot2 3.3.3     v purrr   0.3.4
## v tibble  3.1.0     v dplyr   1.0.4
## v tidyr   1.1.3     v stringr 1.4.0
## v readr   1.4.0     v forcats 0.5.1

## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```
library(ggplot2)
library(plyr)
```

```
## ------------------------------------------------------------------------------

## You have loaded plyr after dplyr - this is likely to cause problems.
## If you need functions from both plyr and dplyr, please load plyr first, then dplyr:
## library(plyr); library(dplyr)

## ------------------------------------------------------------------------------

##
## Attaching package: 'plyr'

## The following objects are masked from 'package:dplyr':
##
##     arrange, count, desc, failwith, id, mutate, rename, summarise,
##     summarize

## The following object is masked from 'package:purrr':
##
##     compact
```

```
library(dplyr)
library(plotly)
```

```
##
## Attaching package: 'plotly'
```

```
## The following objects are masked from 'package:plyr':
##
##     arrange, mutate, rename, summarise
```

```
## The following object is masked from 'package:ggplot2':
##
##     last_plot
```

```
## The following object is masked from 'package:stats':
##
##     filter
```

```
## The following object is masked from 'package:graphics':
##
##     layout
```

```
library(cowplot)
```

```
df <- read.csv("~/Documents/Shopify/Copy of 2019 Winter Data Science Intern Challenge Data Set - Sheet1
```

```
summary(df$order_amount)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      90     163     284    3145     390  704000
```

```
median(df$order_amount)
```

```
## [1] 284
```

```
df$total_items <- sort(df$total_items)

bp <- ggplot(data = df, aes(x = total_items)) +
  geom_bar(fill = "purple") +  ggtitle("Distribution of Items Bought.") + xlim(0,8) +
  xlab("Total Items")

ggplotly(bp)
```

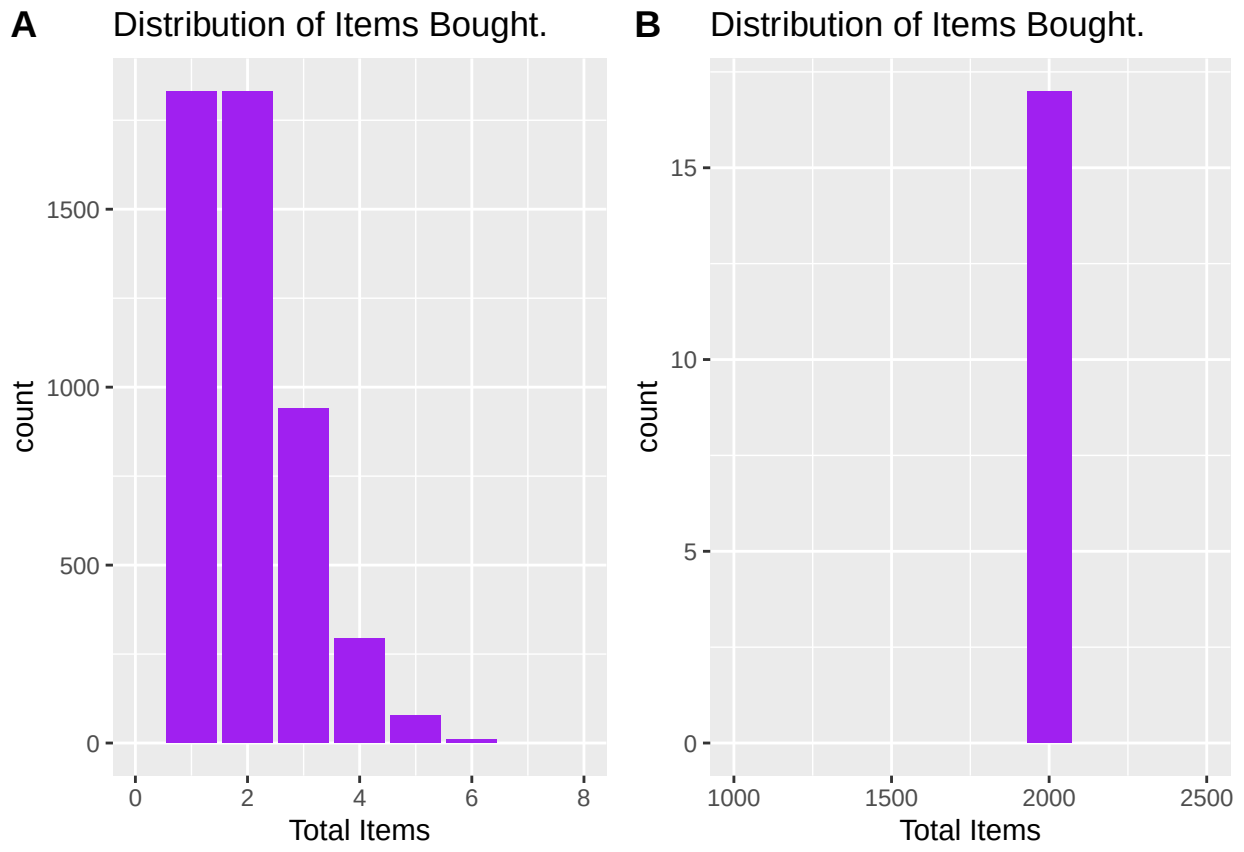
```
## Warning: Removed 17 rows containing non-finite values (stat_count).
```

