

# **Requirements**

## **Team SPAM**

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## Table of Contents

<b>Table of Contents</b>	<b>2</b>
<b>Requirements Definition</b>	<b>3</b>
Data Management	3
GUI	4
Ordering System	6
Payment System	7
<b>Priority Table</b>	<b>8</b>
<b>Use Case Diagrams</b>	<b>9</b>
Coffee Point of Sale System	9
<b>Use Case Event Flow</b>	<b>10</b>
Flow of Events for Order Coffee Directly From Main Screen Use Case	10
Flow of Events for Regular Customer Ordering Use Case	10
Flow of Events for Management Tools Use Case	10
<b>Decision Tables</b>	<b>12</b>
Available Payment Methods	12
Order Payment Decision Table	12
Sales Data Collection	13

# Requirements Definition

## Data Management

- 1.1 Data Entry - [Priority: Must Have](#)
  - Customer data entered through the Add Customer screen:
    - Each customer will be assigned a GUID
    - The customer data file will be updated with the new customer's phone, first name, last name, reward points, and GUID.
  - Customer orders will be collected and stored.
    - The customer's GUID will be tied to the order details and stored in the Sales Data file.
  - 1.1.1 Duplicate Customer Validation - [Priority: Need to Have](#)
    - During the addition of a new customer, the program will check for a duplicate user, a duplicate user is determined when all the data fields are identical.
- 1.2 Customer Data Management System - [Priority: Must Have](#)
  - After any data entry, both the Customer and the Sales Data files will be updated with the latest information.
  - The customer data file will be sorted using a priority system using last name, then first name, then phone number.
  - A customer profile labeled anonymous will always be stored as the top index.
  - The reward points system points will be stored uniquely to each customer, with the exception of the anonymous customer.
    - Amount of reward points per dollar spent will be pulled from a configuration file.
    - Anonymous customer data:
      - First Name - Anonymous
      - Last Name - Anonymous
      - Phone Number - 000-000-0000
      - The reward points will always be set to 0 for this customer.
- 1.3 Sales Data Management System - [Priority: Must Have](#)
  - JSON file sorted by descending order by the time of sale.
  - This data will contain the transaction details of each order and the related customer GUID, and the last four digits of the credit card number if used.
- 1.4 Data Export - [Priority: Must Have](#)
  - Sales Data will be able to be exported into a CSV file, and will open the created file in Excel.
- 1.5 Static Data - [Priority: Must Have](#)
  - The Configuration data file and the Drink menu will be loaded into memory during application start-up.
    - This data will be un-modifiable by the application.
    - This data file will store the following: Drink Menu and customizations for each drink, tax rate, and reward points per dollar

### GUI

- 2.1 Main Screen - [Priority: Must Have](#)
  - Main screen which includes large buttons to go to Order Drink, Customer List, and Management Tools.
- 2.2 Customer List Screen - [Priority: Must Have](#)
  - The customer list screen will show a list of customers sorted by first last name, then first name, and then phone number. Anonymous customers will be at the top of the list.
  - The screen will include the amount of rewards points each customer has.
  - The screen will include a button to add new customers.
  - Each customer will have an order drink button.
  - The screen will include a button to return to the Main Screen.
- 2.3 Add Customer Screen - [Priority: Must Have](#)
  - Will have a field for the first name, last name, and phone number. All of these fields are required before you can create the new customer.
  - The Screen will verify if the phone number is valid.
  - After a new customer is added it will go directly to the order drink button.
  - If a user cancels adding a new customer the program will take you back to the main screen.
- 2.4 Order Drink Screen - [Priority: Must Have](#)
  - If a user goes directly to the order drinks screen from the main menu screen the customer will be anonymous.
  - The customer can order one or more drinks but at least has to order one.
  - The screen will have drinks added to the order, a subtotal, tax, and a total to the right side of the screen. To the left side the screen will have the drink creator.
  - Once there is at least one order the button to go to the payment screen will activate and can be clicked on.
  - If the order is canceled the program will be taken back to the main menu screen.
- 2.5 Payment Screen - [Priority: Must Have](#)
  - On this screen customers can pay with credit card or with reward points. Ten reward points being equivalent to one dollar. Customers can only pay with reward points if the customer has enough points to pay for the whole purchase. Customers' credit cards will be validated on this screen.
  - If customers pay with a credit card they will gain 10 reward points for every one dollar that they spend. Reward points will round down so the customer can not have a fraction of a reward point.
  - Anonymous customers will not receive reward points.
  - After payment is successful the program will go to the receipt menu.
  - If a user cancels the payment the program will be taken back to the main menu.

