

University of Saskatchewan
CMPT 370
Group Project Final Report
Rayla Point of Sales System
Team Sawyer

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1 Product Vision

1.1 Product Description

A local point of sales system on the WINDOWS platform and can be daily used and assist to improve the efficiency of quick service order progress.

1.2 Essential product features

Item customized input.
Unit and Price set.
Subtotal.
Wrong item able to delete.
Tax rate set.
Tips option.
Different pay method selects. (Cash/Debit/Credit)
Calculator.
Sales report.

1.3 Need and Value

Most of the current point of sale system is bind with POS machines, which has low hardware performance but very expensive.

For that local business, they may not want to afford a large amount of money on those expensive POS system machine. POS system on windows platform which can satisfy basic quick service retail purpose is needed.

1.4 Stakeholder

Rayla's Bubble Tea Café and all quick-service restaurants or retails.

1.5 Quality Assurance

Meeting with the client frequently to make sure the design on the right track.
Making research on the current using product and searching for any inconvenience.

Getting the stakeholder's requirements for the product.

Making a paper prototype before starting.

Make a test plan for all features.

1.6 Programming Language

Python
SQL-database

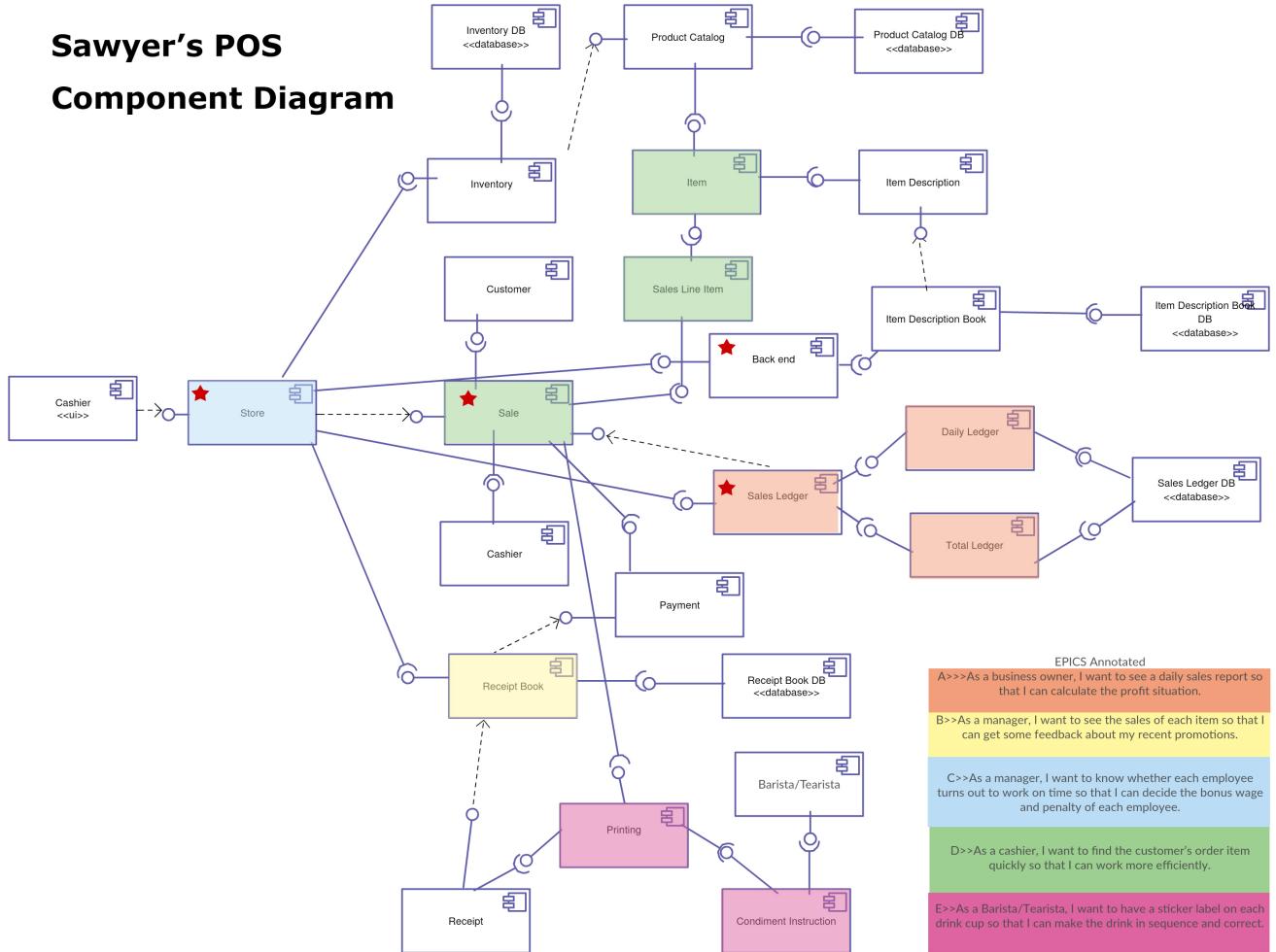
PyQt5-Interface of program

2 Architecture

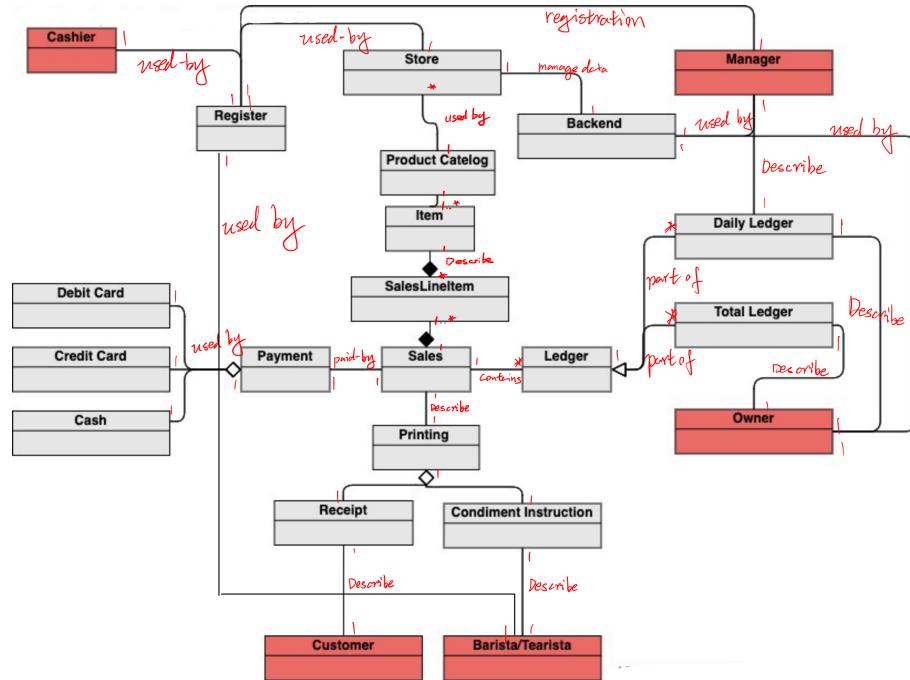
2.1 System Architecture

Sawyer's POS

Component Diagram



2.2 UML Class Diagram



2.3 Glossary

Cashier: A user that responsible for taking orders

Customer: A user taking receipt interface

Barista: A user taking Condiment Instruction interface

Manager: A user can view daily ledger and everything for Cashier

Owner: A user can see all part of the system

Store: The main class

Register: Application// A class for the cashier to log on to perform

Item: Database Implement// To be sold

Sales Line Item: Database Implement// Queue for all sold items

Sales: Database Implement// One sale

Payments: Database Implement// The amount paid for one sale

Debit Card: Database Implement// A payment method

Credit Card: Database Implement// A payment method

Cash: Database Implement// A payment method

Inventory: Database Implement// Takes record of what we have

Ledger: Database Implement// Takes record for all the sales

Daily Ledger: Database Implement// record for one day sales

Total Ledger: Database Implement// record for sales in terms of week/month/season

