TastyTreat

Motivated Versatile Programmers(MVP)

CSC 131-04 Computer Software Engineering

Software Requirement Specification

Deliverable #: Vol 1

Due: Thursday, October 3rd

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1. Introduction (EC)

1.1. Purpose of this document

The purpose of this Software Requirements Specification (SRS) document is to outline the functional and nonfunctional requirements involved in the design, development, and deployment aspects of this project - “TastyTreat”, the Restaurant Management System.

1.2. Scope of this document

The web application’s major features include: User Registration, User Login, Menu Display (with the ability to modify items in the menu), Shopping Cart, Payment/Billing Processing, and Customer Feedback. In Employee Management, the web application keeps track of employee’s personal information, working hours (clocked-in and clocked-out), and schedule. Admin can monitor the customer and employee’s activities on the web app.

1.3. Overview

Overall Tasty Treats will provide an efficient and productive way to manage customers’ preferences, personal information, and order history, so customers can conveniently place, pay and pick up their orders. Moreover, Tasty Treats will enable employees to view their earnings, performance, assigned schedule and request admin for change in schedule, Additionally, the Tasty Treat admin will maintain, manage and view employee’s payroll information, schedule, and performance respectively.

2. General Description

2.1. Glossary

Definitions:

1) Admin: Restaurant’s administrator
2) Employee: A person who works at the restaurant
3) Customer: Person who buys food items from the web application
4) Navigation Bar: Consists of buttons leading to a corresponding page in the website.
5) Order Management: Consists of features that allows Customers to track, manage and place food orders.
6) Menu Management: A feature that enables admins to sort and update the food menu.
7) Feedback: Allows Customers to give their review regarding their experience with the employees, food, and restaurant environment.
8) Payment: Allows Customers to pay for their food orders online.

Acronyms:

1) SRS - Software Requirements Specifications
2) API - Application Programming Interface
3) RMS - Restaurant Management System
4) FR - Functional Requirement
5) SFR - Sub Functional Requirement
6) NFR - Non Functional Requirement

2.2. Project Sponsor

- ➢ Client - Professor Maryam Siddique
- ➢ Professor Siddique is looking for a Restaurant Management System website that will allow her to manage her business operations, manage employees, and connect with her customers on one platform.

2.3. User Characteristics

- ➢ Web app users can be of 3 types: Admin, Employee, and Customer
- ➢ Admin: Admin users consist of the upper management team that will be controlling and monitoring business performance, employee scheduling, payroll information, and customer's order placement.
- ➢ Employee: Employee users consist of staff that assist in day to day business operations. They will use this software to adjust availability, track payroll information, and clock in or clock out.
- ➢ Customer: Customer users consist of buyers that will be able to view the menu options, add and remove food items from the shopping cart for ordering, and finalize orders after paying for pickup. Customers will also be able to leave feedback for the restaurant's environment, employee, and food.