## Project Requirements

- 2.6 Receipt Screen - [Priority: Must Have](#)
  - This screen will show the drinks that the customer ordered including the customizations to the drink as well as the prices, quantities, subtotal, tax, and total.
  - This screen will show the payment method. If the payment method is a credit card it will show the last 4 digits of the credit card. If the payment method is with reward points it will show the number of reward points redeemed.
  - This screen will show remaining rewards points only if the customer is not anonymous.
  - Will contain a button that returns the program to the main menu.
- 2.7 Management Screen - [Priority: Must Have](#)
  - This screen will have a button that generates a CSV file containing the sales report. When this button is clicked the sales report file will open up in Microsoft Excel.
  - This screen will also include a button that allows the user to return to the main menu.

### Ordering System

- 3.1 Drink Selection - [Priority: Must Have](#)
  - The program will present the user with a selectable list of base drinks.
  - There will be an option to cancel the current selection.
- 3.2 Drink Customization - Priority: Must Have
  - The program will allow the customer to add customizations to their base drink order.
  - There will be an option to cancel the current selection.
- 3.3 Order Handling - [Priority: Must Have](#)
  - The user's drink selection and customizations will be saved and displayed.
  - There will be an option to cancel the order at any time, the canceled order's data will not be saved.
  - 3.3.1 - [Priority: Need to Have](#)
    - Include the ability to change the quantity of ordered drinks, without having to re-order the drink.
  - 3.3.2 - Priority: Need to Have
    - The system will allow a user to order multiple drinks per transaction.
      - 3.3.2.1 - [Priority: Nice to Have](#)
        - Each individual drink will be able to be canceled separately.
- 3.4 Price Calculation - [Priority: Must Have](#)
  - The price of the base drink order, the customizations will be calculated and displayed as a subtotal
  - A calculated tax amount will also be displayed, based on the subtotal.
  - The total cost will be the sum of the subtotal and tax.
  - 3.4.1 - [Priority: Nice to Have](#)
    - The price of the order will be displayed in both dollar amount and reward points.

## Payment System

- 4.1 Card Payment - [Priority: Must Have](#)
  - The credit card number will be validated.
    - If the card number is not valid, the program will display a message stating that the card number is not valid and fail the payment.
  - The credit card's expiration date will be checked against the current date.
    - If expired, the program will ask for expiration date input validity, and fail the payment.
  - In the event of a payment failure, the program will allow the user to check and change their inputs, without having to re-order.
- 4.2 Reward Points Payment - [Priority: Must Have](#)
  - Will not be available to Anonymous Customers.
  - Will validate that the customer has enough saved reward points to fully cover the total.
  - The reward points used for a successful payment will be deducted from the customer's profile.
- 4.3 Rewarding Points - [Priority: Must Have](#)
  - Only applicable to non-anonymous customers who paid through using a credit card.
  - Reward points will be added to the customer's data, the amount added is rounded down to the nearest integer based on the ratio set in the configuration file.

