

Software Requirements Specification
for
Cafeteria Ordering System

Version 4.0

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Table of Contents

1 Introduction.....	1
1.1 System Background.....	1
1.2 User.....	1
1.3 Assumptions and Dependencies.....	1
1.4 References.....	2
2 System Features.....	3
2.1 Order Meals.....	3
2.1.1 Description and Priority.....	3
2.1.2 Stimulus/Response Sequences.....	3
2.1.3 Functional Requirements.....	3
2.2 Create, View, Modify, and Delete Meal Subscriptions.....	4
2.2.1 Description.....	4
2.2.2 Stimulus/Response Sequences.....	5
2.2.3 Functional Requirements.....	5
2.3 Register for Meal Payment Options.....	5
2.3.1 Description and Priority.....	5
2.3.2 Stimulus/Response Sequences.....	5
2.3.3 Functional Requirements.....	5
2.4 Request Meal Delivery.....	6
2.4.1 Description and Priority.....	6
2.4.2 Stimulus/Response Sequences.....	6
2.4.3 Functional Requirements.....	6
2.5 Create, View, Modify, Delete Cafeteria Menus and Food items.....	6
2.5.1 Description and Priority.....	6
2.5.2 Stimulus/Response Sequences.....	7
2.5.3 Functional Requirements.....	7
3 Data Requirements.....	8
4 Interface Requirements.....	9
4.1 User Interfaces.....	9
4.2 Hardware Interfaces.....	9
4.3 Software Interfaces.....	9
4.4 Communications Interfaces.....	9
5 Other Nonfunctional Requirements.....	10
5.1 Performance Requirements.....	10
5.2 Safety Requirements.....	10
5.3 Security Requirements.....	10
5.4 Software Quality Attributes.....	10
Appendix.....	11

1 Introduction

1.1 System Background

The Cafeteria Ordering System is a new system that replaces the current manual and telephone processes for ordering and picking up lunches in the Company A's cafeteria. It combines traditional paper ordering with modern wireless ordering and it is a major innovation in the restaurant industry. Dishes can be updated in real-time and a flood of information can be displayed without a single limit, so that the restaurant can save endless costs of recipes, menus and other handmade things, which appears to solve the traditional menu's problems of short-period, dirty, chaotic because of the poor management, and finally improves the quality of the restaurant.

1.2 User

Patron	A Patron is a Company A's employee, who wishes to order meals to be delivered from the company cafeteria. Patrons will sometimes order multiple meals for group events or guests. All Patrons have Intranet access from their offices. Some Patrons will wish to set up meal subscriptions, either to have the same meal to be delivered every day or to have the day's meal special delivered automatically. A Patron must be able to override a subscription for a specific day.
Cafeteria Staff	The Company A currently employs about 20 Cafeteria Staff, who will receive orders from the Cafeteria Ordering System, prepare meals, package them for delivery, print delivery instructions, and request delivery. Most of the Cafeteria Staff will need to be trained in the use of the computer, the Web browser, and the Cafeteria Ordering System.
Menu Manager	The Menu Manager is a cafeteria employee, perhaps the cafeteria manager, who is responsible for establishing and maintaining daily menus of the food items available from the cafeteria and the times of day that each item is available. Some menu items may not be available for delivery. The Menu Manager will need to edit the menus periodically to reflect planned food items that are not available or price changes.
Meal Deliverer	As the Cafeteria Staff prepare orders for delivery, they will print delivery instructions and issue delivery requests to the Meal Deliverer, who is either another cafeteria employee or a contractor. The Meal Deliverer will pick up the food and delivery instructions for each meal and deliver it to the Patron. The Meal Deliverers' primary interactions with the system will be to reprint the delivery instructions on occasion and to confirm that a meal was (or was not) delivered.

1.3 Assumptions and Dependencies

AS-1: The cafeteria is open for breakfast, lunch, and dinner every company business day in which employees are expected to be on site.

DE-1: The operation of the COS depends on changes being made in the Payroll System to accept payment requests for meals ordered with the COS.

DE-2: The operation of the COS depends on changes being made in the Cafeteria Inventory System to update the availability of food items as COS orders are accepted.

