

System Requirements Specification Document

by

TOne Solutions Inc.

**ECSE 326 Software Requirements Engineering-Fall
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Team 12

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1.0 Introduction

In this section, an in-depth list of functional requirements, performance requirements, system interface requirements, system operations requirements and system security requirements are provided for the Eaton-Center App and related systems (given in the previously listed order).

For six of the use cases, functional requirements are provided. Each use case scenario includes an intention, a pre-condition, a main scenario, alternative scenario(s), post-conditions, user stories, acceptance criteria and other related functional requirements satisfied by the use case scenario. Additionally, a use case model is also provided to provide a high-level overview of all the use cases. The document also includes some preliminary mock-ups for the user interface. Furthermore, this document contains a domain model and a state-machine to demonstrate the working and capabilities of the system.

Finally, a traceability matrix can be found in appendix two. It demonstrates how the high-level business goals for this project map onto the system requirements.

2.0 References

For information about the project's vision statement, project scope and context, business requirements, stakeholder information and more, see the *High-Level Requirements Document*.

For information and data collected regarding specific customer types who are expected to interact with the system, see the *Elicitation Document*.

For information about the impact of the current and new(proposed) system on stakeholders' goals, see *URN Goal Models*.

3.0 System Requirements

Overview:

The system caters to the needs of customers and store owners. It allows them to create an account, and then proceed to sign in, view/edit account details, and delete the account. For customers specifically, it allows them to look at a map of the mall, and search for and get directions to a particular store. Furthermore, it allows them to look at all current offers available from all stores, get special weekly offers, collect points with purchases, redeem those points towards future purchases, and purchase electronic gift cards. For store owners specifically, it allows them to post (and then edit and delete) current offers, post special weekly offers, and post store information, such as location/floor number, bio, photo, and opening/closing hours. This information about the system is demonstrated below in the domain model and use case model.