Printing: Application// Print out for customers and barista

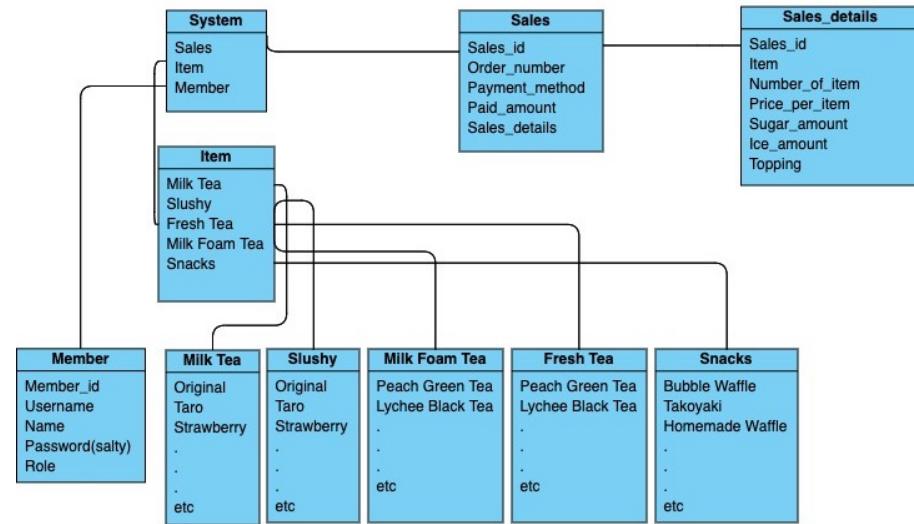
Menu: User's Interface// Show all the item from database

Receipt: User's Interface // Contains information of 1 sale

Condiment instruction: User's Interface // Contains all ordered item and their condiment.

Product Catalog: Database Implement// A class with all product sections

2.4 Database schema



3 Personas/Roles

Business Owner:

Pamela is the Café owner and she is 25 years old. Except for the job at this Café, she also has a job at a bank. As a business owner, she works 20 hours at the Café. What she needs to know is whether all employees turn out for work and the sales report that she can calculate the profit situation. Moderate proficiency with the computer.

Manager:

Chen is the Café manager; he is 24 years old. He works fulltime in the Café. Although most time he will cover the job either cashier or barista, he would also be in the duty of management work such as scheduling other employees and promotions. He cares about whether all employees arrived on time and the improvements in sales after he does some promotions. High proficiency with the computer.

Cashier:

Kayla is 20 years old and she works part-time as the cashier in the Café. Most time she just stands behind the counter and takes the customer's order. She needs to find the customer's order items quickly as well as put some comments (double sugar double cream) together with each item. She has a bad math calculation which makes her suffer when calculating changes. Moderate proficiency with the computer.

Barista/Tearista:

The barista/tearista is Ricky and he is 24 years old, he works full time in the Café. He hardly uses the POS and most time he just got orders from the cashier and make the correct drinks. He makes a good job if there are only several orders at one time, but he makes some mistakes such as not following the comments when it is busy. He complains that because he doesn't have a clear label with comments for each drink. Low proficiency with the computer.

3.1 Prioritized product backlog

Epic	User stories	Priority
Business owner	The program can show the time of the day.	1
	A user can click a button "details" show the sold items today and get a total revenue of the day.	2
	A user can click a button "Today Profit" to get a daily report.	2
	A user can click "Other" to add other costs (utility, supplements and so on).	3
Manager	A user also can select multiple objects in the list of products.	1
	A user can add/edit a list of products(menu) includes its price and product name.	2
	A user can edit the work schedule which includes each employees' name and each time assigned to the schedule.	3
	A user can check the work situation of all employees, for example, work at a time...	4
Cashier	A user can charge an amount of money from the customer by credit/debit/cash.	1
	A user can log in to the system and log off so that recording the working period.	1
	The program shows the name of the products alphabetically so that a user can search for products quickly.	2
	A user can print out stickers that have requirements of drinks (the name of the drink, 50% sugar, no ice...)	3
Barista/Tearista	A user can choose the status of the item, for example, once the item is ordered, it shows "In Progress" until Ricky clicks the button "Done".	1
	The coffee system shows the recipient of the ordered drink so that a user can follow it to make drinks.	2
Additional	Everyone has their account to log in/off, each of them has different access.	1
	A user can set a password for opening the money box and checking the status of the store.	2
	A user can search employees by using their last name.	3
	A user can add employees in the coffee system which is included their personal information (address, phone number, insurance number...).	2

4 Epics

As a business owner, I want to see a daily sales report so that I can calculate the profit situation.

As a manager, I want to see the sales of each item so that I can get some feedback about my recent promotions.

As a manager, I want to know whether each employee turns out to work on time so that I can decide the bonus wage and penalty of each employee.