1.4 References

[1] Wiegers, Karl. Software Requirements Specification for Cafeteria Ordering System, Release 1.0, www.processimpact.com/projects/COS/SoftwareRequirementsSpecification.doc

2 System Features

2.1 Order Meals

2.1.1 Description and Priority

A cafeteria Patron whose identity has been verified order meals either to be delivered to a specified company location or to be picked up in the cafeteria. A Patron can cancel or change a meal order if it has not yet been prepared. Priority = High(it means when you have not enough time to finish this software system,you may finish this function part first).

2.1.2 Stimulus/Response Sequences

Stimulus: Patron requests to place an order for one or more meals.

Response: System queries Patron for details of meal(s), payment, and delivery instructions.

Stimulus: Patron requests to change a meal order.

Response: If status is "Accepted," system allows user to edit a previous meal order.

Stimulus: Patron requests to cancel a meal order.

Response: If status is "Accepted," system cancels a meal order.

2.1.3 Functional Requirements

Place an order:

The system shall let a Patron who is logged into the Cafeteria Ordering System place an order for one or more meals. But first it shall confirm that the Patron is registered for payroll deduction system ,if the Patron is not registered for payroll deduction system, COS shall give the Patron options to register now and continue placing an order, or to place an order for pickup in the cafeteria (not for delivery), otherwise to exit from the COS. COS shall record the order date and prompt the Patron for the meal date(the date when meals should be delivered or picked up). The order shall have a cutoff time. If the meal date is the current date and the current time is after the order cutoff time, the system shall inform the patron that it's too late to place an order for today. The Patron may either change the meal date or cancel the order.

Deliver meals:

The Patron shall specify whether the order is to be picked up or delivered. If the order is to be delivered and there are still available delivery times for the meal date, the Patron shall provide a valid delivery location. The system shall notify the Patron if there are no available delivery times for the meal date. The system shall display the remaining available delivery times for the meal date. The system shall allow the Patron to request one of the delivery times shown, to change the order to be picked up in the cafeteria, or to cancel the order.

About Menu:

The system shall display a menu for the specified date. The menu for the current date shall display only those food items for which at least one unit is available in the cafeteria's inventory.

Make items a unit:

The system shall allow the Patron to indicate the number of each menu items that he wishes to order, but most up to the fewest available units of any menu items in the order (for example: one order can only order 5 food items). If the Patron orders more units of a menu item than are presently in the cafeteria's inventory, the system shall inform the Patron of the maximum number of units of that food item that he can order.

Confirm the order:

When the Patron indicates that he does not wish to order any more food items, the system shall display the food items ordered, the individual food item prices, and the payment amount, then prompts the Patron to confirm the meal order. If the Patron does not confirm the meal order, he or she may either edit or cancel the order. The system shall let the Patron order additional meals for the same or for different date.

Pay the order:

When the Patron indicates that he is done placing orders, the system shall ask the user to select a payment method. Whether the meal is to be picked up in the cafeteria or not, the system shall let the Patron choose to pay by payroll deduction or by paying cash. Then the system shall display the food items ordered, payment amount, payment method, and delivery instructions. The Patron shall either confirm the order, request to edit the order, or request to cancel the order. If the Patron confirmed the order and selected payment by payroll deduction, the system shall issue a payment request to the Payroll System. If the payment request is accepted, the system shall display a message confirming acceptance of the order with the payroll deduction transaction number. If the payment request is rejected, the system shall display a message with the reason for the rejection. The Patron shall either cancel the order, or change the payment method to cash and request to pick up the order at the cafeteria.

Finish the order:

When the Patron has confirmed the order, the system shall do the following as a single transaction:

- Assign the next available meal order number to the meal and store the meal order with an initial status of "Accepted." Send a message to the Cafeteria Inventory System with the number of units of each food item in the order. Update the menu for the current order's order date to reflect any items that are now out of stock in the cafeteria inventory. Update the remaining available delivery times for the date of this order (it may be different from we chinese, after all, they have their microwave oven). Send an e-mail message to the Patron with the meal order and meal payment information.

- Send an e-mail message to the Cafeteria Staff with the meal order information. If any step of Order.Done fails, the system shall roll back the transaction and notify the user that the order was unsuccessful, along with the reason for failure.

About previous order:

The system shall permit the Patron to view any meals he has ordered within the previous six months. [Priority = Medium]. The Patron may reorder any meal he had ordered within the previous six months, provided that all food items in that order are available on the menu for the meal date.

