

# Project Group 3 – Sprint 0

Trello URL: <https://trello.com/b/ld3q8h04/sprint-0>

## User Stories

1. As a user, I want to be able to plan employee schedules and increased/decreased staffing needs while taking into account the current climate of pandemic. I want the program to be adaptable and also able to be used once things return to normal.
2. As a user, I want to be able to use this software when we return to “normal.”
3. As a user, I want to be able to have enough staff, so people don't wait in line for long during a lunch or dinner rush.
4. As a user, I want to be able to know when to stock ahead if there will be more customers coming due to a holiday, so staff does not have to stock during operation hours.
5. As a user, I want to be able to plan for increased staffing needs both the day before the holiday as well as the holiday itself.
6. As a user, I want to be able to plan for increased staffing needs on weekends when average trip lengths are longer than during the week and customers may need more assistance.
7. As a user, I want to be able to schedule for more employees in response to the weather.
8. As a user, I want to be able to easily manipulate the program by myself.

## Initial Design

- Programming language: Python
  - External libraries:
    - Random – used to generate values for shopper time, time spent, etc
    - Statistics – used for means and averages
    - Csv – needed to generate csv files
    - Math – unused yet (will only be used for normal distribution)
    - Scipy – unused yet (will only be used for normal distribution)
    - Numpy – used for data analysis
    - Pandas – unused yet
- Inputs:
  - A date (datetime)
    - Can be changed to complete user input for month, day, year (string)
  - Whether or not the weather is nice (boolean)

- Outputs:
  - CSV file for specific day containing one line per customer with:
    - The time a customer entered the store (float)
    - The amount of the customer spent in the store (float)
    - Whether or not this customer was rushing (lunch, dinner)
    - Whether or not this customer was a senior
    - Whether or not it is a nice day outside
  - Statistics for csv file:
    - Total customers per day
    - Customers in store per hour
    - New customers per hour
    - Number of customers for lunch rush
    - Number of customers for dinner rush
    - Number of seniors
    - Number of customers at closing time
    - Average and standard deviation of time spent for customer in a particular category
- Major abstractions and relationships:
  - The holidays used in this software will be pulled from USA holidays from holidays package in python.
  - Certain percentages will be guessed and used. These will be provided if wanted and can be changed easily to take into consideration changes in shopping patterns and staffing needs.
  - Weather is currently defined as “nice” or not. This can be changed by the user in case of weather changes.