
Design Requirements

Cafeteria Management System: Resolve Solution

Partners (Pty) Limited
Client: Gareth Botha and Jaco Pieterse

T-RISE
Rendani Dau (13381467)
Elana Kuun (12029522)
Semaka Malapane (13081129)
Antonia Michael (13014171)
Isabel Nel (13070305)

<https://github.com/toniamichael94/MainProjectCOS301>

October 16, 2015



Contents

1	Introduction	4
2	Vision	4
3	Background	4
3.1	The current situation/ problems the client currently experience	4
3.2	How the aforementioned problems will be alleviated by the CMS	5
4	Standards and conventions	5
4.1	Design standards	5
5	Authentication	5
5.1	authentication.client.controller	5
5.2	users.authentication.server.controller	6
5.3	users.authorization.server.controller.js	7
6	Manage Profile	7
6.1	superuser.client.controller.js	7
6.2	cashier.client.controller.js	9
6.3	finance.client.controller.js	10
6.4	settings.client.controller	11
6.5	password.client.controller	12
6.6	users.profile.server.controller	13
6.7	users.password.server.controller	14
7	Manage System	15
7.1	superuser.client.controller.js	15
7.2	users.superuser.server.controller.js	17
8	Manage Cafeteria	19
8.1	menuitems.client.controller	19
8.2	menuItems.server.controller	24
9	Manage Inventory	28
9.1	inventory.client.controller	28
9.2	inventory.server.controller	30
10	Place Order	32

	10.1	orders.client.controller.js	32
	10.2	orders.server.controller.js	33
11	Other	34
	11.1	tests.server.controller.js	34
	11.2	errors.server.controller.js	35
	11.3	core.server.controller.js	35
	11.4	header.client.controller.js	36

Document Title	Design Requirements Document
Document Identification	Document 0.0.4
Author	Rendani Dau, Elana Kuun, Semaka Malapane, Antonia Michael, Isabel Nel
Version	0.0.4
Document Status	Fourth Version - added all the functions for phase 5 sprint and edited the document

Version	Date	Summary	Authors
0.0.1	29 May 2015	First draft contains first two use cases template methods and declarations	Rendani Dau, Elana Kuun, Semaka Malapane, Antonia Michael, Isabel Nel
0.0.2	27 August 2015	Second draft adding all the client and controllers for the updated system	Rendani Dau, Elana Kuun, Semaka Malapane, Antonia Michael, Isabel Nel
0.0.3	24 September 2015	Third draft adding all the reporting and dynamic pages functionality	Rendani Dau, Elana Kuun, Semaka Malapane, Antonia Michael, Isabel Nel
0.0.4	9 October 2015	Fourth draft adding the functions for the phase5 sprint functionality	Rendani Dau, Elana Kuun, Semaka Malapane, Antonia Michael, Isabel Nel

1 Introduction

This document contains the functional requirements specification, architecture requirements and testing for the Resolve Cafeteria Management System that will be created for Software Engineering (COS 301) at the University of Pretoria 2015, by the group T-RISE. In this document we will thoroughly discuss and layout the project's design requirements to provide a clear view of the system as a whole. An agile method is being followed so the following document focusses on the PlaceOrder and ManageProfile modules.

2 Vision

The vision of this project is to implement a flexible, pluggable, fully functional software application that will be maintainable, with detailed supporting documentation and an instruction manual for the Cafeteria Management System. This system will assist in managing the cafeteria's inventory/stock, executing orders from the cafeteria, generating bills and sending these to the appropriate parties and facilitating payments for access cards (or the use of unique access card numbers).

3 Background

3.1 The current situation/ problems the client currently experience

As specified in the project proposal document from Resolve, the cafeteria is currently cash only and does not accept bank cards or electronic payments. This is inconvenient for employees as they have to carry around cash if they want to purchase anything from the cafeteria. Employees may choose to go to an external food outlet where they can pay with their preferred method of payment, which uses time and fuel. Thus, this means the cafeteria does not achieve the maximum amount of income which hinders its growth and improvement.

A problem with the cafeteria itself is that certain meal items are hardly in stock due to either lack of ingredients to make the meal or under estimating the quantity of the meal item required.

3.2 How the aforementioned problems will be alleviated by the CMS

The Cafeteria Management System will provide a means to accept payments from employees, at the canteen, using their employee access cards or access card numbers, with an amount being deducted from their salary at the end of the month. The option of cash payments ,however, will not be discarded. At the end of each month, the bill for the month will be sent to either payroll, to the employee, or to both. This option is thus configurable from the user's profile. The employee can also set a spending limit for each month. There will also be a system wide limit that users cannot exceed.