2.2 Create, View, Modify, and Delete Meal Subscriptions

2.2.1 Description

Subscription is way to make it convenient for Patron to place orders,for example: if a Patron wants to order meals for the next 7 days,he just need to fulfill some forms to make a subscription ,so he won't need to make 7 meal orders day by day. He/She can create ,view,modify or delete his/her subscription only when the orders have not been prepared.

2.2.2 Stimulus/Response Sequences

Stimulus: Patron requests to create a subscription for one or more meals.

Response: System queries Patron for details of meal(s), payment, and delivery instructions.If everything is satisfied, system creates the subscription.

Stimulus: Patron requests to view his subscriptions.

Response: System allows user to view his subscriptions .

Stimulus: Patron requests to modify a subscription.

Response: If the status is "Accepted " or "incomplete",system allows to modify a subscription.

Stimulus: Patron requests to delete a subscription.

Response: If status is "Accepted" or "incomplete" system allows to delete a subscription.

2.2.3 Functional Requirements

Create Meal Subscriptions:

The Patron requests to create a meal subscription,if times(if the date is today,but there are no delivery times any more) and dates satisfy requirements, payment is finished, then meal orders are created.

View Meal Subscriptions:

A Patron requests to view his/her subscriptions.System prepares the dates,food items,location ,payment information to be seen by the Patron.

Modify Meal Subscriptions:

The patron requests to modify his subscriptions, it is accepted only when the date is after current date and the order meal has' t be delivered or picked up.

Delete Meal Subscriptions:

When the patron requests to delete his meal subscriptions, related orders which have been delivered or picked up can' t be changed any more, other orders can be deleted .

2.3 Register for Meal Payment Options

2.3.1 Description and Priority

The patron who has registered COS needs to connect his/her payment bill with his/her payroll account in which way he/she can pay the money using payroll deduction system in a much easier way (pretax).

2.3.2 Stimulus/Response Sequences

Stimulus: Patron requests to link his/her payroll account to his/her COS user identity.

Response: System sends an email to the super manager (the company' s finance department manager),who gives a feedback confirm according to some associated proofs provided by the patron.

Stimulus: Patron requests to change another bind using another payroll account.

Response: If the associated proofs are correct ,the system accepts it, otherwise rejects it and shows the reason to Patron.

2.3.3 Functional Requirements

Register the payroll-system :

The patron send an request to COS, he/she has to provide his staff member number ,payroll account number and ID card number to finish his/her request form.Then COS prompts the patron to confirm the request. One patron can only be bound to one payroll account.

Identity confirm:

Once a register request is sent to the payroll-system , the system shall send an email to the super manager,whose duty is to verify the information provided by the patron. He/she contacts the patron in person or something like that. Finally, super manager logins in the COS ,gives a feedback to the patron and make a confirm to the payroll-system.

2.4 Request Meal Delivery

2.4.1 Description and Priority

When a patron successfully places a meal order, COS sends the message to the staff member .After getting the meal prepared ,cafeteria staff requests to deliver it , then COS system gives a delivery request to the deliverer. Staff member has to change the order status according to when the meal is taken by the deliver and when the meal is successfully accepted by the patron.

2.4.2 Stimulus/Response Sequences

Stimulus: Patron successfully order meals with meal date is current or the next day.

Response: The COS gives the order to the staff.

Stimulus: The staff select the accepted orders, after getting them prepared, send delivery request to COS.

Response: COS sends the request to the deliverer.

2.4.3 Functional Requirements

Send order to Staff:

When the order status is accepted, the COS verifies the meal date. The order will be sent to the cafeteria staff according to the meal date(when the meal date is the same with the current date).

Requests to deliver:

After successfully receiving the meal order, staff starts to prepare it. After getting it prepared, the staff change the order's status to "prepared", then COS notifies the deliverer to get the meals to be sent to the destination according to the location on the order. Once the deliverers take the meals away, the cafeteria staff changes the order's status to "pending delivery". Until the deliverers finish sending the meals ,they inform the cafeteria staff ,then staff changes the orders' status to "delivered".

