

Cognizant Academy

truYum

## Spring Core Specification Document

Version 1.0

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# 1.0 Introduction

## 1.1 Purpose of this document

The purpose of this document is to define the Java class related implementation for truYum project.

## 1.2 Definitions & Acronyms

Definition / Acronym	Description

## 1.3 Project Overview

Refer truYum-use-case-specification.docx for understanding the functionality and features.

## 1.4 Scope

Creation of model and data access object classes for truYum application

## 1.5 Intended Audience

- Product Owner
- Scrum Master
- Application Architect
- Project Manager
- Test Manager
- Development Team
- Testing Team

## 1.6 Hardware and Software Requirement

1. Hardware Requirement:
  - a. Developer PC with 4GB Ram
2. Software Requirement
  - a. Git

- b. JDK 1.8
- c. Eclipse IDE for Enterprise Java Developers 2019-03 R

## 1.7 Eclipse Project Configuration

Earlier we created the classes in Eclipse project named "truYum". We will create a new project named "truyum-spring", which will contain Spring related configuration and bean loading. Find below the steps to create this new project. All the specification defined in this document needs to be implemented in this new Eclipse project.

1. In Windows File Explorer go to the Eclipse Workspace folder. Enter "cmd" in the address bar which will open the command prompt in that folder.
2. In the command prompt, execute the following maven command which creates a quickstart project:

```
mvn archetype:generate -Dhttp.proxyHost=proxy.cognizant.com -Dhttp.proxyPort=6050 -
Dhttps.proxyHost=proxy.cognizant.com -Dhttps.proxyPort=6050 -Dhttp.proxyUser=125546 -
Dhttp.proxyPassword=nov2019$ -DgroupId=com.cognizant.truyum -DartifactId=truyum-spring -
DarchetypeArtifactId=maven-archetype-quickstart -DarchetypeVersion=1.4 -
DinteractiveMode=false
```

3. Import the newly created maven project into Eclipse following the steps below:
  - a. Open Eclipse
  - b. File > Import... > Maven > Existing Maven Projects
  - c. Select the "truyum-spring" folder of the newly created maven project
  - d. Click Finish
4. The above steps creates a new project in Eclipse with name "truyum-spring"
5. Open pom.xml of this new project and include the below dependency inside the <dependencies> tag.

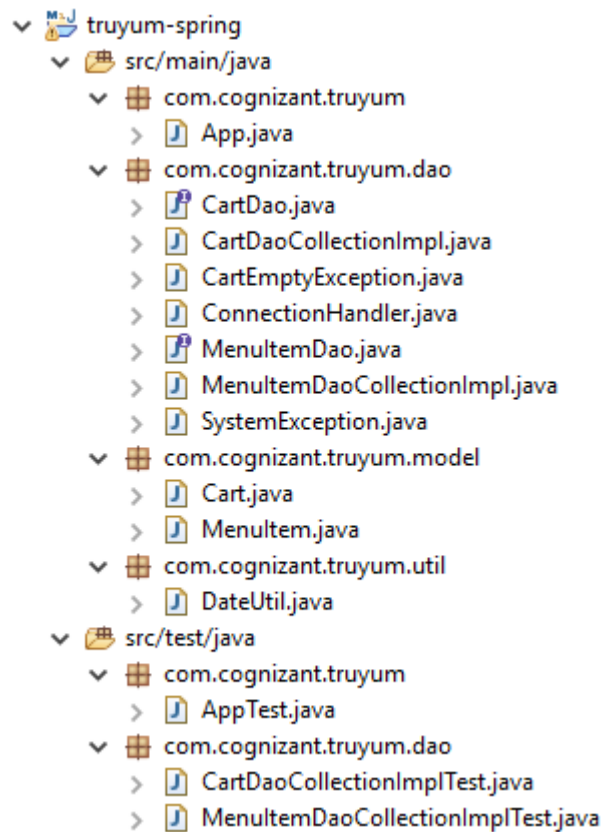
```
<dependency>
  <groupId>org.springframework</groupId>
  <artifactId>spring-context</artifactId>
  <version>5.2.3.RELEASE</version>
</dependency>
```

6. If required change the version of spring to the latest available version.
7. Go back to command prompt. Use the command "cd truyum-spring" to change to the maven project folder, then execute the below command to download dependencies and compile the code.

```
mvn clean compile -Dhttp.proxyHost=proxy.cognizant.com -Dhttp.proxyPort=6050 -
Dhttps.proxyHost=proxy.cognizant.com -Dhttps.proxyPort=6050 -Dhttp.proxyUser=123456
```

8. The above command should create a new folder named "target" in "truyum-spring" folder. Within "target" folder classes folder will contain the compiled class files.