The system will predict which inventory items needs to be bought for the next week in order to avoid the "out of stock" situation described above. The system will also enforce that when the cafeteria manager adds meal items to the menu, he adds inventory items for each menu item. This is done so that each time a menu item requires an inventory item, the quantity of the inventory item will decrement until it reaches zero and is marked as "Out of Stock" on the menu. This is done so that when the user is ordering food, he/she can clearly see which items are not in stock and hence does not need to find this out at the canteen.

4 Standards and conventions

4.1 Design standards

The diagrams are designed and created using UML. The main use case of the system is decomposed into components.

5 Authentication

5.1 authentication.client.controller

The authentication controller allows existing users to log in and new users to sign up.

1. Declaration:
`angular.module('users').controller('AuthenticationController', ['$scope', '$http', '$location', '$cookies', 'Authentication', function($scope, $http, $location, $cookies, Authentication)`

2. Methods:

- Sign up
\$scope.signup = function()

-Usage
Method that allows a new user to sign up.
- Sign in
\$scope.signin = function()

-Usage
Method that allows an existing user to sign in.
- Get system wide limit
\$scope.getSystemLimit = function()

-Usage
This function retrieves the system wide limit.

5.2 users.authentication.server.controller

The authentication controller allows existing users to log in and new users to sign up. It also creates a new super user or admin if either one does not exist, and it sets the system wide limit to 5000.

1. Methods:

- Sign up
exports.signup = function(JsonObject req, JsonObject res)

-Usage
This method ensures that all the fields necessary to sign up were completed correctly. It returns an error message if one or more of the fields were entered incorrectly, otherwise it adds the user details to the database.
- Sign in
exports.signin = function(JsonObject req, JsonObject res, function next)

-Usage
This method allows an existing user to sign in if the user entered his/her details correctly. It performs a check to see if the user id

and the password is correct. If the details are incorrect an error message is displayed.

- Sign out
`exports.signout = function(JsonObject req, JsonObject res)`

-Usage

This method lets a user sign out of the system.

- Check super user
`exports.checkSuperUser = function()`

-Usage

This method performs a check to confirm whether there is an existing super user or not. If there is no super user, it creates a super user and admin user, and sets the system wide limit to 5000. If these actions were not completed successfully the method displays an error message. This method also checks whether there is an existing admin user and creates one if there is not currently and admin user. An error message is displayed if this action was not performed successfully.

5.3 `users.authorization.server.controller.js`

1. Methods:

- User by ID
`exports.userByID = function(JsonObject req,JsonObject res,JsonObject next, String id)`

Usage: Helper function to find and load specific users

- Requires login
`exports.requiresLogin = function(JsonObject req, JsonObject res, function next)`

Usage: Function to check if a user has not logged in

- Has authorization
`exports.hasAuthorization = function(JsonObject roles)`

Usage: Function to check if a user is authorized to be performing certain tasks for specific roles

6 Manage Profile

6.1 superuser.client.controller.js

1. Declaration:

```
angular.module('users').controller('superuserController', ['$scope', '$http', '$location', '$window', 'Users', 'Authentication', function($scope, $http, $location, $window, Users, Authentication)
```

2. Methods:

- Assign roles

```
$scope.assignRoles = function(Boolean isValid)
```

Usage: Superuser can assign cashier, cafeteria manager, finance manager and admin roles.

- Assign roles as admin

```
$scope.assignRolesAdminRole = function(Boolean isValid)
```

Usage: This function enables the admin user to assign roles. The admin user serves as a back up superuser.

- Change employee ID

```
$scope.changeEmployeeID = function(Boolean isValid)
```

Usage: The superuser can change the employee ID of the users if the user signed up with the incorrect ID or if the company changes the IDs.

- Remove employee

```
$scope.removeEmployee = function(Boolean isValid)
```

Usage: The superuser is also able to remove users from the system, due to resignation or dismissal for example

- Search employee

```
$scope.searchEmployee = function(Boolean isValid)
```

Usage: This function is used to retrieve employees from the system to be able to change their employee ID or remove them from the system

- Search employee ID

```
$scope.searchEmployeeID = function(int row)
```

Usage: This function is used to retrieve employee IDs

- Set system wide limit
`$scope.setSystemWideLimit = function(Boolean isValid)`

Usage: This is used by the superuser to set the maximum monthly spending limit for all the users of the system.

- Set canteen name
`$scope.setCanteenName = function(Boolean isValid)`

Usage: The canteen name is configurable from the superuser's branding settings page.

- Check user
`$scope.checkUser = function()`

Usage: This is a security function that checks to make sure that the authorized superuser is accessing the page and if this is not the case, the user will be redirected to the home page.

- Check admin user
`$scope.checkAUser = function()`

Usage: This is a security function that checks if the user that is accessing the page is an admin user, if this is not the case the user will be redirected to the home page.