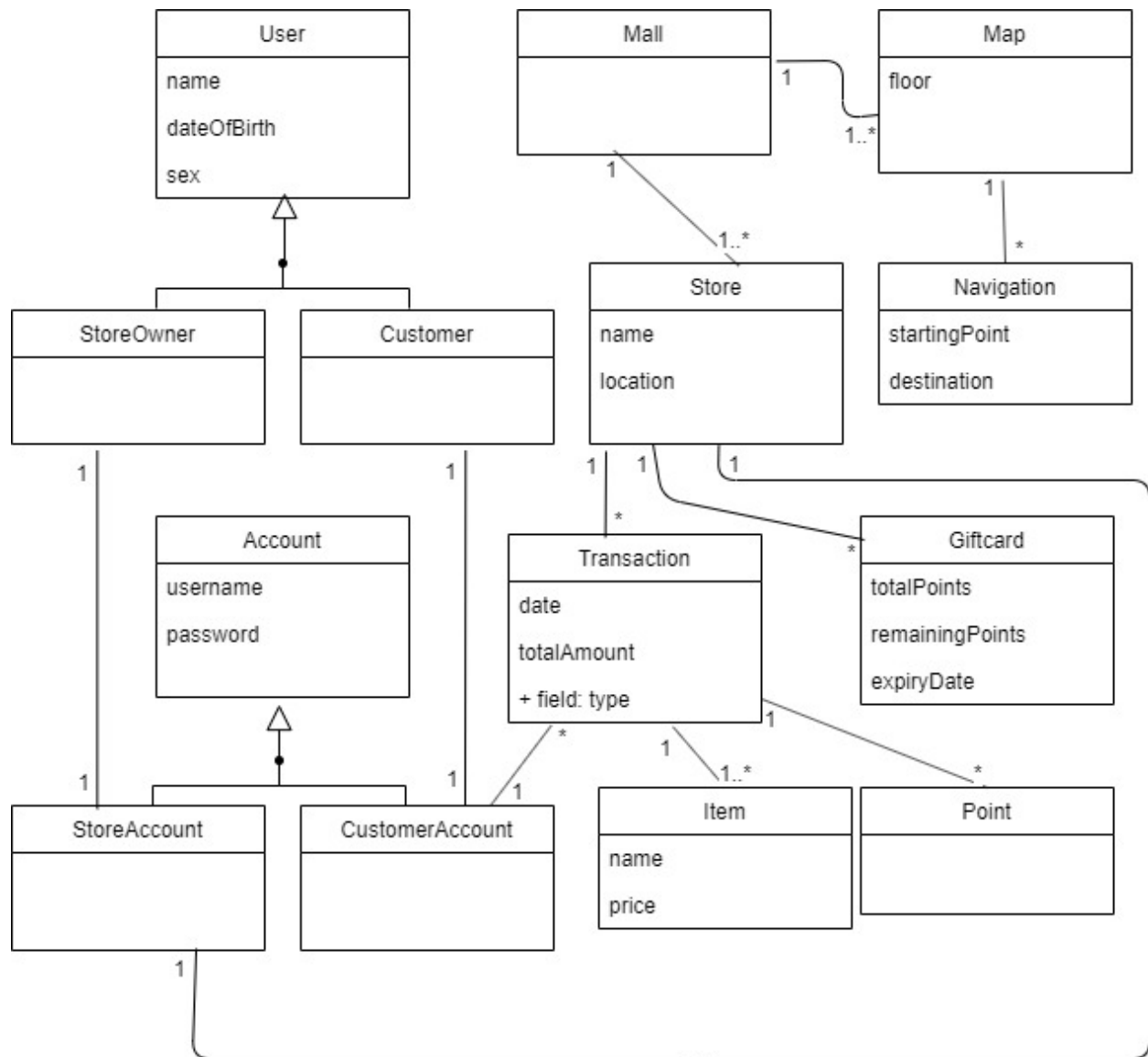


Fig. 1: Domain model

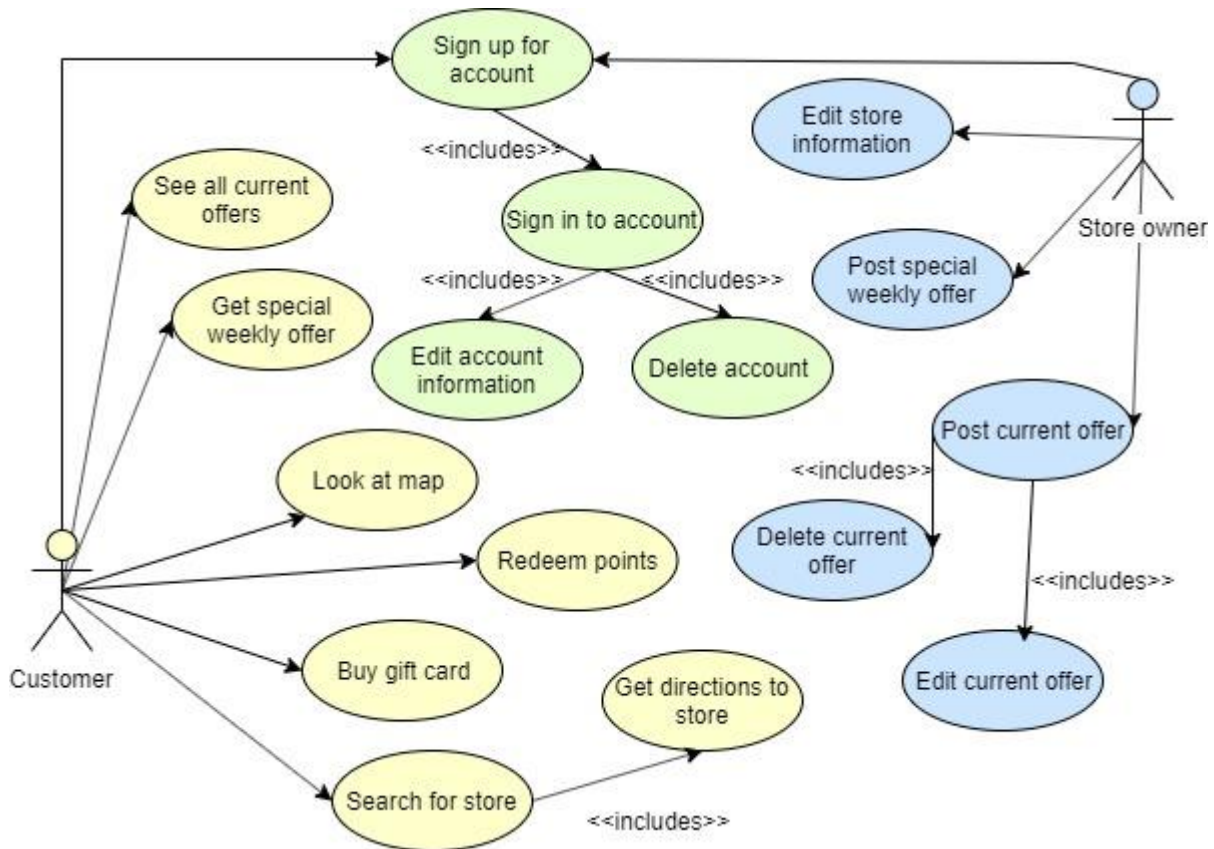


Fig. 2: Use case model (yellow represents use cases exclusive to customer, blue represents use cases exclusive to store owner, green represents use cases shared between customer and store owner)

Some preliminary mock-ups of the user interface are displayed below.

Eaton Centre

View Map

Search Store

Log In

Email

Password

Sign In

Sign Up New Customer Account

Sign Up New Store Owner

Eaton Centre

View Map

Search Store

Search Store

Select Mall

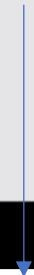
Name of Store

Search Results

Store Name

Store Name

Store Name



Eaton Centre

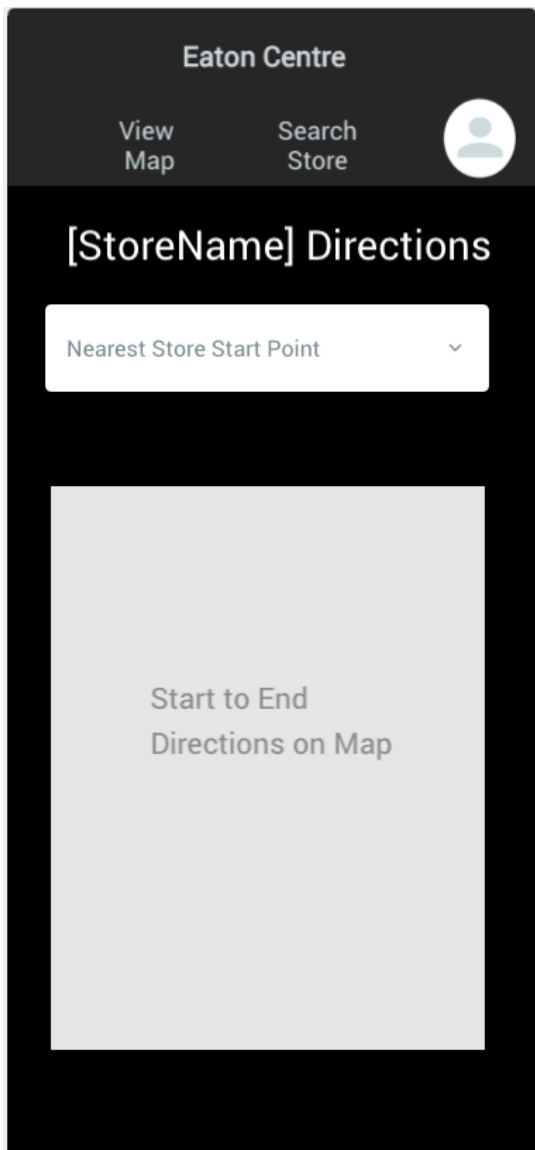
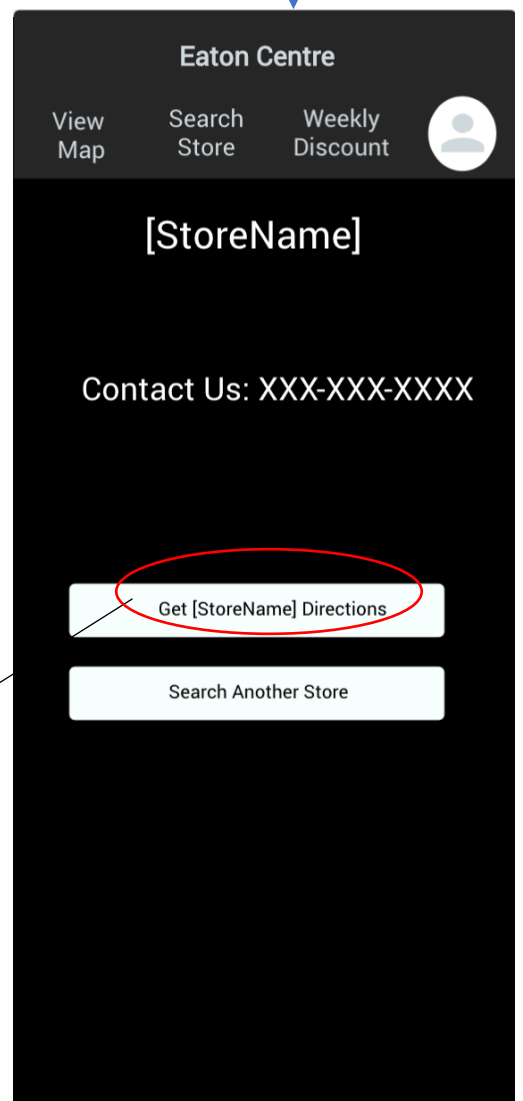
View Map

