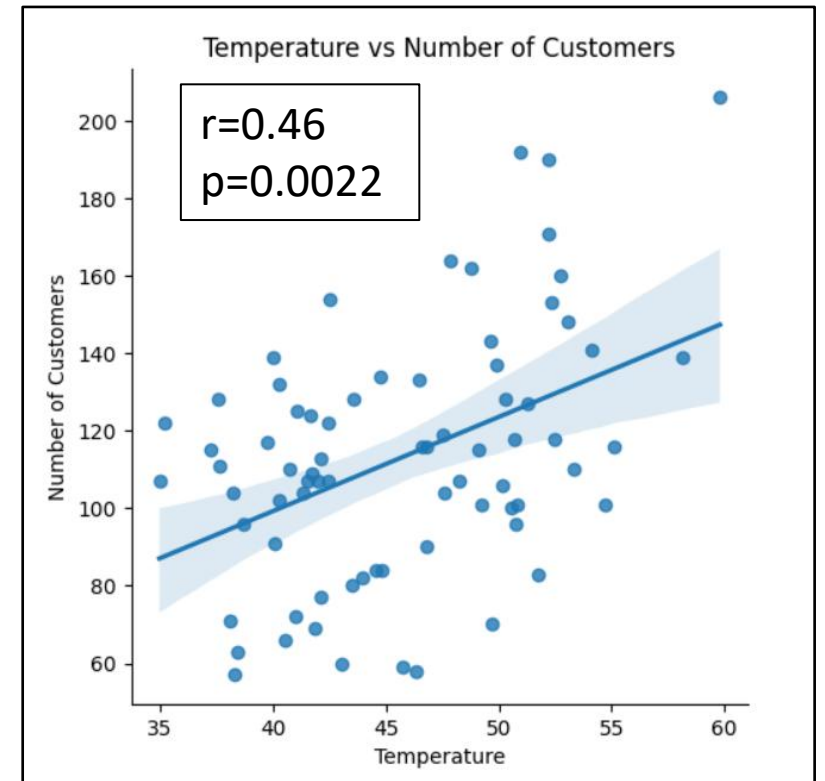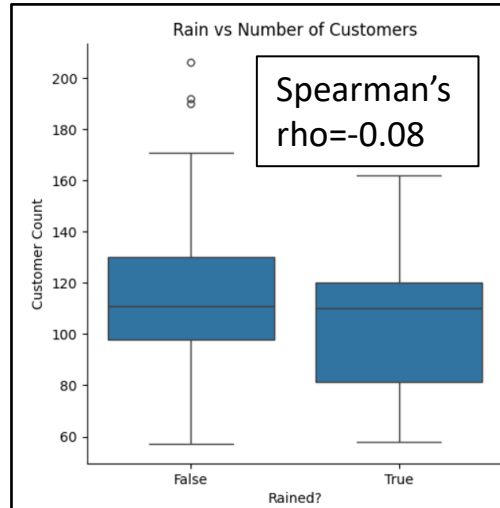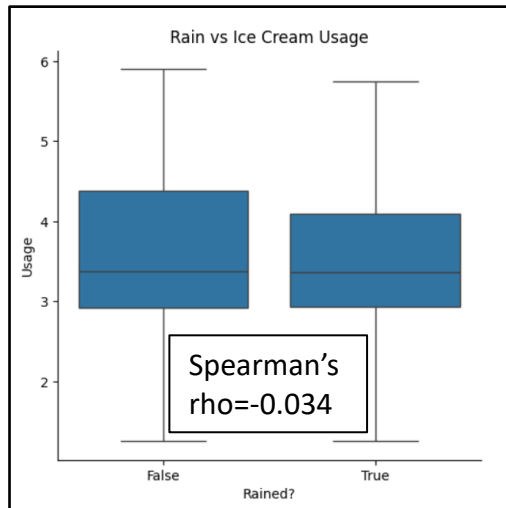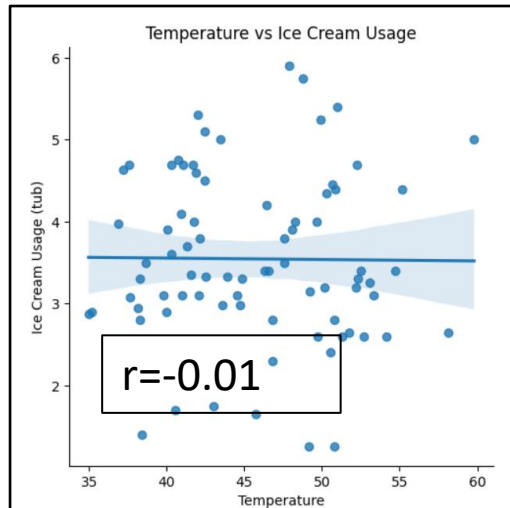# Frost Bite Sales Analysis

Yvonne Wang

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Motivation

    As the current Frost Bite Student Coordinator, a student-run ice cream shop on campus, I am curious about the sales of ice cream, the potential factors that affect people's choice of visiting the shop, and what flavors to get. Since no formal data analysis has been done on these topics in the past, knowing these trends will help with the future planning of the shop and the decision-making process of daily operations.