- Load employees
`$scope.loadEmployees = function()`

Usage: This function is used to dynamically populate the drop down menu for the change employee ID functionality

6.2 cashier.client.controller.js

1. Declaration:

```
angular.module('users').controller('cashierController', ['$scope', '$http', '$stateParams', '$location', 'Authentication', function($scope, $http, $stateParams, $location, Authentication)
```

2. Methods:

- Get orders

`$scope.getOrders = function()`

Usage: Function to obtain the list of orders that an order placed from the menu

- Mark as ready

`$scope.markAsReady = function(String username, String order-Number)`

Usage: Function that the cashier uses to send a notification to the user notifying the user that their order is ready. The function also changes the status in the model from open to ready.

- Mark as collected

`$scope.markAsCollected = function(String username, String item-Name, String orderNumber)`

Usage: On the click of the 'Order collected' button on the cashier page, this function will be called. It changes the status of the order in the model from ready/open to closed.

- Mark as paid

`$scope.markAsPaid = function(String username, String itemName, String orderNumber)`

Usage: On the click of the 'Paid and collected' button on the cashier page, this function will be called. It changes the status of the order in the model from ready/open to closed.

- Check user

`$scope.checkUser = function()`

Usage: This is a security function that checks to make sure that the authorized cashier is accessing the page and if this is not the case, the user will be redirected to the home page

6.3 **finance.client.controller.js**

1. Declaration: `angular.module('users').controller('FinanceController', ['$scope', '$http', '$location', '$stateParams', 'Authentication', function($scope, $http, $location, $stateParams, Authentication)`
2. Methods:

- Check user
`$scope.checkUser = function()`

Usage: This is a security function that checks to make sure that the authorized cashier is accessing the page and if this is not the case, the user will be redirected to the home page

- Generate report
`$scope.generateReport = function()`

Usage: This function generates an invoice for a certain user.

6.4 settings.client.controller

The settings controller allows the user to view and edit profile information. The controller also performs security checks to make sure that unauthorised users cannot access certain functions of the system.

1. Declaration:

```
angular.module('users').controller('SettingsController', ['$scope', '$http',
'$location', 'Users', 'Authentication', function($scope, $http, $location,
Users, Authentication)
```

2. Methods:

- Update user profile
`$scope.updateUserProfile = function(Boolean isValid)`

-Usage

This method allows the user to update profile information. It displays an error if any of the information entered by the user is not in the correct format, or if the limit set by the user exceeds the system limit.

- Change user password
`$scope.chageUserPassword = function()`

-Usage

This method lets the user change his/her password.

- Get system limit
`$scope.getSystemLimit = function()`

-Usage

This method retrieves the system wide limit.

- Search employee
`$scope.searchEmployee = function(Boolean isValid)`

-Usage

This method allows the superuser to search for an employee, for example when a new role needs to be assigned to the employee. This method is also used in finance where an employee is searched to display his/her bill.

- Check user role
`$scope.checkuser = function()`

-Usage

This method performs an authentication check to ensure that unauthorised users cannot access certain features. For example, a normal user will not be able to navigate to the manage cafeteria page.

- Check if the user has a financial role
`$scope.checkFinUser = function()`

-Usage

The `checkFinUser` method performs a check to establish whether the user has a finance role or not. It prevents unauthorised users from performing actions that can only be done by users with a finance role.

6.5 password.client.controller

The password controller allows a user to reset his/her password if they forgot what their password is.

1. Declaration:

```
angular.module('users').controller('PasswordController', ['$scope', '$stateParams', '$http', '$location', 'Authentication', function($scope, $stateParams, $http, $location, Authentication)
```

2. Methods:

- Forgot password
`exports.forgot = function(JsonObject req, JsonObject res, function next)`

-Usage

This method sends a link to the user who forgot his/her password that they can follow to reset the password. This link is sent to the user's email account. It displays an error message if the user could not be found, if the user id field is blank, or if an email could not be sent.

- Validate reset token
`exports.validateResetToken = function(JsonObject req, JsonObject res)`

-Usage

The method validates that the user can reset his/her password with the link they followed. If the link is invalid it displays an error message.

- Reset
`exports.reset = function(JsonObject req, JsonObject res, function next)`

-Usage

This method resets the user password if the link followed to reset his/her password is valid. It displays an error message if the user did not enter the same password twice or if the password reset token is invalid. If the password has been changed an email is sent to the user to notify him/her of the change.

- Change password
`exports.changePassword = function(JsonObject req, JsonObject res)`

-Usage

This method allows the user to change his/her password. It displays an error message if the user could not be found or is not logged in, if the user did not enter the current password correctly, if the new password is not long enough, or if the user did not enter the same new password twice in order to confirm the new password.

6.6 users.profile.server.controller

The profile controller provides functionality to search for an employee, retrieve the system limit, and for a user to update his/her password.