9. Open Eclipse > Right click on "truyum-spring" > Maven > Update Project. This will update the maven project and synchronize the dependencies. This will resolve the errors in this Eclipse project.
10. Copy files from earlier "truYum" java project into the new "truyum-spring" project. Final project structure in truyum-spring project should look like this:

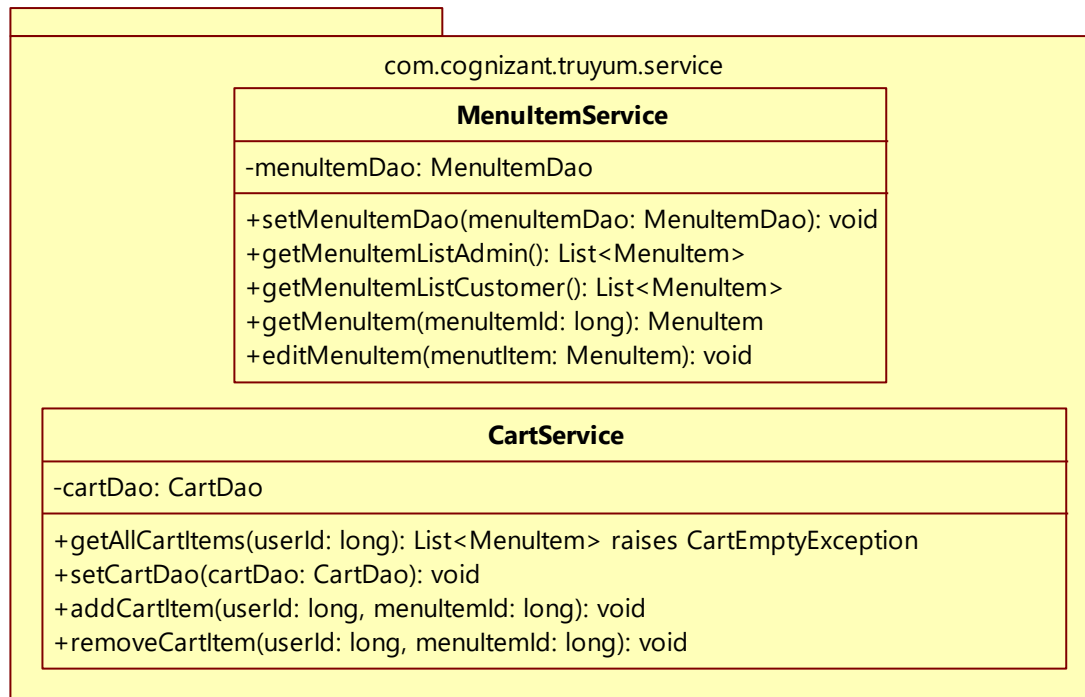


## 2.0 Class Diagram

We will introduce the Service layer in this project, which acts as a façade for data access. A new package needs to be created for service. The objective of having this layer is to introduce business logic. Any application or client will be accessing only the service layer methods and not the dao layer methods.

### 2.1 Service package

Find below the classes that will be created as part of service layer.



## 3.0 Design for View Menu Item List Admin (TYUC001)

As part of this use case we will implement the following aspects:

1. Menu Items list is currently hard coded in MenuItemDaoCollectionImpl. This data should be loaded from spring configuration xml file (spring-config.xml)
2. Create a new package for service with new class MenuItemService and implement the method to get the menu items from Dao.
3. Autowire MenuItemService and MenuItemDao.
4. Unit Test the new method in MenuItemService.

### 3.1 src\spring-config.xml

Create a new spring file named "spring-config.xml" in src folder. We will use this configuration file to hold the menu item list static data. Currently MenuItemDaoCollectionImpl holds hard coded data of menu items. Now this data will be loaded from this spring configuration file. Include the following aspects in this xml file.

1. Create 5 beans in spring-config.xml file with id as "sandwich", "burger", "pizza", "fries", "brownie" representing each menu item.
  - a. Use <property> tag to set the MenuItem bean attributes.
  - b. Use SimpleDateFormat to create Date instance for dateOfLaunch attribute. Refer example [here](#) (use the SimpleDateFormat and factory-bean example).
2. Create array list of MenuItems based on the instructions provided below.
  - a. Create <bean> tag with id as "menuItems" and class as fully qualified name of ArrayList.
  - b. Include <constructor-arg> tag within the above <bean> tag.
  - c. Include <list> table within the above <constructor-arg> tag.
  - d. Include each menu item using <ref> tag. One example menu item reference xml entry provided below:

```
<ref bean="sandwich"/>
```

NOTE: In the above code "sandwich" refers to the bean id provided earlier.