Search Store

View Map

Select Mall


Map



Eaton Centre

View Map

Search Store



Log In

Email

Password

Sign In


Sign Up New Customer Account

Sign Up New Store Owner

Eaton Centre

View Map

Search Store




Sign Up

* Name

* Email

* Password

* Retype Password


* Mail Preference 

Sign Up

Eaton Centre

View Map

Search Store



Sign Up


* Name


* Email

* Password

* Retype Password

* Store Phone Number

* Mail Location 

* Store Owned 

Request Verification


Verify by email

Eaton Centre

View Map

Search Store

Weekly Discount



Welcome [name]

Edit Account

Total Points: 500

Redeem Points

Pay With Gift Card

Purchase History

Store	Amount	Purchase ID	Location
Gap	45.32\$	# 348825	Montreal
Gusto's	12.53\$	# 854922	Toronto

Purchase Gift Card


Sign Out

Eaton Centre

View Map

Search Store

Weekly Discount



Welcome [name]

Edit Account

Transaction History

Store	Amount	Purchase ID	Location
Gap	45.32\$	# 348825	Montreal
Gusto's	12.53\$	# 854922	Toronto

Sign Out

Return to Login

Eaton Centre

View Map

Search Store

Weekly Discount



Points Card


ID Card #:1283 3434 7864

Gift Card



ID Card #:1283 3434 7864

Eaton Centre

View Map

Search Store

Weekly Discount



Edit Account

[Name]

[Email]