1. Methods:

- Update
exports.update = function(JsonObject req, JsonObject res)

-Usage
This method allows a user to update his/her profile and displays an error message if the profile could not be updated.
- Get system limit
exports.getSystemLimit = function(JsonObject req, JsonObject res)

-Usage
This method retrieves the system limit, it is used to prevent an employee from setting their limit too high.
- Search employee
exports.searchEmployee=function(JsonObject req, JsonObject res)

-Usage
This method allows an employee to be searched. It returns the employee details if that employee is found, if the employee is not found it displays an error message.

6.7 users.password.server.controller

The password controller handles all the functionality that has to do with creating and changing passwords.

1. Methods:

- Forgot password
exports.forgot = function(JsonObject req, JsonObject res, function next)

Usage:
This method lets a user reset their password if they forgot it. It checks that the given username is in the database and then sends

the user an email with a link to a page where they can change their password. It also checks that the user's email is correct and valid, otherwise it gives an error.

- Validate reset token
`exports.validateResetToken = function(JsonObject req, JsonObject res)`

Usage:

This function checks that the reset token isn't invalid. If it's invalid, it redirects the user to a page telling them the token has expired. Otherwise, it redirects them to the page where they can set a new password.

- Reset password
`exports.reset = function(JsonObject req, JsonObject res, function next)`

Usage:

This method checks that the user's new password details are correct. If they are, then it resets the password, otherwise it gives an error message.

- Change password
`exports.changePassword = function(JsonObject req, JsonObject res)`

Usage

This function is called when the user accesses the change password page. It finds the user in the database and changes the password if the password and confirm password are the same.

7 Manage System

7.1 `superuser.client.controller.js`

1. Declaration:
`angular.module('users').controller('superuserController', ['$scope', '$http', '$location', '$window', 'Users', 'Authentication', function($scope, $http, $location, $window, Users, Authentication)`
2. Methods:

- Assign roles

`$scope.assignRoles = function(Boolean isValid)`

Usage: Superuser can assign cashier, cafeteria manager, finance manager and admin roles

- Assign roles admin role

`$scope.assignRolesAdminRole = function(Boolean isValid)`

Usage: Admin user also has access to the assign roles functionality and serves as a back up superuser

- Change employee ID

`$scope.changeEmployeeID = function(Boolean isValid)`

Usage: The superuser can change the employee ID of the users if the user signed up with the incorrect ID or if the company changes the IDs.

- Remove employee

`$scope.removeEmployee = function(Boolean isValid)`

Usage: The superuser is also able to remove users from the system, due to resignation or dismissal for example

- Search employee

`$scope.searchEmployee = function(Boolean isValid)`

Usage: This function is used to retrieve employees from the system to be able to change their employee ID or remove them from the system

- Search employee ID

`$scope.searchEmployeeID = function(int row)`

Usage: This function is used to retrieve employee IDs

- Set system wide limit

`$scope.setSystemWideLimit = function(Boolean isValid)`

Usage: This is used by the superuser to set the maximum monthly spending limit for all the users of the system.

- Set canteen name

`$scope.setCanteenName = function(Boolean isValid)`

Usage: The canteen name is configurable from the superuser's branding settings page.

- Check user
`$scope.checkUser = function()`

Usage: This is a security function that checks to make sure that the authorized superuser is accessing the page and if this is not the case, the user will be redirected to the home page

- Load employees
`$scope.loadEmployees = function()`

Usage: This function is used to dynamically populate the drop down menu for the change employee ID functionality

- Set theme
`$scope.setThemeName = function()`

Usage: Function to get theme that user desires to send to the server side so that the CSS file can be replaced.

7.2 `users.superuser.server.controller.js`

1. Methods:

- Assign roles
`exports.assignRoles = function(JsonObject req, JsonObject res)`

Usage: Superuser can assign cashier, cafeteria manager, finance manager and admin roles. It also changes the role of the users in the database/model.

- Assign roles admin role
`exports.assignRolesAdminRole = function(JsonObject req, JsonObject res)`

Usage: Admin user also has access to the assign roles functionality and serves as a back up superuser. It also changes the role of the users in the database/model.

- Change employee ID
`exports.changeEmployeeID = function(JsonObject req, JsonObject res)`

Usage: The superuser can change the employee ID of the users if the user signed up with the incorrect ID or if the company changes the IDs. This changes the employee ID of the user and saves the new one in the database.

- Remove Employee
`exports.removeEmployee = function(JsonObject req, JsonObject res)`

Usage: The superuser is also able to remove users from the system, due to resignation or dismissal for example. The employee is then also removed from the database.

- Send email
`function sendEmail(newLimit)`

Usage: This is a helper function to mail all users of the system. It takes the new limit as a parameter and tells the users what the new limit is in the email.

