1. Introduction

1.1 About Project

In our project CANTEEN MANAGEMENT SYSTEM we have digitalised the food ordering process. As it is known to all a canteen during peak hours is crowded with employees and students. In such cases managing the restaurant crowd during peak hours and manage orders using paper-based processes are inefficient and error-prone leading to inaccuracies and wastage of resources. A web-based food ordering portal is the solution for efficient food orders. Our project is designed to offer a canteen management website that takes food orders from customers efficiently & tracks order's status on the backend side. Different menus can be displayed & incorporated for regular meals and different occasions. This website allows administrator to track menu items, improve transaction facility and prevent accounting mistakes at later stages.

1.2 Purpose of Document

This document describes the functional , non-functional and technical requirements for our project of Canteen management system. In order to implement and verify the functionality required by the intended customer this document is used as a reference. This document can be referred by project team members & our mentor working on this particular project to help get a vision regarding how this webpage will be designed & developed and function under different test scenarios. This document presents a detailed explanation of the objectives, features, product scope ,design and implementation constraints of canteen management system.

1.3 Problem Identification

An analysis of the current digital food service landscape reveals several underserved needs and challenges. Firstly, while existing platforms excel in connecting customers with restaurants, they often fall short in managing the end-to-end dining experience, especially in high-demand scenarios. Issues such as long wait times, order inaccuracies, and a lack of personalized service persist, detracting from the customer experience. Furthermore, the operational efficiency of restaurants remains hampered by these platforms limitations, with many establishments struggling to adapt their service models to the digital interface effectively.

1.4 Conceptualisation

In response to these identified gaps, we propose the development of the Digitalized Canteen System, a web-based platform aimed explicitly at revolutionizing how restaurants manage orders and interact with customers during peak hours. Unlike its predecessors, our system focuses on streamlining the entire order process, from menu selection to order placement and management, without the direct integration of third-party payment solutions at this stage. This approach allows us to concentrate on enhancing the core functionalities that directly impact customer satisfaction and operational efficiency.

2. Scope of the Project

The scope of the Digitalized Canteen System encompasses the development and implementation of an online platform that facilitates menu browsing, order placing, and digital payments for canteen services. This system is designed to be accessible via web and mobile devices ensuring wide usability**.**

2.1 Product objective

- **User Account Management:** To provide a secure and efficient system for user registration, login, and account management.
- **Menu Accessibility:** To enable users to easily browse and select from the canteen menu in real-time.
- **Order Placement and Management:** To streamline the process of placing and tracking orders, improving overall service speed and user satisfaction.
- **System Scalability:** To design the system with scalability in mind, allowing for future expansion in terms of features, user base, and service locations.

2.2 Methodology

- We will be using the following software's: VsCode & PyCharm.

  Languages Involved: HTML, CSS , JS & PYTHON.

- The project will follow an Agile development methodology, characterized by iterative development and regular mentor feedback.

3. User & Hardware Characteristics:

The customers will be privileged to use the system from smartphones or desktop to place an order for food online. The user will be redirected to payment portal through which the customer to completes the payment. The Employee will review the order and proceed with the order once the payment confirmation is received. After this the employee serve the food and update the order status. The customer will go and collect his food from the counter. The administrator can manipulate contents from the menu and take feedback from the user.

The users can access the web page from Microsoft Internet Explorer , Safari , google etc.

4. Functional Requirements:

1. Registration & Login System	1. It Should facilitate a new user to register to the system. 2. It should authenticate a user to login on the website. 3. It should enable a registered user to change his password.
2. Menu & Check Out System	1. It should facilitate the user to navigate through the menu and add his choices to cart. 2. It should facilitate him to edit his choices before placing the order.
3. Payment System	1. It should facilitate the customer to pay for his placed order via payment gateway. 2. It should notify the admin of the successful transaction on his backend database.
4. Employee's Portal System	1. Employees should be able to check all placed orders (history). 2. The employee should be able to update the status of each order either as preparing order or ready.
5. Feedback System	1. It should facilitate registered user to submit a feedback on the website. 2. The admin should be able to view, open and close the submitted Feedback.

5. Non- Functional Requirements:

1.Performance	The website ensures timely order processing during peak hours.
2. Scalability	It should be able to accommodate future growth of the canteen or addition of new dishes.
3. Payment System	Third Party Payment System should work as per expectations.
4. Availability	It should minimize disruptions to service, ensuring consistent access.
5. Security	It should be able to protects user data and maintain integrity in the system.
6. Usability	It should enhance user experience and encourages platform use.
7. Compatibility	It ensures accessibility for a wide range of users.
8. Maintainability	It should be open to future overhauls.