2.5 Create, View, Modify, Delete Cafeteria Menus and Food items

2.5.1 Description and Priority

For the low cost, menu system is to be designed as simple as possible. The menus collect all kinds of food, such as seafood, greens and so on (use your imagination or consult on the internet); According to the different seasons or dates, but menus are supplied to be viewed by everyone according to dates. Menu manager can request to create a menu or food item. If the request is rejected by the menu system, the system gives the reason to the menu manager. View, Modify, Delete functions are just like Create function.

2.5.2 Stimulus/Response Sequences

Stimulus: Menu manager requests to create, query, delete, modify a menu.

Response: COS will make changes to the database by creating, deleting, modifying or querying the menu.

2.5.3 Functional Requirements

(functions described below can be split up, that means Create a menu or food item function can be split into Create a menu and Create a food item, we put them together to simplify our description.)

Create a menu or food item:

The menu manager requests to create a new menu to be supplied to the customers; One menu can have many food items, but one food item belongs to only one menu.

View a menu or food item:

When a menu or food item is created, menu manager can request to view it. Usually, the menu manager views the menu to find whether the menus can satisfy the customers' demand.

Modify a menu or food item:

When menu manager views the menus, he can choose to modify it (something like date or others). But he can't modify the menus with date of current date because they are in service.

Delete a menu or food item:

If food items on a menu can't be supplied any more, the menu manager needs to delete the menu and the related food items other than modifies them. When deleting a menu, food items belonging to the deleted menu need to be deleted.

3 Data Requirements

The following contents describe some basic data information which mainly are about ordering the meal and delivering the meal .If you have some other ideas according the system requirements ,you can add some DRS appropriately by yourself.

DR-1

When a patron wanna order a meal by COS, he/she must fullfill or supply his/her information about:name, phone number, address, email; and his demands on the meal: meal date, food item. a patron can have many meal orders, but one order belongs to only one patron. (a patron name is a string limited in 30 character alphanumeric; a patron email is a string limited in 50 character alphanumeric; a patron phone number has this format : AAA-EEE-NNNN XXXX for area code, exchange, number, and extension; a patron location is a string limited in 50 character alphanumeric; meal date has this format: MM/DD/YYYY)

DR-2

Once a patron is sure to choose some food items , the food items will exist in an order .Additionally, the order records the number of the ordered food items. (the number of ordered food items has this format: default =1)

DR-3

When a patron wanna order a meal by COS, maybe he /she only choose food items from a menu or he/she choose some food items from different menus . But some food items may not exist every day, a menu has its own date to save the cost .Every food item has its own description and price. (menu date has the format : MM/DD/YYYY,food item description is a string limited in maximum 100 characters, food item price is represented in dollars and cents)

DR-4

The patron shall tell the COS system where to send the meal, phone number and the date.And, delivery time window, which means from when to when a deliverer can deliver the meal. (15-minute range during which an ordered meal is to be delivered, must begin and end on quarter-hour intervals ,maybe its form shall be like 12:00 to 13:00)

DR-5

When a patron wanna order a meal by COS, he/she must fullfill or supply his/her information about: first name, last name, phone number, address, email; and his demands on the meal according to delivery information; order date,order number shall be record automatically. A patron can have many meal orders, but one order belongs to only one patron. Meal date(the date the meal is to be delivered or picked up; format MM/DD/YYYY; default = current date if the current time is before the order cutoff time, else the next day; may not be prior to the current date) . And,order status is also very important(you can check the status-transfers in Figure 1).

DR-6

When paying the meal, the system shall let the patron know how much he/she should pay, payment way(cash or payroll deduction). Payroll deduction transaction number is needed if the patron chooses to pay by payroll-system.

4 Interface Requirements

4.1 User Interfaces

UI-1: The Cafeteria Ordering System screen displays shall conform to the Process Impact Internet Application User Interface Standard, Version 2.0 [4].

UI-2: The system shall provide a help link from each displayed HTML page to explain how to use that page.

UI-3: The Web pages shall permit complete navigation and food item selection using the keyboard alone, in addition to using mouse and keyboard combinations.

4.2 Hardware Interfaces

No hardware interfaces have been identified.

4.3 Software Interfaces

SI-1: Cafeteria Inventory System

SI-1.1: The COS shall transmit the quantities of food items ordered to the Cafeteria Inventory System through a programmatic interface.

SI-1.2: The COS shall poll the Cafeteria Inventory System to determine whether a requested food item is available.