- Set system wide limit
`exports.setSystemWideLimit = function(JsonObject req, JsonObject res)`

Usage: The superuser is able to change the monthly spending limit of the system here and it will save this value to the database.

- Set canteen name
`exports.setCanteenName = function(JsonObject req, JsonObject res)`

Usage: The superuser is able to change the canteen name of the system and this is then stored in the database.

- Upload Image
`exports.uploadImage = function(JsonObject req, JsonObject res)`

Usage: The superuser can update the cover image on the home page

- Load employees
`exports.loadEmployees = function(JsonObject req, JsonObject res)`

Usage: Employees are loaded from the database for use in other functions

- Get audits
`exports.getAudits = function(JsonObject req, JsonObject res)`

 Usage: Function to trace audit trail for a specified time period.
- Get audit types
`exports.getAuditTypes = function(JsonObject req, JsonObject res)`

 Usage: Function to get specific types that the user wants to view the audit trail for.
- Get theme name
`exports.setThemeName = function(JsonObject req,JsonObject res)`

 Usage: Function to take in the theme specified by the user, and to copy the contents of the desired CSS file into the system's css file.

8 Manage Cafeteria

8.1 `menuitems.client.controller`

The menuitems client controller handles all the functionality concerning the menu, such as adding and updating menu items.

1. Declaration:
`angular.module('menuItems').controller('MenuItemsController', ['$scope', '$rootScope', '$http', '$stateParams', '$location', '$cookies', 'Authentication', 'MenuItems', function($scope, $rootScope, $http, $stateParams, $location, $cookies, Authentication, MenuItems)`
2. Methods:
 - Toggle Collapsible Menu
`$scope.toggleCollapsibleMenu = function()`
 -Usage

 This method collapses and opens the Menu Bar. The function is invoked on the click of a button in the HTML file.
 - Add Form Field
`$scope.addFormField = function()`

-Usage

This method adds new text-boxes to assist with adding ingredients for menu items. The method is invoked when the button addIngredients is clicked in the HTML.

- Load Ingredients
\$scope.loadIngredients = function()
-Usage

This method transfers ingredients from the request result array to the working scope array. The method is invoked by other methods in the controller.

- Add More Ingredients Update
\$scope.addMoreIngredientsUpdate = function()
-Usage

This method adds new text-boxes to assist with updating ingredients for existing menu items. The method is invoked when the button addIngredients is clicked in the update ingredients section in the HTML.

- Remove Ingredient
\$scope.removeIngredient = function(int index)
-Usage

This method removes the ingredient at the specified index for the menu item being updated.

- Undo Remove Ingredient
\$scope.undoRemoveIngredient = function(index)
-Usage

This method undo's a remove ingredient operation performed by the above function.

- Update Menu Item
\$scope.updateMenuItem = function()
-Usage

This method sends the update request to the server to update the menu items. It will perform all error checks and display any errors returned from the server in the HTML.

- Search Menu
`$scope.searchMenu = function(Boolean isValid)`
 -Usage

This method searches for a menu item in the database. The search query is obtained from the scope variable.

- Create menu item
`$scope.createMenuItem = function(Boolean isValid)`
 -Usage

This method creates a new menu item in the database. The method will perform all error checks and validation and send the request to the server. The server response will then be displayed on the page.

- Create Menu Category
`$scope.createMenuCategory = function(Boolean isValid)`
 -Usage

This method adds a new Menu item category to the database. The method will perform error checks and send the request to the server. The server response will be displayed on the page.

- Remove Ingredient
`$scope.removeIngredientOption = function(int index) -Usage`

Removes ingredients from the new menu item being added. Method is invoked on button click.

- Load Menu Items
`$scope.loadMenuItems = function() -Usage`

This method gets all the menu items from the server and populates the local array. If the server responds with an error, the error will be displayed on the page.

- Load Menu Categories
`$scope.loadMenuCategories = function()`
 -Usage

This method gets all the menu item categories from the server. If the server responds with an error, the error will be displayed on the page.

- Check Stock
`$scope.checkStock = function(String menuItemName)`
 -Usage

This method checks if all the ingredients required to make a menu item are in stock and the quantities are enough. The item will then be marked appropriately as in-stock or out-of-stock.

- Delete Menu Item
`$scope.deleteMenuItem = function(String menuItemName)`
 -Usage

This method checks deletes the specified menu item from the database. It sends the delete request to the server and will display the servers response in HTML page.

- Add To Plate
`$scope.addToPlate = function(String itemName)`
 -Usage

This method adds the specified item to the plate, which uses the browsers cookies. The method will check for duplicates and react accordingly when adding

- Index of Item
`var indexOfItem = function(JsonObj[] arr, String item)`
 -Usage

This is a helper method that searches an array for the specified item. If the item is found, the index is returned, else -1 is returned.