2.4. Product Overview

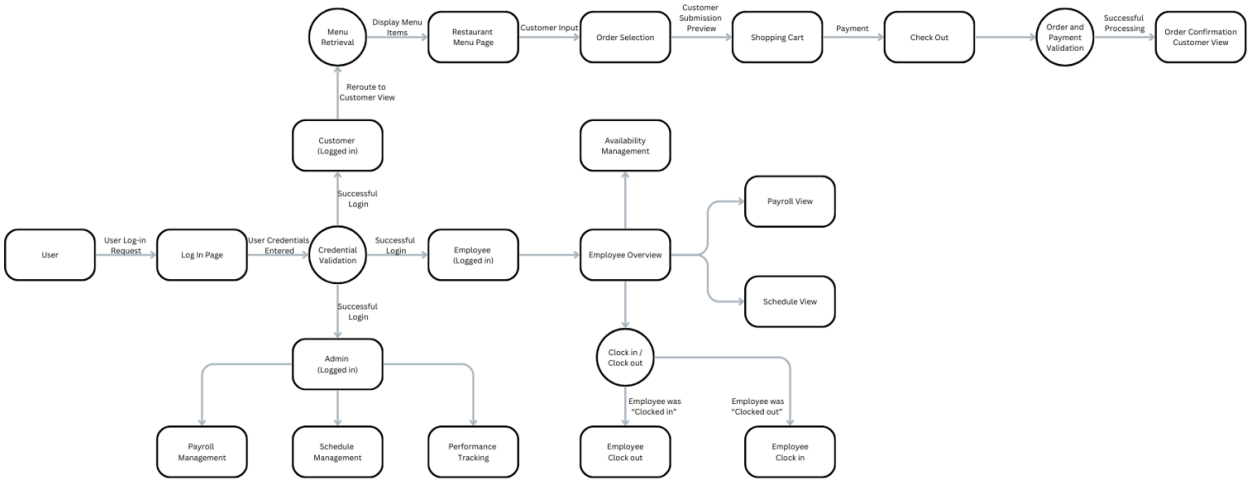
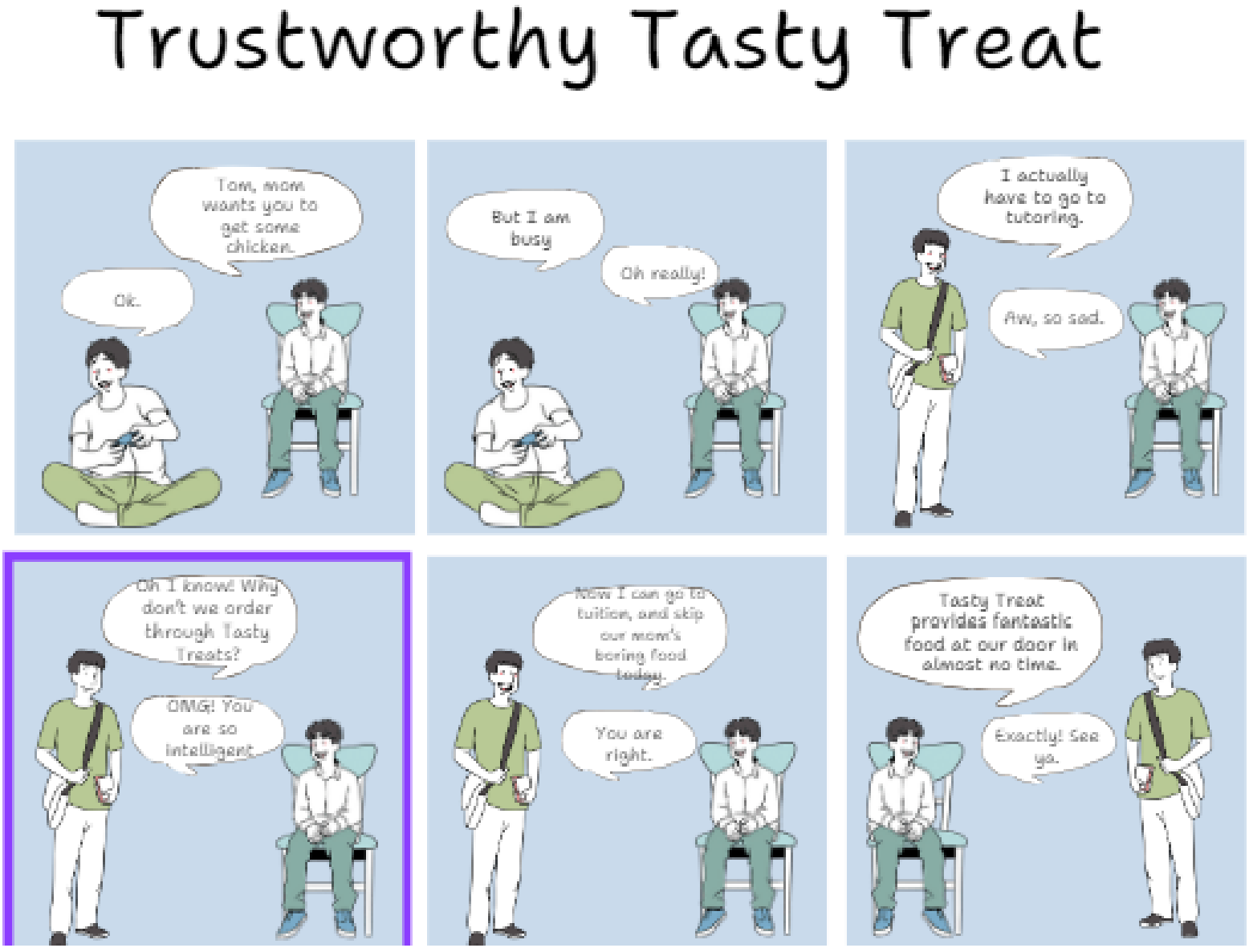


Figure 1

We are creating a website (Tasty Treats) that will allow 3 types of user accounts - Customer, Employee, and Admin. Each account type will be granted different permissions. The Customer account will be able to view and order items from the website based on the available items. The Employee account will be able to view their payroll and scheduling information, manage their availability for scheduling, and clock in or clock out of their shifts. The Admin account will be able to view and edit employee payroll information, view and edit employee schedules, and will be able to monitor employee performance based on shift punctuality.