SI-1.3: When the Cafeteria Inventory System notifies the COS that a specific food item is no longer available, the COS shall remove that food item from the menu for the current date.

SI-2: Payroll System

The COS shall communicate with the Payroll System through a programmatic interface for the following operations:

SI-2.1: To allow a Patron to register for payroll deduction.

SI-2.2: To allow a Patron to unregister for payroll deduction.

SI-2.3: To check whether a patron is registered for payroll deduction.

SI-2.4: To submit a payment request for a purchased meal.

SI-2.5: To reverse all or part of a previous charge because a patron rejected a meal or wasn't satisfied with it, or because the meal was not delivered per the confirmed delivery instructions.

4.4 Communications Interfaces

CI-1: The Cafeteria Ordering System shall send an e-mail message to the Patron to confirm acceptance of an order, price, and delivery instructions.

CI-2: The Cafeteria Ordering System shall send an e-mail message to the Patron to report any problems with the meal order or delivery after the order is accepted.

5 Other Nonfunctional Requirements

5.1 Performance Requirements

PE-1: The system shall accommodate 400 users during the peak usage time window of 8:00am to 10:00am local time, with an estimated average session duration of 8 minutes.

PE-2: All Web pages generated by the system shall be fully downloadable in no more than 10 seconds over a 40KBps modem connection.

PE-3: Responses to queries shall take no longer than 7 seconds to load onto the screen after the user submits the query.

PE-4: The system shall display confirmation messages to users within 4 seconds after the user submits information to the system.

5.2 Safety Requirements

No safety requirements have been identified.

5.3 Security Requirements

SE-1: All network transactions that involve financial information or personally identifiable information shall be encrypted per BR-33.

SE-2: Users shall be required to log in to the Cafeteria Ordering System for all operations except viewing a menu.

SE-3: Patrons shall log in according to the restricted computer system access policy per BR-35.

SE-4: The system shall permit only cafeteria staff members who are on the list of authorized Menu Managers to create or edit menus, per BR-24.

SE-5: Only users who have been authorized for home access to the corporate Intranet may use the COS from non-company locations.

SE-6: The system shall permit Patrons to view only their own previously placed orders, not orders placed by other Patrons.

5.4 Software Quality Attributes

Availability-1: The Cafeteria Ordering System shall be available to users on the corporate Intranet and to dial-in users 99.9% of the time between 5:00am and midnight local time and 95% of the time between midnight and 5:00am local time.

Robustness-1: If the connection between the user and the system is broken prior to an order being either confirmed or canceled, the Cafeteria Ordering System shall enable the user to recover an incomplete order.