- Index of Item
`$scope.checkCMUser = function()`
 -Usage

This method checks whether the current user has permission to view the page, and redirects to the home page if they do not.

- Filter category
`$scope.filterCat = function(catName)`
 -Usage

This method receives a category name and filters the menu ac-

cording to that category.

- Help alert
\$scope.helpAlert = function()
-Usage

This function sets the help variable to true, to indicate that a user wants help alerts.

- Search bar dynamic
\$scope.searchBarDynamic = function(int row)
-Usage

Function to search menu items from the dynamically generated category pages.

- Search bar
\$scope.searchBar = function (int row)
-Usage

This function searches through all the different menu categories to provide found menu items.

- Search menu category
\$scope.searchMenuCategory = function(Boolean isValid)
-Usage

This function is used to locate a menu item in order to either delete or update it.

- updateMenuCategory
\$scope.updateMenuCategory = function(Boolean isValid)
-Usage

This function is used to update the category name for all the menu items. It updates the name with the value entered in the corresponding textbox by the user.

- deleteMenuCategory
\$scope.deleteMenuCategory = function()
-Usage

This function is used to locate the category name entered by the user in the corresponding textbox so that it can be removed in the database on the server side.

- generateSoldReport
`$scope.generateSoldReport = function()`
 -Usage

Function to generate a bill of orders and totals in a repor, for the specified time period.

- addSoldItem
`$scope.addSoldItem = function()`
 -Usage

- removeSoldItem
`$scope.removeSoldItem = function()`
 -Usage

- generateReport
`$scope.generateReport = function()`
 -Usage

Function to generate a report of most popular categories for the specified time period.

- generatePopularReport
`$scope.generatePopularReport = function()`
 -Usage

Function to generate a report of most popular menu items for the specified time period.

8.2 menuItems.server.controller

The menuItems controller handles all the functionality for creating and removing menu items. It also deals with allocating ingredients (inventory items) to the menu items.

1. Methods:

- Search for inventory items
`exports.inventoryItems = function(JsonObject req, JsonObject res)`

Usage:

This function is used to find inventory items that can be used as ingredients used to create menu items.

- Load menu items
`exports.loadMenuItems = function(JsonObject req, JsonObject res)`

Usage:

This function is used to get menu items from the database and display them on the menu page.

- Load menu categories
`exports.loadMenuCategories = function(JsonObject req, JsonObject res)`

Usage:

This is used to load the menu categories. This is used for making the different menu item pages.

- Create menu items
`exports.createMenuItem = function(JsonObject req, JsonObject res)`

Usage

This function is used to create a new menu item. If the menu item already exists, it gives an error message, otherwise, it creates the menu item. It stores all the details of the menu item in the database.

- Create menu category
`exports.createMenuCategory = function(JsonObject req, JsonObject res)`

Usage

This is used to create categories dynamically. It checks whether a category with the same name exists, if it does, it gives an error message, otherwise, it creates the category.

- Read menu items
`exports.read = function(JsonObject req, JsonObject res)`

Usage

This function shows the current menu item.

- Update menu items
`exports.updateMenuItem = function(JsonObject req, JsonObject res)`

Usage

This function is used to update an existing menu item. It changes the updated details of the menu item in the database.

- Update
`exports.update = function(JsonObject req, JsonObject res)`

Usage

This is a helper function for `updateMenuItem`. It is used in `updateMenuItem` to save the changes in the database.

- Delete menu items
`exports.deleteMenuItem = function(JsonObject req, JsonObject res)`

Usage

This function is used to delete an existing menu item. It gives an error message if the item wasn't deleted, otherwise, it removes the item from the updated details of the menu item in the database.

- Delete
`exports.update = function(JsonObject req, JsonObject res)`

Usage

This is a helper function for `deleteMenuItem`. It is used in `deleteMenuItem` to remove the item from the database.

- List
`exports.list = function(JsonObject req, JsonObject res)`

Usage

This function is used to display a list of all the menuitems, otherwise, it gives an error message.

- Order by ID
`exports.orderByID = function(JsonObject req, JsonObject res, function next, String id)`

Usage

This is a menu item middleware. It is used to find the menu items by their ID's and it loops through the database to find all the menu items.

- Has authorization
`exports.hasAuthorization = function(JsonObject req, JsonObject res, function next)`

Usage

This is a menuitem authorization middleware. It checks whether the user is authorised to change items, otherwise, it gives an error message.

- Search menu
`exports.searchMenu = function(JsonObject req, JsonObject res)`

Usage

This function is used to search for a given menu item. If the item is not found, an error message is given. If the item is found, its details are returned and it can be updated or deleted from the database.

- Search menu category
`exports.searchMenuCategory = function(JsonObject req, JsonObject res)`

Usage

This function is used to search for menu items on the sub menu pages i.e. the pages generated for each menu category.