```
df2 <- df[4984:5000, ]
df2$total_items <- sort(df2$total_items)

bp2 <- ggplot(data = df2, aes(x = total_items)) +
  geom_bar(fill = "purple", width = 140) +
  ggtitle("Distribution of Items Bought.") + xlim(1000,2500) +
  xlab("Total Items")

ggplotly(bp2)
```

```
bp_grid <- plot_grid(bp, bp2, labels = "AUTO")
```

```
## Warning: Removed 17 rows containing non-finite values (stat_count).

## Warning: Removed 1 rows containing missing values (geom_bar).
```

```
bp_grid
```



Summary + Questions

The median is the best indicator for how much a customer usually spends on sneakers given they are a relatively affordable, rather than using the mean. For my visualization I illustrated the frequency of the amount of items customers bought. Majority of customers bought between 1 to 3 items. Only a small amount of customers bought 2000 items. The count is:

1 -> 1830 2 -> 1832 3 -> 941 4 -> 293 5 -> 77 6 -> 9 2000 -> 17

1. Think about what could be going wrong with our calculation. Think about a better way to evaluate this data.

Something that could be wrong with your calculation is that you are reporting the mean of the order amount. The mean of the order amount is 3145, which is due to a huge outlier value in the total items data set. The maximum number of items a customer has ordered was 2000, significantly larger than the other values in the total items data column. For example, a user with the id of 969 had an order amount of 432 and 2000 total items, which brings the cost to $864,000, another reason why the data is skewed.

2. What metric would you report for this dataset?

The metric that I would report instead of in this data set is the median because it would give us the middle-value amount of what people would pay for their order.

3. What is its value?

The value of the median is 284.

##33

SQL Solutions

1. How many orders were shipped by Speedy Express in total?

select count(*) from orders join shippers on orders.shipperid = shippers.shipperid where shippers.shipperid = 1;

Answer: 54

2. What is the last name of the employee with the most orders?

select lastname from employees e join orders o on e.employeeid = o.employeeid group by lastname order by count(*) desc limit 1;

Answer: Peacock

3. What product was ordered the most by customers in Germany?

Select productname from orders join customers on orders.customerid = customers.customerid join orderdetails on orderdetails.orderid = orders.orderid join products on orderdetails.productid = products.productid where country = 'Germany' group by productname order by quantity desc limit 1;

Answer: Steeleye Stout