Appendix

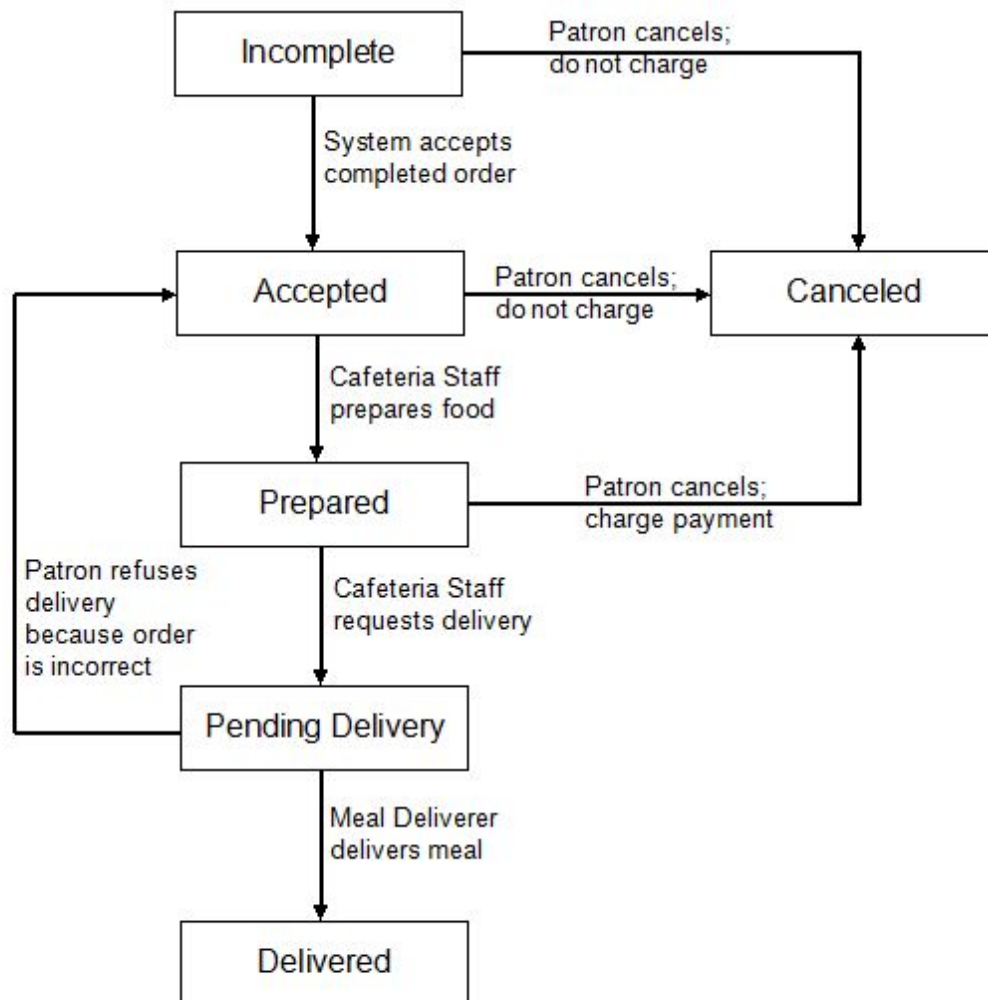


Figure 1

State-transition diagram for meal order status.

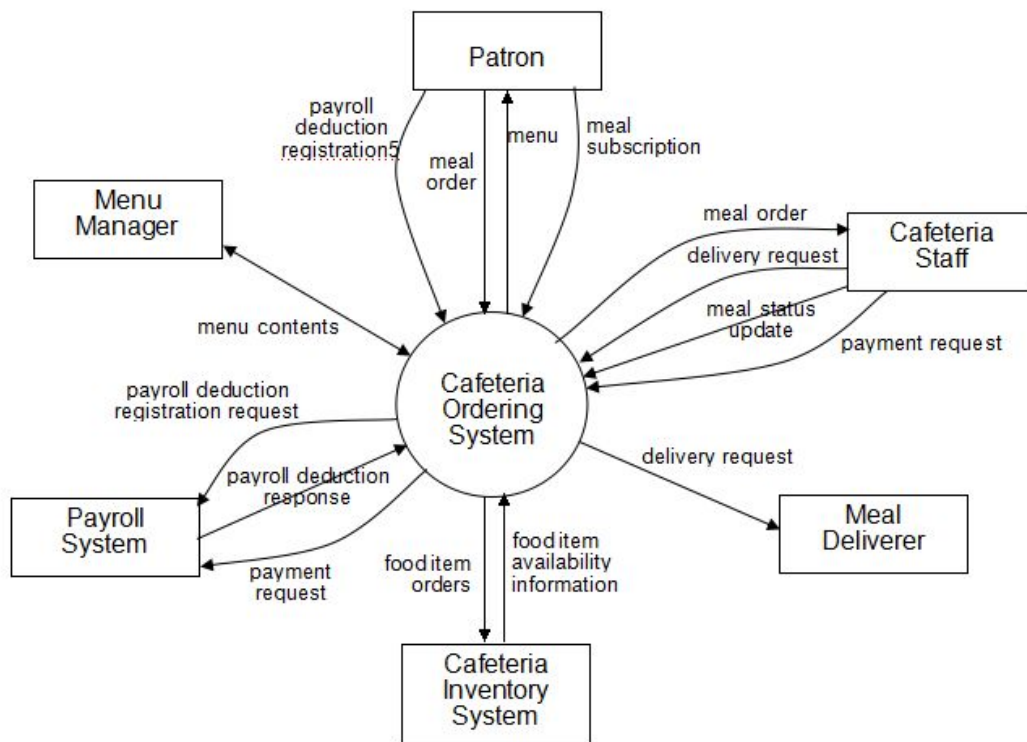


Figure 2

Context diagram for release 1.0 of the Cafeteria Ordering System.