- Update menu category
`exports.updateMenuCategory = function(JsonObject req, JsonObject res)`

Usage

This function is used to locate the old category name and update it to the new name, saving this new result in the database.

- Update menu category items
`exports.updateCategoryMenuItems = function (JsonObject req, JsonObject res)`

Usage

This function is used to update the category name for all the menu

items.

- Delete Menu Category
`exports.deleteMenuCategory = function (JsonObject req, JsonObject res)`

Usage

This function is used to locate the category name entered and to remove it from the database.

- Upload Image
`exports.uploadImage = function(JsonObject req, JsonObject res)`

Usage

This method is used to store the path of the uploaded image in the database.

- Generate Sold Report
`exports.generateSoldReport = function(JsonObject req,JsonObject res)`

Usage

Function to generate a bill of orders and totals in a report, for the specified time period.

- Generate Report
`exports.generateReport = function(JsonObject req,JsonObject res)`

Usage

Function to generate a report of most popular categories for the specified time period.

- Generate Popular Report
`exports.generatePopularReport = function(JsonObject req,JsonObject res)`

Usage

Function to generate a report of most popular menu items for the specified time period.

9 Manage Inventory

9.1 inventory.client.controller

The inventory controller handles all the main functionality concerning inventory, such as adding an inventory item.

1. Declaration:

```
angular.module('inventory').controller('InventoryController', ['$scope', '$http', '$stateParams', '$location', 'Authentication', 'Inventory', function($scope, $http, $stateParams, $location, Authentication, Inventory)
```

2. Methods:

- Add form field inventory

```
$scope.addFormFieldInventory = function()
```

-Usage

This method dynamically adds fields to the inventory page that are used to update the quantity of an inventory item. Each inventory item is displayed with the option to edit the quantity.

- Update inventory quantity

```
$scope.updateInventoryQuantity = function()
```

-Usage

This method updates the quantity of an inventory item.

- Delete inventory item

```
$scope.deleteInventoryItem = function()
```

-Usage

This method removes an inventory item from the database. It displays an error message when a user wants to remove an inventory item that is used by a menu item, in this case it displays an error message and does not remove the inventory item from the database.

- Load inventory items

```
$scope.loadInventoryItems = function()
```

-Usage

The load inventory items searches for and returns all the inventory

items in the database. It displays an error message when it could not load all the inventory items.

- Create inventory item
\$scope.create = function(Boolean isValid)

-Usage

This method creates a new inventory item and stores it in the database. It displays an error message if all the necessary fields are not entered correctly.

- Search inventory
\$scope.searchInventory = function(Boolean isValid)

-Usage

This method searches for and returns a specific inventory item. It displays an error message if the inventory item could not be found.

- Update inventory
\$scope.updateInventory = function(Boolean isValid)

-Usage

This method updates a specified inventory item. It displays an error message if all the necessary fields were not entered correctly or if the item could not be updated.

- Check if cafeteria manager
\$scope.checkCMUser = function()

-Usage

This method performs a check to confirm that the user has the cafeteria manager role. It prevents unauthorised users to perform actions that only the cafeteria manager is allowed to perform.

9.2 inventory.server.controller

The inventory controller handles all the main functionality concerning inventory, such as adding an inventory item.

1. Methods:

- Load inventory items
exports.loadInventoryItems = function(JsonObject req, JsonObject res)

-Usage

This method retrieves and returns all the inventory items in the database. It is used to display all the inventory items where necessary.

- Search inventory
`exports.searchInventory=function(JsonObject req, JsonObject res)`

-Usage

This method searches and returns a specific inventory item. It returns an error message if the specified item could not be found, or if the inventory item's name is empty.

- Decrease inventory `exports.decreaseInventory = function(JsonObject req, JsonObject res)`

-Usage

This method decreases a specific inventory item with a certain amount. It returns an error message if the inventory item could not be found or if the inventory item could not be decreased.

- Update inventory
`exports.updateInventory = function(JsonObject req,JsonObject res)`

-Usage

This method updates a specific inventory item. It returns an error message if the item to be updated was not found, or if the item could not be updated.

- Update inventory quantity `exports.updateInventoryQuantity=function(JsonObject req, JsonObject res)`

-Usage

This method updates the quantity of a specific inventory item. If the inventory item could not be found or updated it returns an error message.

- Delete inventory item
`exports.deleteInventoryItem = function(JsonObject req, JsonObject res)`

-Usage

This method deletes a specific inventory item. It returns an error message if the item could not be found or deleted.

