CSCM94 Software Engineering Principles
Functional Specification

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Your group has been tasked with designing an all-in-one management tool for a local restaurant, *Cafe94*. The system, as outlined in this document, will fulfil many requirements that the management team and owners at the restaurant wish to see implemented in the near future.

This document details the requirements of the proposed system that provide a foundation from which you should prepare your software design and eventually a group based implementation of a version of the system.

1 Title and Theme

You are free to come up with a title of the application you are developing, along with stylistic choices in terms of the look and feel of the GUI.

You should aim to produce a fully realised application with an attractive user interface at the end of your implementation phase.

2 Overall Idea

The system is composed of multiple features that are typical in many retail and food outlets. Many of the procedures in a common restaurant will be required for the Cafe94 system, however this document will specify in detail the requirements.

The management system will need to support users from both a staff and customer point of view. Staff will be able to manage the process involved in delivering food, whereas customers can use the system to make bookings and view information about the menus etc.

For this project, you are to assume that there is only a single restaurant. Within the restaurant there are:

- four tables of 2 seats
- four tables of 4 seats
- two tables of 8 seats
- one table of 10 seats

Leaving a total seating capacity of 76. The restaurant also offers the ability for customers to place orders for delivery of takeaway.

3 Bookings

For customers wishing to sit in the restaurant for their meals, Cafe94 requires booking in advance. A booking is made up of:

- The number of guests to be seated
- The date of the booking
- The time of the booking
- A customer ID who is making the booking

The system should then store the booking and reserve an appropriate table for the space requirements of the booking. A booking will be default last for 1 hour, though customers can request longer periods of time. Once a table has been booked, it will no longer be bookable. The owners wish to operate a first-come first-served basis.

A customer should be able to enter a request to make a booking (how you design this process is up to you), before a waiter will approve the booking request.

Once a booking request has been approved, the customer should be notified and the booking will be reserved in the system. A booking can be cancelled by a customer if they no longer wish to attend.

3.1 Restaurant Availability

As the system can take bookings, it should also be able to confirm availability of tables to customers wishing to book a table. The system should be able to state at any given time, what tables are available to book and any restrictions on the length of booking that are available (e.g., a booking on the same table in the near future).

4 Restaurant Staff Cover

As the system is aware of the bookings of the system, it is also required to assist with the planning of staffing in the restaurant. The owners wish to follow the following rules when determining staff requirements for any given day of the week:

- For every 10 customers, 2 chefs are needed
- For every 2 tables booked, 1 waiter is needed

The system should present the manager with a view to display this information. For the purpose of this assignment, you can assume that staff cover is only required for the current day. That is, when a manager opens the system for the on a day, they only see the staff requirements for the same day.

5 Orders

Customers can make food and drink orders from a limited menu, meaning that the waiters and customers will both need a method to order food (depending on the type of order)

There are 3 types of orders taken at the restaurant:

1. **Eat in** - entered by a waiter for customers that are attending the restaurant.
2. **Takeaway** - requested by a customer and also requires a pick-up time for the food to be ready by.

3. **Delivery** - requires a delivery address and estimated time for deliver and has to be approved by a waiter. A driver is also required to be assigned to this type of order

All food orders will also have a list of items from the menu that are to be prepared and served, meaning an order can be made up of several food and drink items.

Once an order has been completed, it will need to be marked as such by a chef.

5.1 Outstanding Orders

During a service, the team will all need to be aware of any orders that have not been fulfilled. If an order has not been completed then it will need to appear on a list of orders. A screen should be avaliable in the system to be able to display this type of information.

5.2 Daily Specials

As with many restaurants, Cafe94 offers daily specials and the system should allow for a chef to specify the daily special, which can either be taken from the existing menu or be a new creation.

Customers should be able to be notified of daily specials when ordering food.

6 Staff

There are 4 main types of staff at the restaurant:

1. **Manager**

   There is only a single manager, who is the owner of the Cafe94 application and acts as the administrator of the entries into the system. The Manager can add and remove other staff members, as well as editing their details

2. **Chef**

   Responsible for preparing the food and marking orders as complete

3. **Waiters**

   Responsible for serving food in the restaurant and approving delivery requests from customers

4. **Delivery Drivers**

   Responsible for delivering food

The application should support staff profiles. Staff profiles are used to keep details separated for different users. Staff profiles can be created and deleted by the manager.

Each staff profile:

- has a first name.
- has a last name.
- has a list of hours to work.
- has a list of total hours worked

When opening the system the user should be presented with a choice of existing profiles.

7 Customers

The Cafe94 system will also be required to store details on customers of the restaurant to allow for smoother processing of orders and deliveries.

Each customer profile:

- has a first name.
- has a last name.
- has an address.
- has an order history

8 Events

The restaurant also offers events (such as parties) that can be created and registered on through the Cafe94 system.

A customer can request an event, but it must be approved by a manager. An event consists of:

- A title of the event
- The date and time of the event
- Tables required
- Maximum number of attendees
- Description of the event

Customers will be able to browse events and register on events that they are interested, unless the event is fully booked.

Once an event has passed, it should be removed from the list of upcoming events. However, a user will be able to view events that they have attended previously.

9 Reports

The manager will require the system to generate reports on various types of events and information in the system. Key reports required at this stage are:

- Generate most popular items
- Busiest periods in the restaurant
- Most active customer
- Highest number of hours work by staff members

10 Data Persistence

The user profile data, menu data, and all other system data is persisted across running of the system. That is, if the user quits the application, then upon reopening of the application, the data is not lost.

11 Libraries and Frameworks

You must programme this game in Java using JavaFX. It is strongly recommended to use JavaFX?s Canvas class to draw the map.

You may use any classes and packages that are part of the standard Java SDK.

You may not use any other libraries or frameworks without first seeking approval. Please use the lectures to ask such questions.