Problem Statement Worksheet (Hypothesis Formation)

Can Super Cue Café store yield more than 10% profit than previous year by implementing seasonal hours?

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1 Context

Boba joints are popular in the Bay. The store owner would like to find out if time is the current store operating hours for all seasons, or should the store have seasonal hours to improve profit by 10% or more.
Null: All sales are due to chance, time is not a dependent variable for sales.
Alternative: Time can be used to predict sales, and thus the store should operate based on times that produce profit.

2 Criteria for success

Find out if time is a good variable to predict sales, if it is, a new store operation hours should be implemented before the schools start again, along with staff recommendation.

3 Scope of solution space

Use the 2017 hourly sale data provided to find if time is a good variable to predict sales. If it is, provide the optimal open/close hours, and staffing. Note: for each $50 sales, only one staff member is needed, but at no time should the store have only one staff member working. If the hourly sales doesn't reach $40, the store will be losing money, and should be closed.

4 Constraints within solution space

-Since most of staff members are students, they would like to work 4~8 hour shifts only. So the staffing must be aware of the 4 hour minimum.

5 Stakeholders to provide key insight

Store Owner
Store Manager
Shift Supervisor

6 Key data sources

The store's hourly sales data – Clover (POS) system has analytic tool that may extract certain raw data to compose such data set, which will be the datasets I'll be using.