New Password

Reype new password

[CurrentMallPreference] ▾


Submit Changes

Eaton Centre

View Map

Search Store

Weekly Discount



Purchase Gift Card

Amount \$

Recipient Email


Proceed To Payment

Eaton Centre

View Map

Search Store

Weekly Discount



Payment

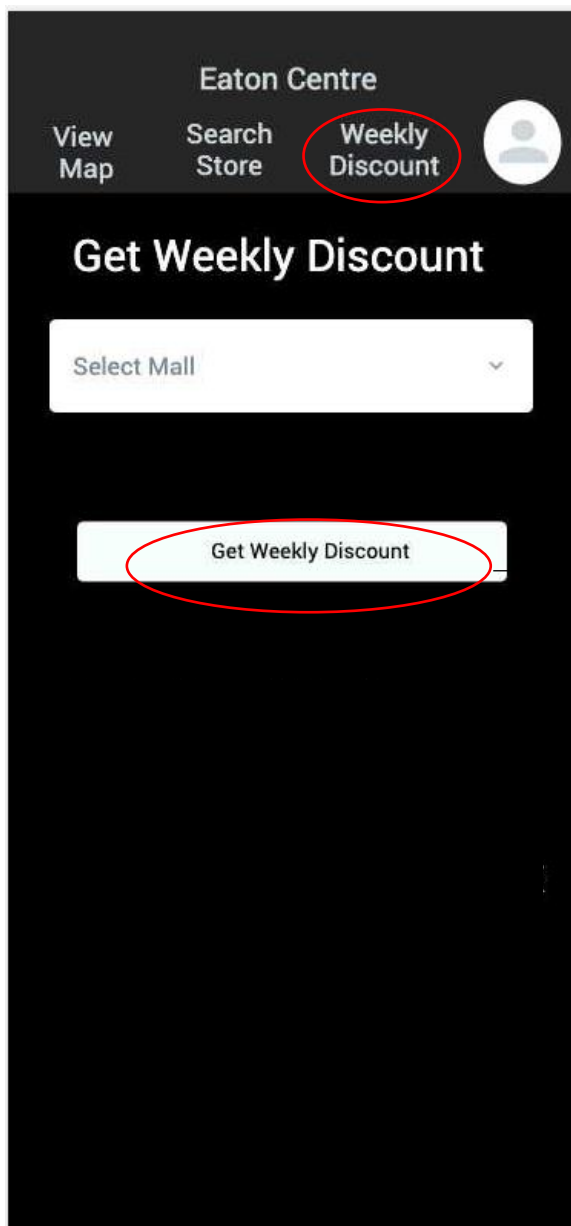
Payment Type

Credit Card Number

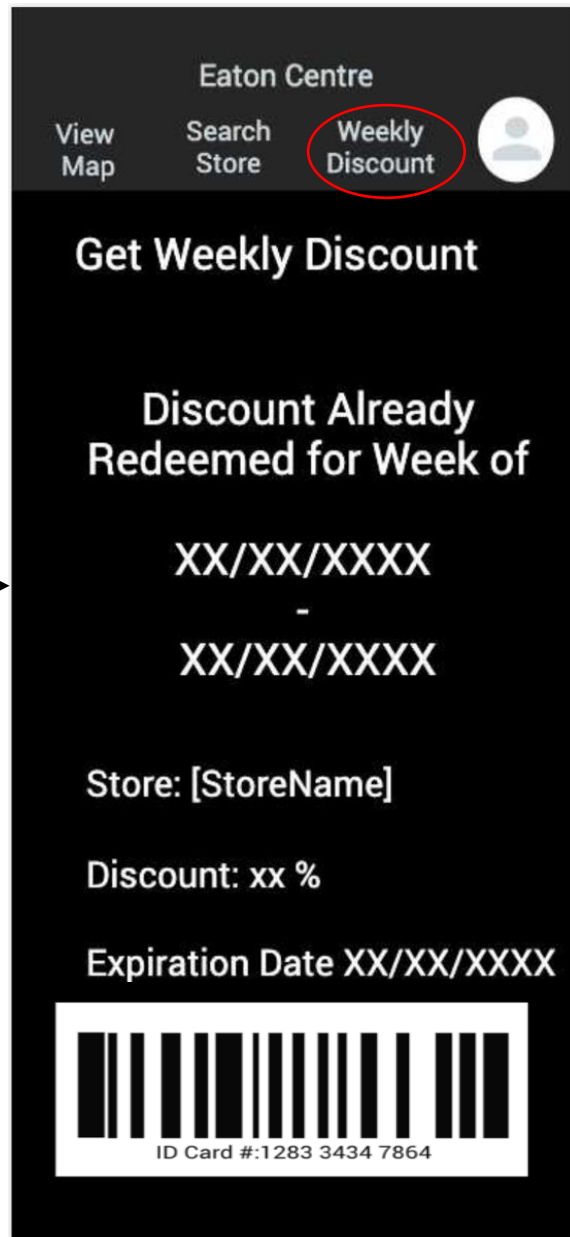
Expiration Date

CSV Code

Make Payment

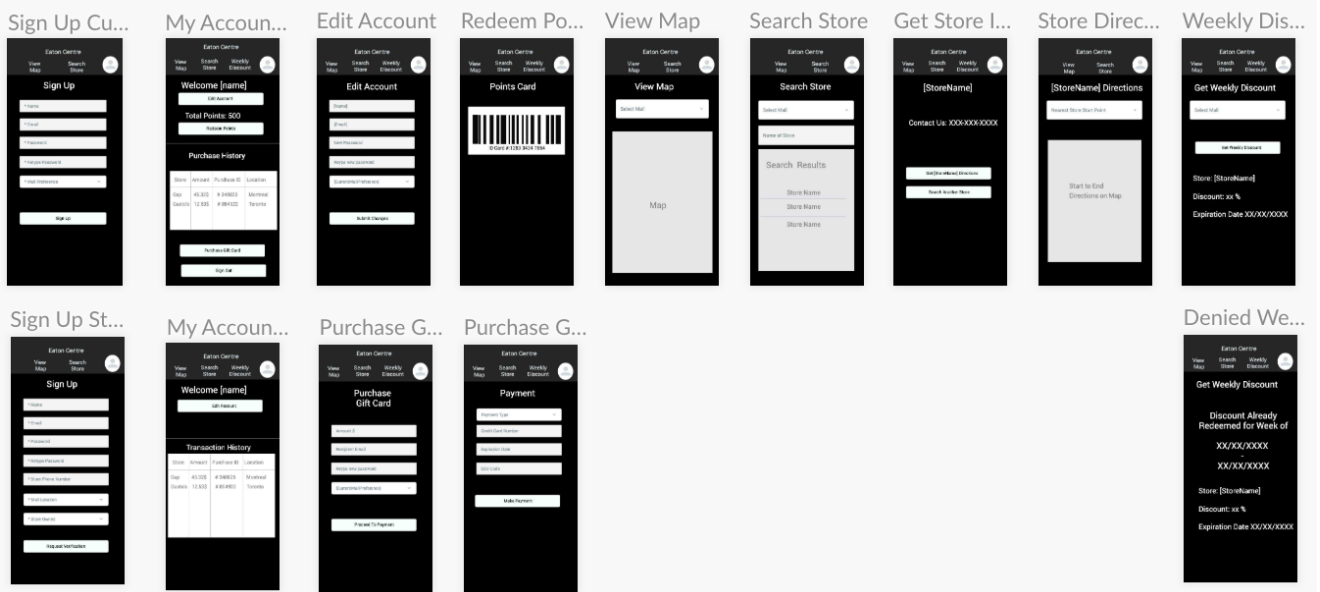
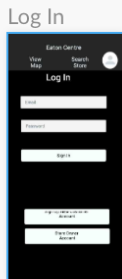
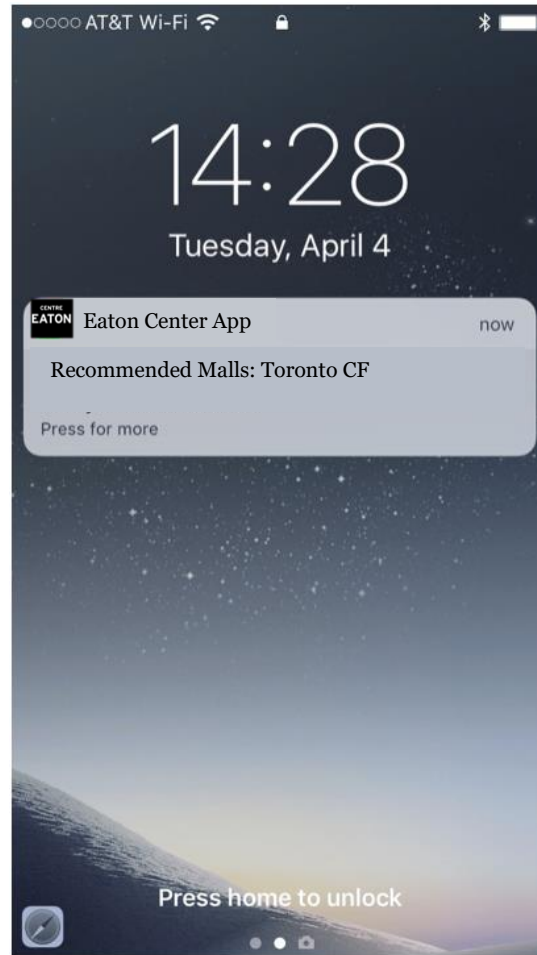


Success to redeem weekly discount
(can only be redeemed once/week)



Failure to redeem weekly discount
(already redeemed)

Once a customer successfully makes an in-mall purchase, the customer gets a notification of other recommended malls.



3.1 Functional Requirements

Each of the use cases mentioned above gives rise to one or more functional requirements of the system. The use cases and their related functional requirements are described below.

Use case 1: Sign up for account

User story: As a customer, I want to create a new user account so that I can take advantage of the loyalty points system of Centre Eaton.

Title: Sign up for account

Identifier: UC1

Author: Ketan Rampurkar

Actor(s): Customer, Eaton Center app system

Intention: The intention of the user is to create a new customer profile on the mobile app for them to utilize the loyalty points system of Eaton Center app.

Pre-condition(s): The customer has the app installed and working on their phone, and they are connected to the Eaton Center's Wi-Fi.