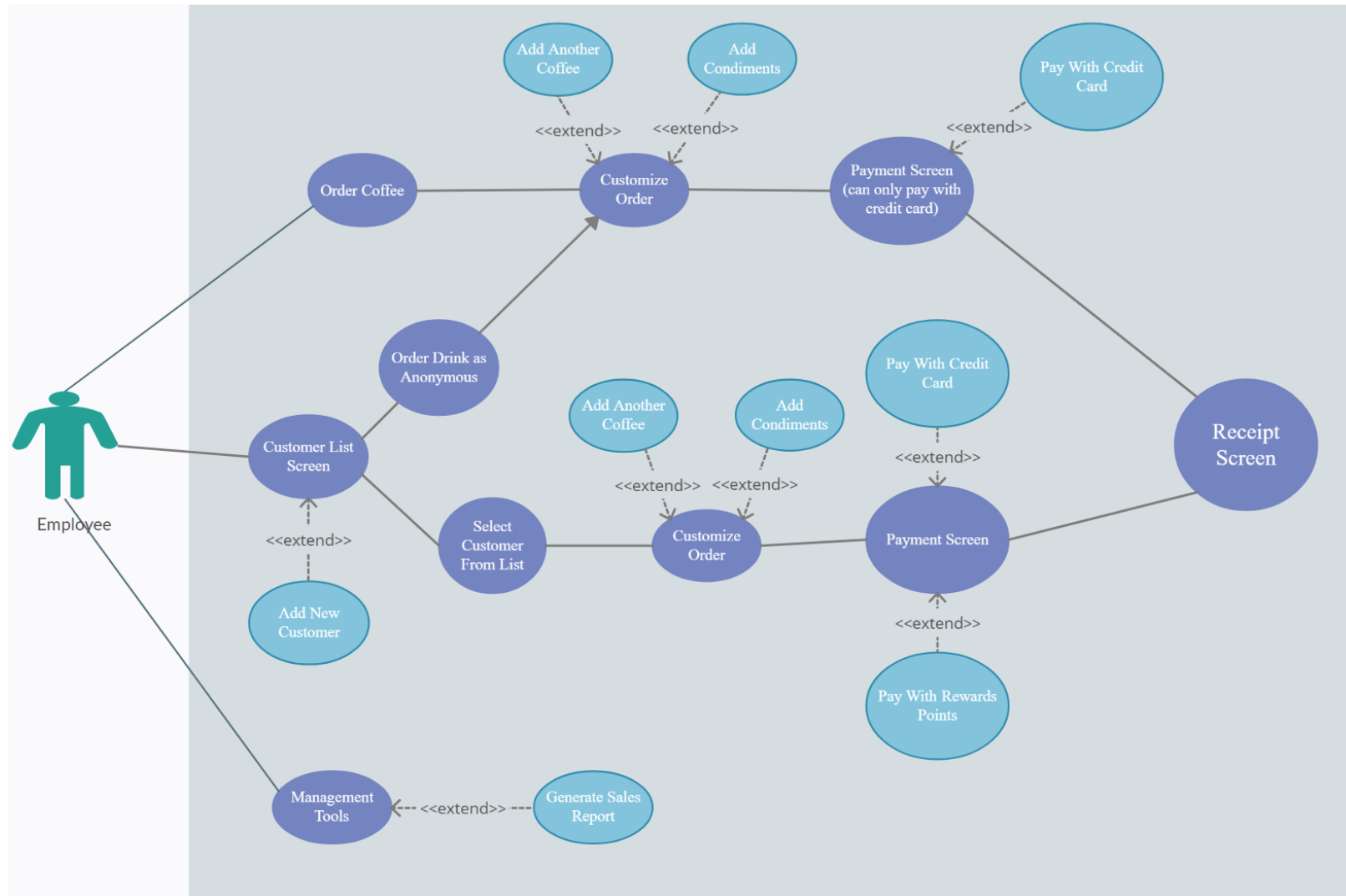
## Priority Table

<b><u>Requirement Identifier</u></b>	<b><u>Priority: Must Have</u></b>	<b><u>Priority: Need to Have</u></b>	<b><u>Priority: Nice to Have</u></b>
<a href="#">1.1</a>			
<a href="#">1.1.1</a>			
<a href="#">1.2</a>			
<a href="#">1.3</a>			
<a href="#">1.4</a>			
<a href="#">1.5</a>			
<a href="#">2.1</a>			
<a href="#">2.2</a>			
<a href="#">2.3</a>			
<a href="#">2.4</a>			
<a href="#">2.5</a>			
<a href="#">2.6</a>			
<a href="#">2.7</a>			
<a href="#">3.1</a>			
<a href="#">3.2</a>			
<a href="#">3.3</a>			
<a href="#">3.3.1</a>			
<a href="#">3.3.2</a>			
<a href="#">3.3.2.1</a>			
<a href="#">3.4</a>			
<a href="#">3.4.1</a>			
<a href="#">4.1</a>			
<a href="#">4.2</a>			
<a href="#">4.3</a>			



## Use Case Diagrams

### Coffee Point of Sale System



## Use Case Event Flow

- **1.0 Flow of Events for Order Coffee Directly From Main Screen Use Case**
- **1.1 Preconditions:** None
- **1.2 Main Flow:** Employees will be able to select order drinks directly from the main screen if the customer is anonymous and be directed to the order customization screen. The employee will then customize the customers drink order and then proceed to the payment screen. The Employee must enter the customers credit card number; and once validated the customer gets a receipt screen and their order.
- **1.3 Sub Flows:**
  - **Subflow 1:** Customer adds condiments to drink.
  - **Subflow 2:** Customer adds another drink to the order.
- **1.4 Alternate Flows:**
  - **Alternate Flow 1:** Employee cancels order and returns to main screen.
  - **Alternate Flow 2:** Customer's card information fails to validate causing an error. The customer must re-enter valid credit card information.
- **2.0 Flow of Events for Regular Customer Ordering Use Case**
- **2.1 Preconditions:** None