10 Place Order

10.1 orders.client.controller.js

1. Declaration: `angular.module('orders').controller('OrdersController', ['$scope', '$rootScope', '$http', '$stateParams', '$location', '$cookies', 'Authentication', 'Orders'], function($scope, $rootScope, $http, $stateParams, $location, $cookies, Authentication, Orders)`

2. Methods:

- Change item quantity
`$scope.quantityChange = function()`

Usage: Function to increase or decrease the number of items ordered. It is used when a user wants to order multiple of the same item. It then also increases or decreases the total price accordingly.

- Change or add preferences
`$scope.prefChange = function()`

Usage: Function to add preferences. The user can specify how they prefer their order to be prepared.

- Change the total
`$scope.subTotal = function()`

Usage: Function to calculate the total. This function calculates the total that will be displayed for the user at the bottom - so they can know how much their order is going to cost.

- Place order
`$scope.placeOrder = function()`

Usage: Function to place the order. If the user is not signed in, the function redirects them to the signin page. If the user is signed in, the function checks the order total against the user's available balance. If the user has enough funds in their account

the order is placed. Otherwise a pop-up message tells the user they have insufficient funds in their account and that if they proceed with placing the order they will have to use cash - if the user agrees to use cash the order is placed otherwise nothing is done.

- Remove item from plate
`$scope.removeFromPlate = function()`

Usage: Function to remove an item from the plate. If the user decides they don't want an item anymore, they can remove it from the plate (before the order is placed).

10.2 orders.server.controller.js

1. Methods:

- Place order
`exports.placeOrder = function(req, res)`

Usage: Function to place the order. It adds the order to the orders table if the user is successful in placing the order, otherwise it generates the appropriate error message.

- Mark the order as ready
`exports.markAsReady = function(req, res)`

Usage: Function to mark the order as ready. The cashier can mark the order as ready when the items are done being prepared and ready to be collected. This changes the status of the order to ready and sends the client a notification to come fetch their order.

- Send Email
`function sendEmail(uname, orderNum)`

Usage: Function to send the user an email. This function is called in `markAsReady` - it sends the user an email letting them know their order (with the given `orderNumber`) is ready to be collected.

- Mark order as paid
`exports.markAsPaid = function(req, res)`

Usage: Function to mark the order as paid and collected. This function marks the order as closed in the orders table and it removes it from the process orders page.

- Mark order as collected
`exports.markAsCollected = function(req, res)`

Usage: Function to mark the order as paid and collected. This function marks the order as closed in the orders table and it removes it from the process orders page. It also subtracts the total of the order from the user's limit because the client only collected the order and didn't pay. This can only be used when the user has sufficient funds in their account.

- Get a list of orders
`exports.getOrderList = function(req, res)`

Usage: Function to get a list of all the orders that are open and ready. This is used to display the orders that are still being processed and have not yet been collected on the process orders page (accessed by the cashier).

11 Other

11.1 `tests.server.controller.js`

1. Methods:

- Create
`exports.create = function(JsonObject req, JsonObject res)`

Usage: Function to create a generic test

- Read
`exports.read = function(JsonObject req, JsonObject res)`

Usage: Function to show the current test

- Delete
`exports.delete = function(JsonObject req, JsonObject res)`

Usage: Generic function to delete a test

- Update
`exports.update = function(JsonObject req, JsonObject res)`

Usage: Generic function to update a test

- List
`exports.list = function(JsonObject req,JsonObject res)`

Usage: Function to find all tests that are created and then populates a list
- Test by ID
`exports.testByID = function(JsonObject req, JsonObject res, function next, String id)`

Usage: Function to find specific tests by ID
- Has authorization
`exports.hasAuthorization = function(JsonObject req, JsonObject res, function next)`

Usage: Function to check if user is authorized to access specific functionality

11.2 errors.server.controller.js

1. Methods:

- Get unique error message
`var getUniqueErrorMessage = function(String err)`

Usage: Function to supply error messages when employee ID chosen by user when signing up already exists in the database
- Get error message
`exports.getErrorMessage = function(String err)`

Usage: Function to supply generic error message when a problem occurred in the system.

11.3 core.server.controller.js

1. Methods:

- Get unique error message
`exports.index = function(JsonObject req,JsonObject res)`

Usage: Function to get the indexes of the different users

- Load canteen info
`exports.loadCanteenInfo = function(JsonObject req,JsonObject res)`

Usage: Function that is called when the home page is accessed to load the information about the canteen

11.4 header.client.controller.js

1. Declaration:

```
angular.module('core').controller('HeaderController', ['$scope', '$rootScope', '$http', '$location', '$cookies', 'Authentication', 'Menus', function($scope, $rootScope,$http, $location, $cookies, Authentication, Menus)
```

2. Methods:

- Load canteen info
`$scope.loadCanteenInfo = function()`

Usage: This function loads the canteen name, if there is no name for the canteen it sets the canteen name to “Canteen Name”.

- Sign out
`$scope.signout = function()`

Usage: This method clears any orders of the user that might be stored in cookies when that user signs out.