Main Scenario:

1. The customer clicks on the Create a new account button.
2. The system loads the new account information form.
3. The customer enters their details like name, username, email address and password.
4. The system validates that email address entered by customer is correct and the password is more than 8 characters.
5. The customer selects the mall preferences based on the list of malls the system generated.
6. The customer selects the create account button with the information specified in form.
7. The system sends a confirmation email to the customer validating that their account has been successfully created.
8. The system redirects the customer to a welcome page showing their details and loyalty points with their purchase history.

Alternative(s)/Exception(s):

- 1a. The user is a store owner and creates an account for shop owner. Go back to step 1.
- 4a. The system confirms that the email address entered is invalid or already exists in the database. Go back to step 3.
- 4b. The system confirms that the password is less than 8 characters and generates an error message for the customer. Go back to step 3.
- 5a. The customer does not select the optional mall preference from the system generated mall list. Continue with step 6.

Post-Condition(s): The customer has successfully created a new user profile, and their purchase history and loyalty points will now be added as they buy items from mall stores.

Acceptance Criteria:

1. Given that the new user is a customer, when the customer clicks on the sign up as customer button, then the system verifies that a new form link with all the required fields are opened.

2. Given the customer enters their email address when signing up, the system verifies that the entered email address is correct.
3. Given the customer enters their password when signing up, the system verifies that the password is more than 8 characters with at least 1 digit and 1 special character.
4. Given that the customer wants to enter their mall preferences when signing up, the system verifies that the list of malls shown are correct.

Functional Requirement(s):

FUC1.1 The system shall be able to create a new customer profile on the mobile application by filling out the form fields.

FUC1.2 The system shall be able to send a confirmation email to the customer after the customer successfully signs up for the account.

FUC1.3 The system shall be able to display the list of malls registered in the database for the customer to select their mall preferences.

FUC1.4 The system shall redirect the customer to a welcome page showing their current loyalty points and purchase history.

Use case 2: Sign-in to account

Use case 3: Edit account information

User story: As a customer, I want to make changes to my account information.

Title: Edit account information

Identifier: UC3

Author: Misha Jehangir

Actor(s): Customer, Eaton Center app system

Intention: The intention of the customer is to edit one or more fields (name, email, password, main preference) of their account information.

Pre-condition(s): The customer has already created an account, is signed into that account, is on the “edit account” page, and is connected to wi-fi.

Main Scenario:

1. The system displays “edit account information” page where all fields are editable.
2. The customer makes changes to name field.
3. The customer makes changes to email field.
4. The customer types in a new password in the new password field.
5. The customer retypes new password in the retype new password field.
6. The customer chooses an email preference option from the email preference drop-down menu.
7. The customer clicks on “submit changes” button.
8. The system verifies that all fields have been correctly filled.
9. The system updates user database with the new account information submitted.
10. The system sends a confirmation email to old and new email accounts.
11. The system displays a message on a new screen to indicate that changes were submitted successfully.

12. The system refreshes the screen to show updated account information.

Alternative(s)/Exception(s):

- 7.a: Changes cannot be submitted due to an unexpected error in the app.
 - 7.a.1: The system alerts the customer of the error and offers to close app.
- 8.a: The name field is blank.
 - 8.a.1: The system alerts the customer of the error and goes back to step 1.
- 8.b: The email account provided does not exist.
 - 8.b.1: The system alerts the customer of the error and goes back to step 1.
- 8.c: The new password field is blank.
 - 8.c.1: The system alerts the customer of the error and goes back to step 1.
- 8.d: The retype new password field does not match new password field.
 - 8.d.1: The system alerts the customer of the error and goes back to step 1.
- 10.1: The old email account is no longer active and the email bounces.
 - 10.a.1: The system alerts the customer of the error and continues to step 11.

Post-Condition(s): The customer's account information is updated to reflect the changes made.

Acceptance Criteria:

1. Verify that none of the fields has been left blank.
2. Verify that the password has been retyped correctly (if changes have been made to the password field).
3. Verify that the customer is shown a success message on the screen in the app after "submit changes" button is clicked.
4. Verify that the customer has been sent an email (both on old and new email accounts, if a new email account has replaced the old one).
5. Verify that the changes are reflected to the customer when the account information page is refreshed.
6. Verify that the system's user information database has been updated to reflect the changes.

Functional Requirement(s):

FUC3.1 The system shall allow a customer to update all fields of their account information (name, email, password, email preferences).

Use case 4: Delete account

Use case 5: See all current offers

Use case 6: Get special weekly offer

User story: As a customer, I want to be able to generate a weekly discount that I can redeem at a store using my account in the Eaton Center app.

Title: Get special weekly offer

Identifier: UC6

Author: Paul Attara

Actor(s): Customer, Eaton Center application

Intention: The intention of the user is to generate a weekly discount coupon that can be redeemed at a store to save money.

Precondition(s):

1. The customer has the app installed and working on their device.
2. The customer is connected to the Eaton Centers' Wi-Fi network.
3. The customer is logged into a valid account.

Main Scenario:

1. The customer logs into their account
2. The customer clicks on the "Weekly Discount" button in the top of the navigation bar.
3. The system validates the customer's get weekly discount request.
4. The system displays the "Get Weekly Discount" page along with all required fields.
5. The customer selects the desired mall from the dropdown menu.
6. The customer clicks on "Get Weekly Discount" button at the bottom of the page.
7. The system validates the customer's request.
8. The system runs an algorithm that selects a store and generates a percentage for the discount and a discount code number.
9. The system loads and displays the store name, discount percentage amount, expiration date of the discount, and the discount code in the form of a scannable bar code number on the page.

Alternative(s)/Exception(s):

- 3a: The customer already generated a weekly discount within the current week.
 - 3a.1: Use case continues at step 9.
- 3b: There is an error validating the customer's request.
 - 3b.1: Use case continues at step 2.
- 7a: The customer fails to select a desired mall from the dropdown menu.
 - 7a.1: Notify the user to select a desired mall.
 - 7a.2: Use case continues at step 5.
- 8a: The algorithm fails due to an error.
 - 8a.1: Use case continues at step 6.

Post Condition(s):

The customer has successfully generated a weekly discount to a store in their desired mall that can be redeemed throughout the week.