- **2.2 Main Flow:** The employee will have the option to select the customer from a list of customers to order a drink. The Customer then customizes their drink order and then proceeds to the payment screen when ready to complete their order. Then the customer will have the option to either pay with their credit card or rewards points. Once payment method is selected and validated, the customer is sent to the receipt screen with their order.
- **2.3 Sub Flows:**
  - **Subflow 2:** Customers are new and would like to add themselves as a new customer.
  - **Subflow 3:** Customer adds condiments to drink.
  - **Subflow 4:** Customer adds another drink to the order.
- **2.4 Alternate Flows:**
  - **Alternate Flow 1:** Employee selects Anonymous from customer list. This will set the customer as anonymous and the flow will follow that of Flow 1.0.
  - **Alternate Flow 2:** Employee cancels order and returns to main screen.
- **3.0 Flow of Events for Management Tools Use Case**

## Project Requirements

- 3.1 **Preconditions:** None
- 3.2 **Main Flow:** Employees will be able to access the management tools in the system. Through the management tools the employee will be able to generate a sales report.
- 3.3 **Alternate Flows:**
  - **Alternate Flow 1:** Employee selects cancel and is taken back to the main menu.

## Decision Tables

Conditions	Available Payment Methods		
Existing User	T	-	-
New User	-	T	-
Anonymous User	-	-	T
Actions			
Create New Profile	-	T	-
Pay with Reward Points	T	-	-
Pay with Credit Card	T	T	T

Conditions	Order Payment Decision Table	
Credit Card Payment	T	-
Reward Points Payment	-	T
Actions		
Receive Reward Points	T	-
Expiration Date validation	T	-
Card Number validation	T	-
Sufficient amount validation	-	T
Subtract Reward Points	-	T

## Project Requirements

Conditions	Sales Data Collection	
Rewards Point Payment	T	-
Credit Card Payment	-	T
Actions		
Customer GUID	T	T
Last four digits of Credit Card	-	T
Reward Points used for Payment	T	-
Total Paid Amount	T	T
Items Purchased	T	T