How does the weather or temperature ice cream usage and the number of customers?

Unfortunately, I only found a positive correlation between temperature and the number of customers. There is not enough evidence that temperature and rain affect ice cream usage, and that rain affects the number of customers.

Temperature vs Number of Customers

r=0.46
p=0.0022

Temperature vs Ice Cream Usage

r=-0.01

Rain vs Ice Cream Usage

Spearman's rho=-0.034

Rain vs Number of Customers

Spearman's rho=-0.08

What ice cream flavors are the most popular?

popularity = the average usage per night when it is on shelf

The 8 most popular flavors: Chocolate Chip Cookie Dough, Salted Caramel Brownie Chocolate, Dawg Tracks, Cookies & Cream, Mint Chocolate Chip, Mocha Almond Fudge, Strawberry Cheesecake, and Huckleberry.

The 8 least popular flavors: Coconut Toasted Pineapple, Orange Sherbet, Vanilla Bean, Pistachio Almond, Caramel Butter Pecan, Wildberry, Ube, Rainbow Sherbet

8 Most Popular Flavors

Average Usage (tubs)

Chocolate Chip Cookie Dough, Salted Caramel Brownie Chocolate, Dawg Tracks, Cookies & Cream, Mint Chocolate Chip, Mocha Almond Fudge, Strawberry Cheesecake, Huckleberry

8 Least Popular Flavors

Average Usage (tubs)

Coconut Toasted Pineapple, Orange Sherbet, Vanilla Bean, Pistachio Almond, Caramel Butter Pecan, Wildberry, Ube, Rainbow Sherbet
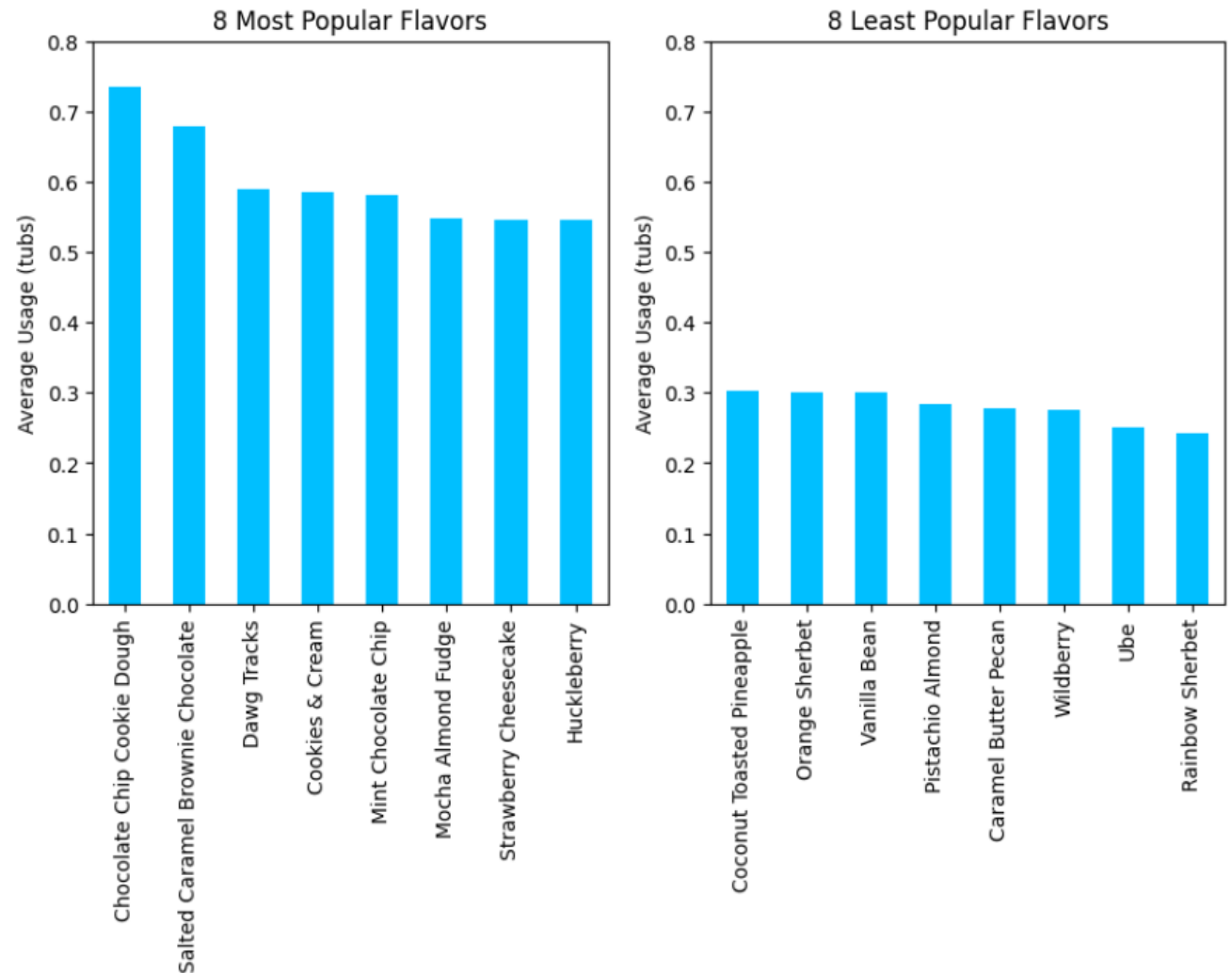
Is there a day of the week that we have the most customers?