Acceptance Criteria: Generating a weekly discount

1. Given that the customer is logged in, when the customer clicks on "Get Weekly Discount" from navigation bar, then the system verifies whether the customer has already generated a discount within the current week.
2. Given that the customer selects a desired mall from the dropdown menu, when the customer clicks on the "Get Weekly Discount" button on the page, then the system runs an algorithm that generates a valid discount code, a valid store name and a valid discount percentage.
3. Given that the customer has already generated a weekly discount in the current week, when the customer clicks on "Get Weekly Discount" from the navigation bar, the system displays the store name, discount percentage amount, expiration date of the discount, and the discount code in the form of a scannable bar code number on the page.

Functional Requirements: Generating a weekly discount

FUC6.1 The system shall generate a weekly discount to a customer at most once per week.

- FUC6.2 The weekly discount code shall be redeemed at most once by a customer.
- FUC6.3 The customer shall be logged in to access the “Generate Weekly Discount” page.
- FUC6.4 The system shall display to the customer the store name, discount percentage, expiration date and discount code once the discount has been successfully generated.
- FUC6.5 The system shall display the discount code in the form of both text and a scannable bar code once it has been successfully generated.
- FUC6.6 The discount scannable barcode shall be compatible with all stores in the mall.
- FUC6.7 The discount must be generated for a specific store at a specific mall.
- FUC6.8 The discount percentage range must be in between 5 and 35 % inclusively.

Use case 7: Look at map

Use case 8: Search for store

User story: As a customer, I want to be able to find any store from anywhere in the mall as easily as possible.

Title: Search for store

Identifier: UC8

Author: Sean Smith

Actor(s):

Intention: The intention of the user is to find an Eaton Center store using the Eaton Center App’s virtual store map.

Pre-condition(s): The user has the app installed and working on their phone and they are connecting to the Eaton Centers’ Wi-Fi.

Main Scenario:

1. The customer enters the store and opens the virtual map from the Eaton Center App.
2. The system loads the virtual map of the Eaton Center.
3. The system retrieves the customers’ location based on their connection to the Eaton Center Wi-Fi.
4. The system prompts the customer to enter the name of the store they would like to visit.
5. The customer enters the name of the store they would like to visit in the search bar in the UI.
6. The system displays a result of stores based on their search results. The resulting stores are returned based on metatags and similarity of customers’ search string to the store name.
7. The customer selects the store they wish to visit.
8. The system fetches the location of the store from their database and retrieves its’ location.
9. The system then uses Dijkstra’s algorithm to find the quickest path from the customers’ location to the store they wish to visit.
10. The system displays the shortest path from the customer
11. to the store they wish to visit.
12. The system repeats steps 8-10 until the customer arrives at the store.

Alternative(s)/Exception(s):

- 5.1 The customer enters a keyword, such as “shoes”.
- 5.2 The customer enters an invalid string.
- 6.1 The system fails to return a list of stores, and the customer is prompted of an error.

7.1 The customer does not select a store from the list of stores, so they return to step 5.

11.1 The customer exits the map module; in which case the map module stops updating the customers' location.

Post-Condition(s):

The system closes the app module and returns to the app home screen, as the customer has found the store they are searching for. If the customer wishes to find another store, they simply open the app and restart the main scenario.

Acceptance Criteria:

1. Verify that a virtual map of the flooring plan of the Eaton Centre mall was displayed to provide directions for the customer.
2. Verify that the store was found using the UI search bar, either based on store name or metatags.
3. Verify that the customers' last coordinates match (to a relatively high degree of accuracy) the location of the store in which they searched for.
4. If the customer closed the app before their last coordinates matched that of the location of the store they searched for, verify that the customer was following the route provided until they closed the app.
5. Verify that the customers' location was updated correctly at least every 3.00 while on route to the store they searched for.
6. Verify that if the customer' last coordinates match the location of the store they searched for, that the map module closed and the returned to the homepage of the app.

Functional Requirement(s):

FUC8.1 The system shall be able to display a virtual map of the flooring plan of the Eaton Centre mall.

FUC8.2 The system shall be able to search for stores in the Eaton Centre mall by using keywords as input.

FUC8.3 The system shall display store information upon a successful store search.

FUC8.4 The system shall provide in-mall directions from a customers' position to a specific store upon a successful store search.

Use case 9: Get directions for store

Use case 10: Buy gift card

User story: As a customer, I want to purchase a digital Montreal Eaton Center gift card.

Title: Buy gift card

Identifier: UC10

Author: Jay Abi-Saad

Actor(s): Customer, Billing system

Intention: The intention of the customer is to purchase a gift card for the Montreal Eaton centre.

Pre-condition(s): The customer is currently on the main screen of the app, and already has a profile.

Main Scenario:

1. The customer selects the option to purchase a Montreal Eaton centre gift card from the main screen of the app.
2. The system displays a form with fields for the amount of the gift card and the recipient's email.

3. The customer fills the form by providing the amount of money to be added on the gift card as well as the email of the recipient who will receive the gift card.
4. The customer moves on to the next step by submitting the form.
5. The system validates the form fields to make sure that the amount and recipient's email address are present and valid.
6. The system displays a new form with fields for the personal and billing information that will be used to purchase the gift card.
7. The customer fills the form with their personal and billing information.
8. The customer moves on to the next step by submitting the form.
9. The system validates the form fields to make sure that the information is present and valid.
10. The system displays a summary of all the information provided by the customer such as: gift card amount, recipient's email address, personal, and billing information.
11. The customer completes the purchase of the gift card by confirming the provided information.
12. The system sends the billing information to the billing system for transaction processing.
13. The billing system uses the billing information to process the transaction.
14. The billing system sends a transaction confirmation to the system.
15. The system alerts the customer that the transaction was successful and displays and that the gift card was successfully sent to the recipient's email address.
16. The system goes back to the main screen of the app.

Alternative(s)/Exception(s):

- 5.a: The system detects an invalid or empty amount and/or recipient's email address provided by the customer.
 - 5.a.1: The system alerts the customer of the error(s) and goes back to step 2.
- 9.a: The system detects an invalid or empty personal and/or billing information provided by the customer.
 - 9.a.1: The system alerts the customer of the error(s) and goes back to step 6.
- 11.a: The customer realizes that they provided the wrong gift card amount/recipient's email address/personal/billing information.
 - 11.a.1: The system cancels the transaction and goes back to step 2.
- 12.a: The system is not able to contact the billing system due to networking issues.
 - 12.a.1: The system asks the customer to make sure that they have a working internet connection and goes back to step 2.
- 13.a: The billing system fails to process the transaction due to falsely entered billing information or insufficient funds.
 - 13.a.1: The billing system alerts the system that the transaction was unsuccessful.
 - 13.a.2: The system alerts the customer that the transaction was unsuccessful and goes back to step 6.