3. Refer diagram below for actual data for menu items:



truYum 							<a href="#">Menu</a>
Menu Items							
Name	Price	Active	Date of Launch	Category	Free Delivery	Action	
Sandwich	₹ 99.00	Yes	15/03/2017	Main Course	Yes	<a href="#">Edit</a>	
Burger	₹ 129.00	Yes	23/12/2017	Main Course	No	<a href="#">Edit</a>	
Pizza	₹ 149.00	Yes	21/08/2018	Main Course	No	<a href="#">Edit</a>	
French Fries	₹ 57.00	No	02/07/2017	Starters	Yes	<a href="#">Edit</a>	
Chocolate Brownie	₹ 32.00	Yes	02/11/2022	Dessert	Yes	<a href="#">Edit</a>	
Copyright © 2019							

### 3.1 MenuItem.java

Include a empty parameter constructor without any implementation so that it enables spring to create instance of MenuItem.

### 3.2 MenuItemDaoCollectionImpl.java

Implement following modifications, so that it can be loaded from spring xml configuration file.

1. Remove static for menuItemList member variable and make it an instance variable
2. Remove the existing constructor

### 3.3 MenuItemService.java

Class for managing data of menu items using Java Collections Framework.

1. Define the @Service annotation at class level with name "menuItemService". The definition of the name will help to load the class in JUnit testing.
2. Create an instance variable for MenuItemDao
3. Autowire MenuItemDao with MenuItemDaoCollectionImpl using annotation

HINT: Use Interface Injection technique to map instance variable MenuItemDao to MenuItemDaoCollectionImpl.

**getMenuItemListAdmin(): List<MenuItem>**

This method returns the list of menu items that will be displayed in the MenuItem listing screen for Admin.

1. Invoke getMenuItemListAdmin() method in menuItemDao and return the same.

### 3.4 MenuItemServiceTest.java

Implement the following steps for creation of a test class:

1. Create a new package com.cognizant.truyum.service in source folder src/test/java
2. Create a new test class MenuItemServiceTest and create instance of MenuItemService.
3. Include a method named initializeService() that returns void. Implement the below steps. This method gets the menuItemService bean from the annotations defines and loads them into the Spring Container.
  - a. Create a new instance of AnnotationConfigApplicationContext and assign it to a variable named context.
  - b. Invoke scan() method in context with parameter as "com.cognizant.truyum". This scans the package and loads all the classes with annotations @Service and @Component classes in the aforementioned package.
  - c. Invoke refresh() method in context.
  - d. Use getBean() method in context passing "menuItemService" as parameter. Cast and assign the whatever returned by getBean() method to menuItemService instance variable of the class.
4. Implement the following test methods in MenuItemServiceTest:

#### **testGetMenuItemListAdminSize(): void**

Create unit test case to validate if the number of items are correct in the method getMenuItemListAdmin() method of MenuItemService.

#### **testGetMenuItemListAdminContainsSandwich(): void**

Create unit test case for getMenuItemListAdmin() method of MenuItemService, to validate if the returned list contains Sandwich. Implement equals() method in MenuItem, so that it compares each bean attributes and check if it matches. Use assertEquals() method to validate if the contents of Sandwich matches.

IMPORTANT NOTE: Identify all other test scenarios and implement.

## 4.0 Design for View Menu Item List Customer

## (TYUC002)

### 4.1 MenuItemService.java

**getMenuItemListCustomer() : List<MenuItem>**

Invoke getMenuItemListCustomer() from MenuItemDao and return the same.

### 4.2 MenuItemServiceTest.java

**testGetMenuItemListCustomerSize(): void**

Test the getMenuItemListCustomer() method of MenuItemService to see if the number of items the returned list are correct.

**testGetMenuItemListCustomerNotContainsFrenchFries(): void**

Test the getMenuItemListCustomer() method of MenuItemService to see if French Fries is not present.

IMPORTANT NOTE: Identify all other test scenarios and implement.

## 5.0 Design for Edit Menu Item (TYUC003)

### 5.1 MenuItemService.java

1. Add method modifyMenuItem(menuItem: MenuItem): void which invokes the respective dao method.
2. Add method getMenuitem(menuItemId: long): MenuItem which invokes the respective dao method.