3. Project Analysis

3.1. Case Diagram



3.2. Case Description

➢ We will give an explanation for each Use Case Diagram as how using our web application will significantly help people in improving their lives.

3.3. Website Introduction

➢ **User Case Name:** Website introduction

➢ **User Case Number:** User Case 1

- **Authors:** Abhijit Singh Ubhi
- **Actors:** 2 brothers where the elder one is a tutor
- **Overview:** The elder brother had to leave home for tutoring while his younger brother on behalf of his mom asked him to get her chicken from the store. However, the elder brother can't skip tutoring. Therefore, he comes up with a brilliant idea that he can use Tasty Treat which will get them tasty chicken at their door which will save him from his mom's boring food without having to sacrifice his job as a tutor.
- **References:** F1 3 -> User case diagram UC 1
- **Typical Flow Description: User**

3.4. User Registration

- **Use Case Name:** Website security
- **Use Case Number:** User Case 2
- **Authors:** Abhijit Singh Ubhi
- **Actors:** A studio DJ, and his group of friends.
- **Overview:** A studio DJ can't get food because he is at the studio while his car's starter won't work. Therefore, he is stuck at the studio. His other friends suggest he should use the Tasty Treat web app. Tasty Treat is secure because it uses password hash and SQL injections.
- **References:** PR 2 -> Related Use Case UC 2
- **Typical Flow Description:** User must access the website and login while being secured using SQL injections and password hash

4. Functional Requirements

FR 1 Menu Display

Purpose: Display a list of available menu items to the user.

Input: None.

Process: System retrieves menu items from MySQL database and displays them on the website.

Output: List of menu items, current stock, price, description, and associated images.

FR 2 Shopping Cart

Purpose: User can select menu items and add them to a cart before proceeding to checkout.

Input: User selects item and clicks ‘add to cart’ button. User can adjust quantity of the item. User can remove items from the cart.

Process: Verify menu item is in stock. Add item to cart component in frontend, use React state to update and dynamically adjust what is displayed to the user based on items added or removed.

Output: Responsive shopping cart function.

FR 3 User Registration

Purpose: Allows users to create accounts.

Input: username, password, email, first name, last name,
card information

Process: Validate that all required fields are provided. Validate format of inputs. Check that the username and email are unique. Generates a user entity with a unique id (UUID). Use a hashing algorithm to hash the password. Stores entity into mySQL database using JPA.

Output: Successful registration of a new user. Return confirmation message that the account has been created. If there are validation errors, return error messages.

SFR 3.1 User Login

Purpose: Enables users to log in to their accounts.
Input: username/email, password.

Process: Validate that fields are filled in and that the input follows valid format. Checks authentication for user by query from mySQL database. If authentication is successful, generate a user session.

Output: Successful login. If login authentication fails, return an error message to the user.

FR 4 Employee Management Database

Purpose: Streamline operations to allow easy management of employee shifts and payroll. Allow admins to adjust employee records/leave/payroll.

Input: personal info, employment details, salary details, attendance, etc. along with all the associated CRUD operations for admin use.

Process: Generate employee record with unique id mapped to database table and add it to list of employees. EMS fetches data from the list of employees to generate a record/form on the EMS system. (Payroll logic may be implemented as part of the Employee class, or implemented as a separate service class)

Output: employee record/form, change employee record/form

FR 5 Order Confirmation & Checkout

Purpose: Allow customers to place an order online.

Input: Customer fills shopping cart and submits checkout option. Checkout form fields, inc. card info, name, billing address, etc.

Process: Form submission sends order request to backend, generates order entity, and saves it in database.The payment processing service is then called.

Output: Order placed.

FR 6 Payment Processing

Purpose: Allow secure and efficient transfer of funds for customers.

Input: Customer fills shopping cart and submits checkout option. Checkout form fields, inc. card info, name, billing address, etc.

Process: Once an order is generated, the payment method will be verified through a payment gateway API.

Output: Successful payment processing. Return message on successful order. Return error message on authentication failure.

FR 7 Customer Reviews and Ratings

Purpose: Enables customers to provide feedback about the restaurant.

Input: A logged in user submits a review form.

Process: Generate review entity that maps to review database table. Add to list of reviews to be fetched by frontend application.

Output: Display customer review and ratings on the website.

5. **Performance Requirements**

PR 1 Loading Time

- ➢ Page load time of three seconds or less when clicking a button to move to a different page. Longer load times can impact user engagement.