We have the most customers on Thursdays, and we tend to have more customers on weekdays than weekends.
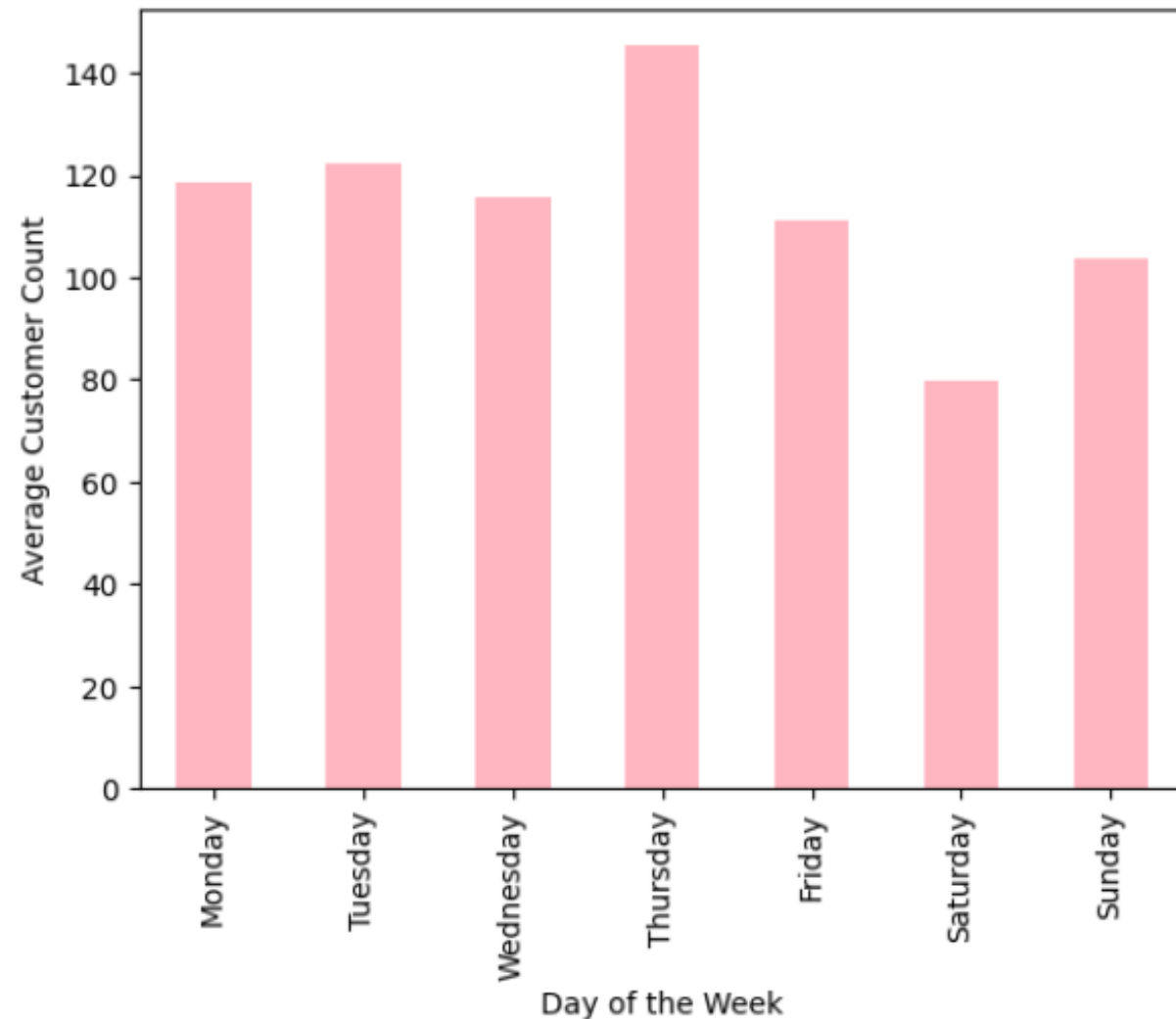
Does the existence of very popular flavors affect sales of other flavors?

To answer this question, I conducted a one-way ANOVA test. Split the data into two groups: one group that contains at least one popular flavor, and another group that does not contain any popular flavors.

The p-value turned out to be 0.46, way above 0.05. There is not enough evidence to show that the presence of a very popular flavor affects the average usage of the other flavors.