Post-Condition(s):

Main scenario: The customer successfully purchased a gift card using the system. The electronic gift card was successfully sent to the provided recipient's email address. The electronic gift card was successfully sent to the provided recipient's email address.

Alternatives/exceptions: The customer did not manage to purchase a gift card using the system. No electronic gift card was sent.

Acceptance Criteria:

1. Verify that the transaction was successfully processed.
2. Verify that the gift card has been successfully sent to the recipient's email address.
3. Verify that 10 Eaton reward points were added to the customer's account.

Functional Requirement(s):

FUC10.1 The system shall be able to sell an Eaton Centre gift card by using the client's banking information and any given positive amount as inputs.

FUC10.2 The system shall generate 10 Eaton reward points for every gift card purchased using the system.

Use case 11: Redeem points

User story: As a customer, I want to purchase a big carry-on bag with the points I gathered over a year.

Title: Redeem points

Identifier: UC11

Author: Youngguk Kim

Actor(s): Customer, Eaton Center app system

Intention: The intention of the customer is to purchase an item with points.

Pre-condition(s): The system is in service and the customer has a compatible cell phone with internet connection. The customer must have logged into the system.

Main Scenario:

1. Customer informs he wants to use points to purchase the desired item and picks an option to purchase with points.
2. The system displays the account information such as total points and purchase history.
3. Customer use points card, the barcode on the system.
4. The system validates that there are enough points for the item and notify the customer.
5. Customer collects the purchased item.
6. The system updates the points and the purchase history.
7. Customer sees the points deducted and the name of the product as a receipt.
8. The System saves the detailed information and analyze the characteristic of the user.

Alternative(s)/Exception(s):

2a. The system ascertains that the user can't use the system to purchase any item.

2a.1 The system notifies the customer that he has an insufficient amount of points; use case ends in failure.

3a. Customer changes his mind about having the item.

3a.1 Customer informs he's paying with other option; use case ends in failure.

3a.2 Customer informs he's not interested in the item anymore; use case ends in failure.

4a. The system ascertains that the user can't the system to purchase the desired item.

4a.1 The system notifies the customer needs "x amount" of points to purchase the item, and the customer needs "y amount" of points more to purchase the item; use case ends in failure.

Post-Condition(s):

Success scenario: The customer had sufficient points to purchase the desired item that he purchased the item with the points.

Failure scenario: The customer is unable to purchase the item with points and the system displays how much is needed more for the desired item.

Acceptance Criteria:

1. Verify that the system displays the correct account information; name, current points and purchase history.
2. Verify that the barcode has been recognized.
3. Verify that the transaction was successfully processed.
4. Verify that the customer's point and purchase history have been updated.
5. Verify more than one item can be updated in purchase history.
6. Verify that the customer was rewarded 5 points for using the points.
7. Verify that the purchased item has matched the user's characteristic saved in the system database.

Functional Requirement(s):

FUC11.1 The system shall perform payments for in-mall purchases.

FUC11.2 The system shall perform payments for in-mall purchases using Eaton reward points.

FUC11.3 The system shall be able to add purchase history to a user profile by taking the customer's purchase history as input.

FUC11.4 The system shall be able to analyze the user's characteristic using purchase history.

FUC11.5 The system shall generate 5Eaton Centre rewards upon purchasing with Eaton Centre points.