As a cashier, I want to find the customer's order item quickly so that I can work more efficiently.

As a Barista/Tearista, I want to have a sticker label on each drink cup so that I can make the drink in sequence and correct.

5 User Stories

For Pamela (business owner)

- The program can show the time of the day.
- A user can click a button details show the sold items.
- today and get a total revenue of the day.
- A user can click a button Today Profit to get a daily report.
- A user can click Other to add other costs (utility, supplements and so on).

For Chen (manager)

- A user can edit the work schedule which includes each employees name and each time assigned to the schedule.
- A user can check the work situation of all employees, for example, work at a time
- A user can select a kind of drink or snacks in the promotion to see the quantity of sale.
- A user also can select multiple objects in the list of products.
- A user can add/edit a list of products(menu) includes its price and product name.

For Kayla (cashier)

- A user can charge an amount of money from the customer by credit/debit/cash.
- A user can log in to the system and log off so that recording the working period.
- The program shows the name of the products alphabetically so that a user can search for products quickly.
- A user can print out stickers that have requirements of drinks (the name of the drink, 50% sugar, no ice...)

For Ricky (Barista/Tearista)

- A user can choose the status of the item, for example, once the item is ordered, it shows “In Progress” until Ricky clicks the button “Done”.
- The coffee system shows the recipient of the ordered drink so that a user can follow it to make drinks.

Additional Stories

- Everyone has their account to log in/off, each of them has different access.
- A user can set a password for opening the money box and checking the status of the store.
- A user can search employees by using their last name.
- A user can add employees in the coffee system which is included their personal information (address, phone number, insurance number).

5.1 Story Points

Story	Estimate
The program can show the time of the day.	1/2
A user can click a button "details" show the sold items today and get a total revenue of the day.	4
A user can click a button "Today Profit" to get a daily report.	2
A user can click "Other" to add other costs (utility, supplements and so on).	1
A user can edit the work schedule which includes each employees' name and each time assigned to the schedule.	2
A user can check the work situation of all employees, for example, work at a time...	1
A user can select a kind of drink or snacks in the promotion to see the quantity of sale.	1/2
A user also can select multiple objects in the list of products.	1
A user can add/edit a list of products(menu) includes its price and product name.	1
A user can charge an amount of money from the customer by credit/debit/cash.	4
A user can log in to the system and log off so that recording the working period.	3
The program shows the name of the products alphabetically so that a user can search for products quickly.	2
A user can print out stickers that have requirements of drinks (the name of the drink, 50% sugar, no ice...)	8
A user can choose the status of the item, for example, once the item is ordered, it shows “In Progress” until Ricky clicks the button “Done”.	4
The coffee system shows the recipient of the ordered drink so that a user can follow it to make drinks.	2
Everyone has their account to log in/off, each of them has different access.	1
A user can set a password for opening the money box and checking the status of the store.	2
A user can search employees by using their last name.	1
A user can add employees in the coffee system which is included their personal information (address, phone number, insurance number...).	1

6 Quality Assurance Plan

6.1 Testing

Log in/ Log out (with input checking)
Order Item
Cashier/Barista On and Off
Add/remove item through Setting (connect to PostgreSQL)
Check out
Print the Receipt and Condiment
Delete Item from order list
Go to next order

6.2 Code inspection

Variable name
Hard-coded front-end
No comments
Responsiveness
Similar method

6.3 User acceptance

For the business owner:
Able to add/delete the account of staffs.
Can see the daily sales report
Able to see every staffs' work time

For the Manager:
Can add/delete the menu from database
Can check the work situation of all staffs
Can set the promotions

For the cashier:
Can record the working period using the buttons on the right corner.
Can print the condiment of drinks that uses by barista
Can simply press checkout to finish the order.
There is a button for her to start next order pretty easy

For the Barista:
Able to see the printed condiment that makes him easier when working.