PR 2 Encryption

- ➢ When users create a password and provide payment information, they will be encrypted. Provides security by using hash so that their personal information is not easily accessible.

6. **Design Constraints**

- ➢ The design consists of numerous constraints. One of them is customer experience: if the navigation is not intuitive, it can overcomplicate the interface and can overwhelm users. Another one is security. If the security is weak or not properly maintained, it can lead to data breaches or unauthorized accesses. There are also admin and employee constraints which are based upon user management and work scheduling. Managing a large number of users can be time-consuming for the admins which

would use tools to handle user accounts efficiently. Constraints in terms of scalability, if admins and employee management systems aren't scaled well enough to handle an increased load, it can lead to slower load times or an underperforming interface. Also that creating and managing schedules can be complex and can lead to overstaffing or understaffing of employees. In addition to these, since our design is a web application, internet connection and performance constraints such as fast loading times are needed to be looked upon as well. With these constraints addressed, it will help us create a more productive and user-friendly food web application.

7. Non-Functional Requirements (EC)

NFR 1.0 User Registration/Log-in Page

Displays the registration and log-in for the web application when the user registers a new account or tries to log-in to their account. Users will input name, email/phone number, and password information. The user will then be logged in to their account after verification, or create a new account. Depending on the account, they will be sent to the admin, employee, or customer page. Related to FR 3.

NFR 2.0 Menu Page

Displays the different categories of food items (depending on the type of restaurant. Users will click on the "add" button to the food item where it will then ask for their desired quantity (default is one) and will be added to their shopping cart. By clicking the button a request is sent with the food item's item number in the database and sends the information back which is then added to the cart. Related to FR 1.

NFR 3.0 Employee Management Page

This page will only be available for admin users. They will be shown a list with all the current employees where when clicking on one, it will gather their information (from the database) and be displayed on screen. The information includes: hours worked (with the calculated pay), employee performance (out of five stars), work availability, payment information and contact information (emergency contact included). But employees are able to update their information in their profile. Related to FR 4.

NFR 3.1 Scheduling Page

This page will have two views, one for admin and one for employees. The admin view will allow the user to edit the schedule to add, delete and edit any employee shifts. When an employee is scheduled to work a shift, it will check if the time and day allocated to the shift meets the availability that is stored in the database(?). The employee's view will show their designated shifts for the week and be able to request a change or remove a designated shift. The employees will also be shown their performance (out of five stars) and their current hours worked. Employees can choose to be notified prior to the start of their shift through email or SMS (one hour before or 3 hours before their shift). Lastly, their pay rate will be shown as well. Related to FR 4.

NFR 4.0 Shopping Cart

Item number is received from the database from the customer chosen food item and receives its designated information. This information includes name, cost, and quantity of items. Once a customer is ready to place an order, they will click the "proceed to checkout" button. Related to FR 5.

NFR 5.0 CheckOut

This page will calculate the total for the order and display it to the customer. They will then have to input their payment information which will be encrypted and secure. Related to FR 5.

NFR 6.0 Transaction Processing

When a payment is being processed, the payment information will be checked to determine its validity through an API. Once validated, charge will be made and an order number will be generated. Related to FR 6

NFR 6.1 Employee Pay

Same applies for paying employees, once their designated payment information is validated, they will be sent their pay for that period. Related to FR 6.

NFR 7.0 Customer Reviews and Ratings

This page displays reviews and ratings that customers have left. Before adding a review, their history is checked to see that they

have previously placed an order with the restaurant. Once validated, it will allow the customer to place their review. Once placed, the review will be scanned to make sure nothing inappropriate was added including pictures. It will flag a review that includes inappropriate content and be taken down swiftly. Related to FR 7.

8. **SRS Document Uses**

   This SRS document provides a vivid description on the food web application, preventing confusion for the stakeholders and developers. The uses also involve the web applications design constraints, performance requirements, functional requirements, non-functional requirements, and a basis for project planning.

9. **Reflections (Comments or Remarks)**

   Ideas to Consider

   1. **Adding a search bar to that lets Customers search for specific food items.**
   2. **Making the logo more food-related in terms of the product design.**

10. **REFERENCES**

    1. **Canva (user stories)**
    2. **Canva (product overview)**

11. **CONCLUSION**

➢ In conclusion, this SRS document outlines the functional and nonfunctional requirements necessary to develop the proposed product - TastyTreats, a Restaurant Management System capable of streamlining the processes involved in employee management, performance tracking, payroll and schedule management, customer order reception, and customer order processing.

12. **TEAM MEMBERS SIGNATURES**