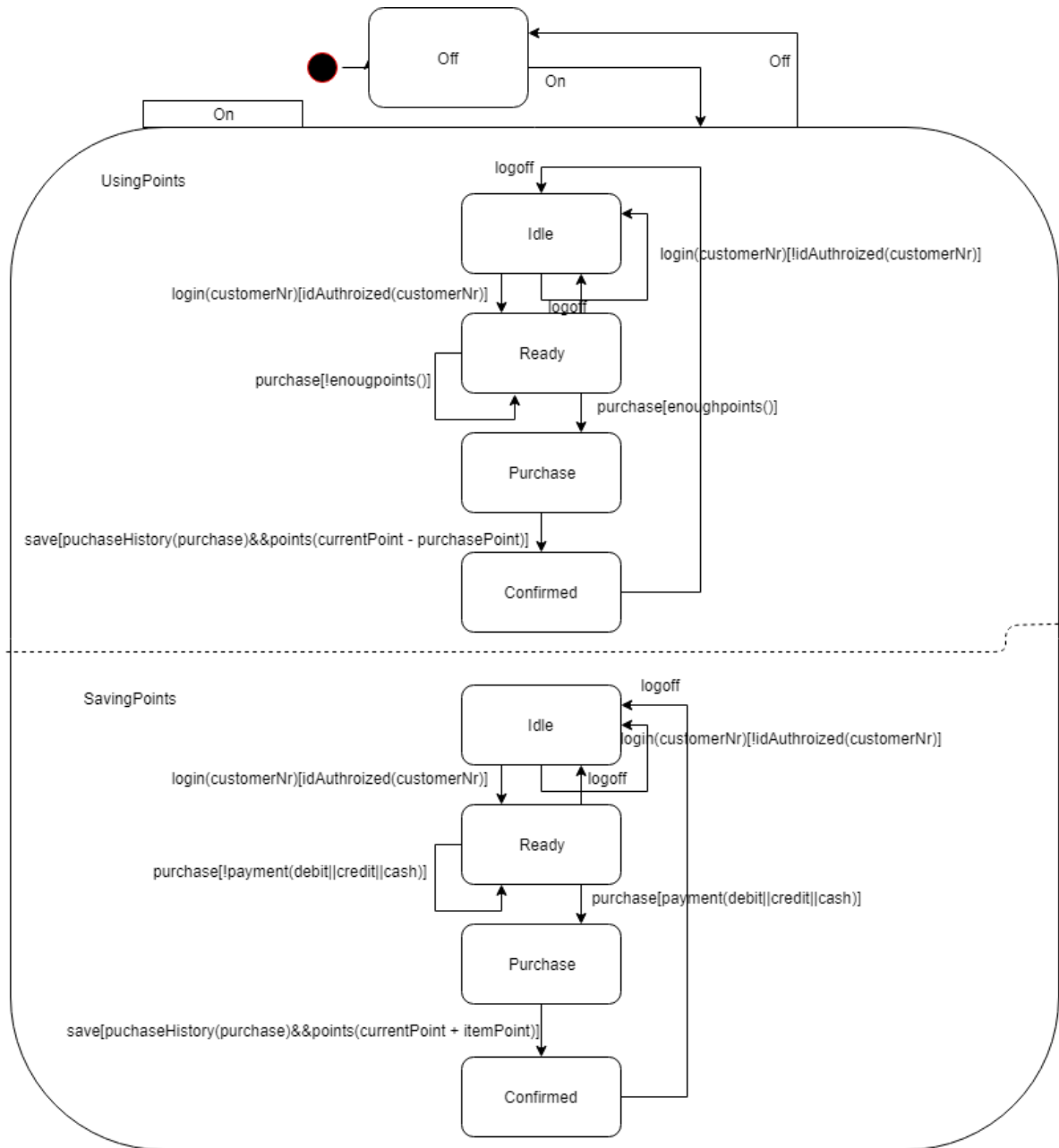


Fig. 3: State machine showing purchase of item with redeemed points

Use case 12: Post current offer

Use case 13: Edit current offer

Use case 14: Delete current offer

Use case 15: Post special weekly offer

Use case 16: Edit store information

3.2 Performance Requirements

P1- In the case of users creating a new account on the App, the system shall have a minimal response time of less than 3 second response time between the user submitting their account information and receiving a notification that their account has been successfully created.

P2- In the case of the system providing in-mall directions from a user's position to a specific store upon a successful store search, the operation of the displaying the users' exact coordinates shall have a mean latency of less than 3.00 seconds between the retrieving the users' location and displaying the users' location to the user in the store.

P3- In 99.0% of all cases, the system shall be able to support a maximum value of less than or equal to 250000 concurrent users of the app.

P4- In the case of a high number of users performing payments for in-mall purchases using Eaton Rewards points, the confirmation operation shall have a mean transaction rate of at least 50 requests per seconds.

P5- In the case of generating Eaton Rewards points for any user, the operation of the points assigned to the user being stored in the database must not have a maximal response time of more than 1 minute between the event of a user prompting the system to generate points and the user being able to see how many points they have on their app.

P6- In 99.9% of all cases, the database shall be able to support a minimum value of at least 50000000 accounts created by users.

P7- In the case of a user viewing their purchase history, the system shall have a mean response time of less than 1.00 second, between the user requesting to see their purchase history and having their purchase history displayed to them.

3.3 System Interface Requirements

I1 The Eaton Center app shall interact with the Eaton Center's Wi-Fi network.

I2 The Eaton Center app shall be compatible for in-app payments via Visa and Mastercard payments.

I3 The Eaton Center app shall interact with Google Maps to locate the user's location.

I4 The Eaton Center app shall interact with any store's barcode scanner.

3.4 System Operations Requirements

3.41 Maintainability

OM1- Perform weekly routine maintenance check of the Eaton Centre system.

OM2- Ensure that all weekly routine maintenance checks are passed in a reasonable timeframe.

OM3- Release new features and bug fixes to the Eaton Centre system in monthly software updates.

OM4- Perform monthly checks of the persistence layer to make sure that data was not altered between software updates.

3.42 Reliability

OR1- Perform load tests of the Eaton Centre system by running at least 50 requests a second.

OR2- Ensure that all features of the Eaton Centre system remain functional and maintain their performance standards.

3.5 System Security Requirements

S1- The system shall require the user to login using their e-mail address and password to access all Eaton Center System or App services, each time the app is prompted to launch.

S2- All passwords stored in the database must be changed by the user whose account is accessed by that password, within 365 days of registering the password to that account.

S3- The server must authenticate every request in which the user pays for an item through the Eaton Center System.

S4- The server must authenticate every request in which the user accesses their account information through the Eaton Center System.

S5- The server must authenticate every request in which the user confirms the creation of a new Eaton Center App account.

S6- In the case of all authentication requests sent and received by the App or the Eaton Center System, the system shall have a minimum response time of less than 5.00 seconds, at least 99.0% of the times.

S7- Any modification of the Eaton Center System must be authenticated by a certified Eaton Center Service employee or a certified, who must generate a report of any changes if the modification request is accepted.

S8- Any modification of the Eaton Center App must be authenticated by a certified TOne Solutions employee, who must generate a report of any changes if the modification request is accepted.

S9- The system must have a security protocol in place which serves to specifically protect against denial-of-service attacks.

S10- In the case of the system being under a denial of service attack, the system shall sustain at least 90.0% of the total number of App services to legitimate users, 98.0% of the time.

S11- The Eaton Center System must encrypt all information and data transmitted between requests from the App and the Eaton Center System.

S12- The software used to build the Eaton Center System and the Application must be built following SOA Web service security standards.

4.0 Appendices

4.1 Appendix 1

Acronyms and Abbreviations

URN Uniform Resource Name

SOA Service-Oriented Architecture

4.2 Appendix 2

Traceability Matrix

The following table shows how the high-level business requirements in the *High-Level Requirements Document* map onto the system requirements listed in sections 3.1-3.5 of this document.

High-Level Business Requirement Identifier	High-Level Business Requirement Description	System Requirement Identifier	Notes
B1	10% increase in quarterly gross sales revenue in 1 st quarter	FUC1.x- FUC16.x	All function requirements for each use case from 1-16 correspond to developing a system that aims to meet requirements B1, B2 and B3.
B2	10% increase in NPS score in 6 months		
B3	10% increase in repeat customers in 1 year		
B4	Deployment in 6 months	n/a	Deployment schedule TBD
B5	No hiring of new staff required	OM1, OM2, OM3, OM4	All system operations requirements pertaining to maintainability correspond to developing a system that is fairly simple to learn to use and requires minimal manual maintenance from Eaton Center staff. All maintenance processes occur automatically, and staff is only notified of success or failure in processes. TOne Solutions Inc. shall provide a maintenance manual, as well as technical support in case of failure.
B6	Maximum 8 hrs of training required for staff		

Key for Identifiers:

Bx - Business requirement number x

FUCn.x - Functional requirement number x of use case number n

Px - Performance requirement number x

Ix – System interface requirement number x

OMx – System operations requirement (maintainability) number x

ORx – System operations requirement (reliability) number x

Sx – System security requirement number x