### 5.2 MenuItemServiceTest.java

**testGetMenuItem(): void**

Validate if the getMenuitem() method in MenuItemService returns the right menu item based on the id.

**testModifyMenuItem(): void**

Validate if the modifyMenuItem method in MenuItemService updates the values of a specific menu item.

## 6.0 Design for Add to Cart (TYUC004)

### 6.1 CartService.java

1. Create instance variable for CartDao.
2. Autowire CartDao with CartDaoCollectionImpl using annotation
3. Add method `addCartItem(userId: long, menuItemId: long): void` which invokes the respective dao method.
4. Add method `getAllCartItems(userId: long): Cart` which invokes the respective dao method.

### 6.2 CartDaoCollectionImpl.java

Perform following changes in this existing class:

1. Change userCarts variable to instance variable.
2. Remove the constructor
3. Use spring configuration to initialize the userCarts HashMap.

### 6.3 Unit Testing

Implement necessary unit testing after completion of next use case, as there is inter dependency between add cart and getting cart items.

## 7.0 Design for View Cart (TYUC005)

### 7.1 CartService.java

1. Add method `getAllCartItems(userId: long): List<MenuItem>` which invokes the respective dao method and returns the list.

### 7.2 CartServiceTest.java

Create this new class in package `com.cognizant.truyum.service` in source folder `src/test/java`.

Write the following test cases. In this class include `CartService` instance variable and assign the instance variable similar to the `initializeService()` method defined earlier in the `MenuItemServiceTest` class.

1. Validate if getAllCartItems() method throws exception when there are no items in cart.
2. Validate if addCartItem() method adds an item into the cart. Use getAllCartItems() to retrieve the cart items and verify if the item has got added.

IMPORTANT NOTE: Identify and implement all other possible test cases.

## 8.0 Design for Remove Cart Item (TYUC006)

### 8.1 CartService.java

1. Add method removeCartItem(userId: long, menuItemId: long): void which invokes the respective dao method.

### 8.2 CartServiceTest.java

Implement following test cases:

1. Invoke removeCartItem() in the service class and check if item added already is getting removed or not.

## 9.0 Standards and Guidelines

### 9.1 Java

1. Ensure that the class names, method names and variable names are followed exactly as specified in the class diagram
2. Ensure that access modifier are in line with the class diagram specification
3. Naming standards to be followed:
  - a. Variable
    - i. Should be in mixed case with the first letter lowercase and with the first letter of each internal word capitalized (Example: firstName, dateOfBirth)
    - ii. Variable names should be short, but meaningful
    - iii. Variable name defined should indicate the purpose to a casual observer
    - iv. Single character variable names should be avoided except for temporary variables
    - v. Temporary variables include i, j, k and m
  - b. Class
    - i. Class name should be a noun

ii. Class name should be in mixed case with the first letter uppercase and with the first letter of each internal word capitalized

iii. Must use whole words and should not have acronyms or abbreviations

Examples: Employee, TaxCalculator

c. Method

i. Method names should be verbs

ii. Method names should be in mixed case with the first letter lowercase and with the first letter of each internal word capitalized

Example: changeGear(), calculateBalance()

4. Code Formatting

a. Class Structure

i. Place the elements of a class in the following order:

1. Static variables
2. Instance variables
3. Constructors
4. Methods and Getter/Setters
5. hashCode(), equals(), toString,

b. Spacing

- i. A space before and after an operator is required
- ii. A space before curly braces is required
- iii. A space after a comma is required
- iv. A space after semicolon in for loop is required
- v. A single line space after a method is required

c. Curly braces position

- i. Opening curly braces should be in the same line
- ii. Closing curly braces should always be in a new line

d. Tab spacing

- i. Use 4 spaces instead of tab character
- ii. Increase a tab character in the lines after opening curly braces
- iii. Reduce a tab character on the of closing curly braces
- iv. Include one more tab in the wrapped line

e. Line Width

- i. Width of a line should not exceed 100 characters

## 10.0 Change Log

	Changes Made
V1.0.0	Initial baseline created on <dd-Mon-yy> by <Name of Author>

Vx.y.z	<Please refer the configuration control tool / change item status form if the details of changes are maintained separately. If not, the template given below needs to be followed>			
	<b>Section No.</b>	<b>Changed By</b>	<b>Effective Date</b>	<b>Changes Effected</b>