7 Project Board

https://git.cs.usask.ca/xuw313/cmpt370_group_p/project/-/boards

8 Source Code

https://git.cs.usask.ca/xuw313/cmpt370_group_p/project/-/tree/master/RaylaOrderSystem

9 README

https://git.cs.usask.ca/xuw313/cmpt370_group_p/project/-/blob/master/README.md

10 Acceptance test results

10.1 Testing

Log in/ Log out (with input checking) —— Pass
Order Item —— Pass
Cashier/Barista On and Off —— Pass
Add/remove item through Setting (connect to PostgreSQL) —— Pass
Check out —— Pass
Print the Receipt and Condiment —— Pass
Delete Item from order list —— Pass
Go to next order —— Pass

10.2 User acceptance

For the business owner:

Able to add/delete the account of staffs. —— Pass
Can see the daily sales report —— Pass
Able to see every staffs' work time —— Pass

For the Manager:

Can add/delete the menu from database —— Pass
Can check the work situation of all staffs —— Pass
Can set the promotions —— Pass

For the cashier:

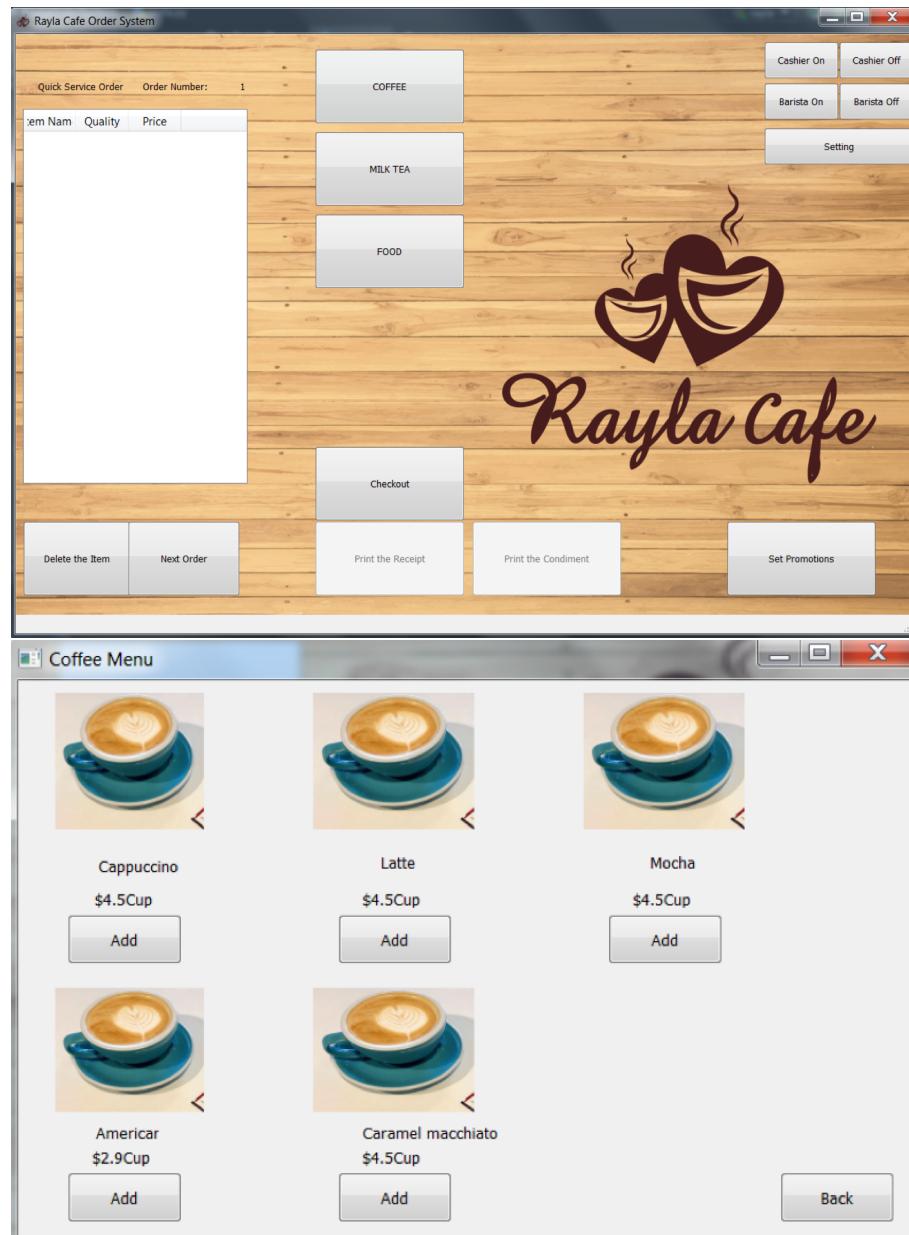
Can record the working period using the buttons on the right corner. ——
Pass
Can print the condiment of drinks that uses by barista —— Pass
Can simply press checkout to finish the order. —— Pass
There is a button for her to start next order pretty easy —— Pass

