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DATA 824

**Assignment 7**

Exercise 1

For this exercise, I was interested in identifying which product were most profitable for this business, and who was buying these products.

To start, I isolated to the most recent year of orders (2014), and identified which product category was the most profitable. Technology products provided the most return, as over 46% of 2014 profits were attributed to these products.

Graphical user interface, text, application, email

Description automatically generated

Next, I dug one layer deeper by identifying which sub-categories provided the most profit for the business in 2014. By far, Copiers made the most profit, followed by Phones, Bookcases and Appliances. Interestingly, all but one sub-category had a positive profit, with the lone exception being Tables, which lost the company over $30,000 in 2014. These products brought down the overall profit for Furniture products (seen above).

Chart, bar chart

Description automatically generated

Looking only at Tables, we notice that a few of the biggest money-losers were Barricks conference tables, as seen below, occupying the worst, 5th-worst and 7th-worst in terms of profits in 2014:

A picture containing chart

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So, what recommendations could we provide on how to improve profit margins for tables? This last view may indicate where to focus on marketing, advertising and selling tables:

Map

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Interestingly, the biggest money-losers of tables were from orders in some of the biggest markets, such the US, China, Australia and most of western Europe. Meanwhile, tables made money for the company when ordered to India, Mexico, multiple African countries, the UK and a couple eastern European countries. Unfortunately, there isn’t any data on where these products are manufactured, but one theory that I have for this discrepancy is that less distance that a product has to travel to fulfill an order, the lower the shipping and transportation costs, leading to higher margins in those countries.

Exercise 2

The following plots Kansas 2017 crime rates, by county. From this view, we notice a couple of standouts: Sedgewick, Wyandotte, Geary, Shawnee and Finney all had crime rates > 5, with Sedgewick (8.5) and Wyandotte (7.3) having the highest.

Scatter chart

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Exercise 3

library(dplyr)

library(tidyr)

library(readr)

## Exercise 3

t1 <- read\_csv("datasets/Table1.csv")

t2 <- read\_csv("datasets/Table2.csv")

t\_joined <- inner\_join(t1, t2, by = "Accession")

head(t\_joined)

Graphical user interface, text

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