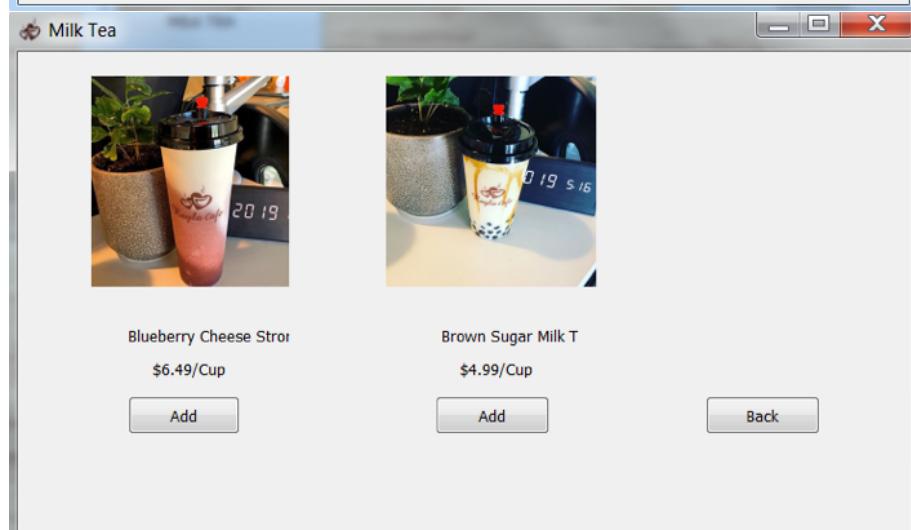
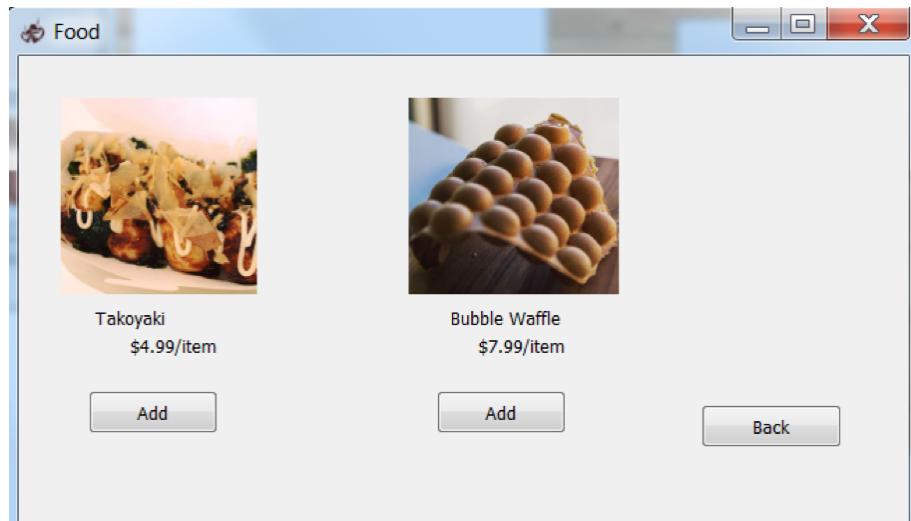
For the Barista:

Able to see the printed condiment that makes him easier when working. ——
Pass

11 Appendix

11.1 Screen shot of project





Setting

Registration		Coffee Menu		Milk Tea Menu		Food Menu									
ID	username	password	owner	ID	Item	Price	ID	Item	Price	ID	Item	Price			
1	6	hape	123456	pdd	1	Caramel...	4.5	1	2	Brown ...	4.99	1	Bubble ...	7.99	
2	5	goodca...	123456	lala	2	America...	2.9	2	1	Blueber...	6.49	2	Takoyaki	4.99	
3	4	goodb...	123456	panela	3	Mocha	4.5								
				4	Latte	4.5									
				5	Cappucc...	4.5									
Add	Delete	Add	Delete	Add	Delete	Add	Delete	Add	Delete	Add	Delete	Add	Delete	<input type="button" value="Back"/>	