6. Testing:

Type of Testing	Expectations
Functional	The User can successfully place an order using the web platform, selecting multiple items from the menu and completing payment.
Usability	Navigate from the homepage to finalize an order
Performance	The website shouldn't crash in case of heavy traffic.
Compatibility	The User should be able to access the web system using the latest versions of Chrome or Safari on desktop and mobile.
Security	System should be able to reject unauthorised login attempts.
Localization	Menu items and prices adjust according to the user's locale.
User Acceptance	Process meets user expectations and requirements.

7. Further scope of development:

- Integration with emerging Technologies: We can deploy IoT sensors for live inventory tracking, which would upgrade operational efficiency.
- We can use AI & ML to deploy a chatbot to enhance user experience.
- We could integrate next generation wallets in our payment gateway through which users will be able to pay using cryptocurrencies.
- We could use the dynamic pricing Strategy to maximise profits.
- We could upgrade our website to support Multi Language Model for our customers.
- We could also develop a APP based version of this website.

8. Diagrams:

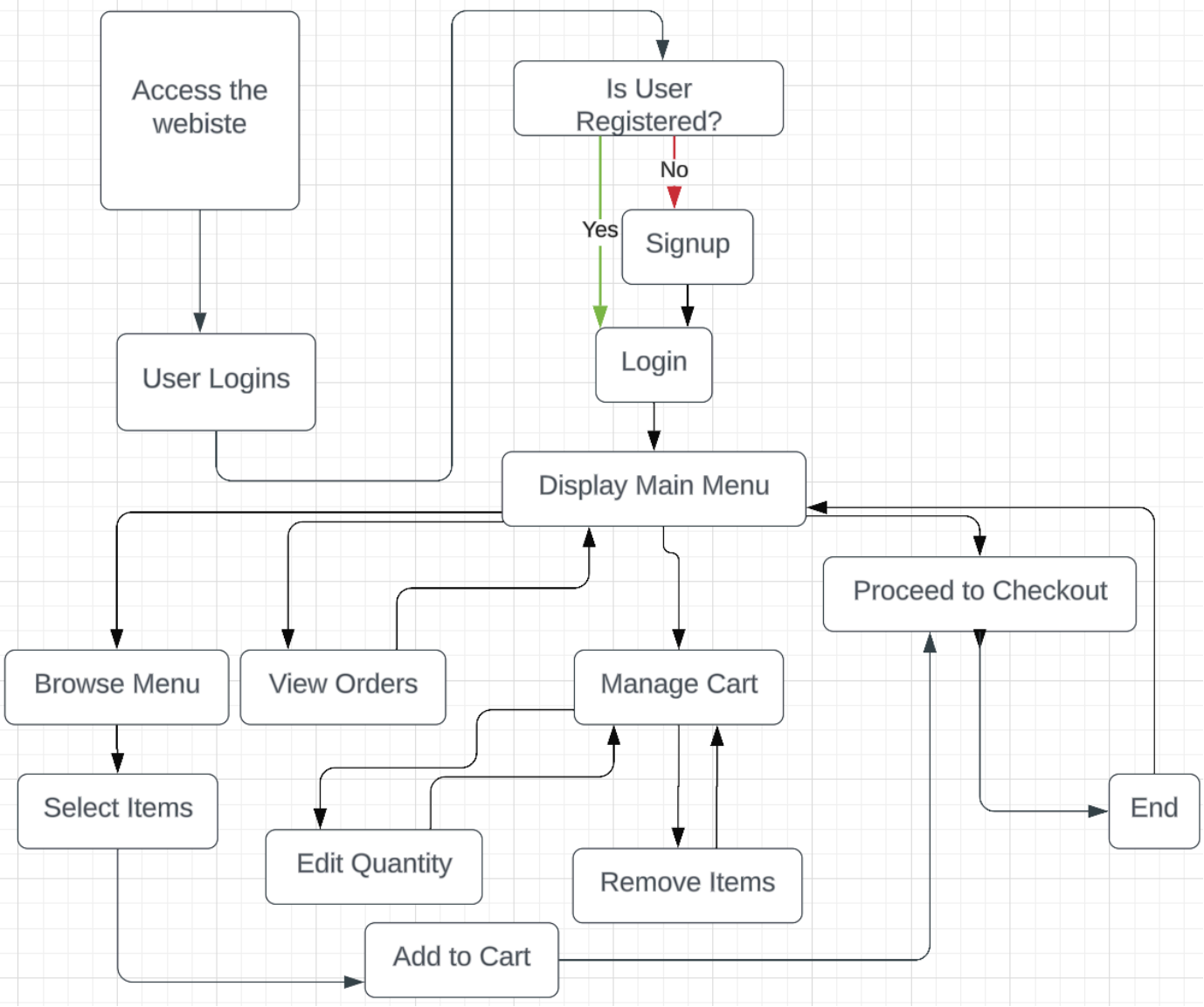


Diagram: Showcasing the overview functioning of the website

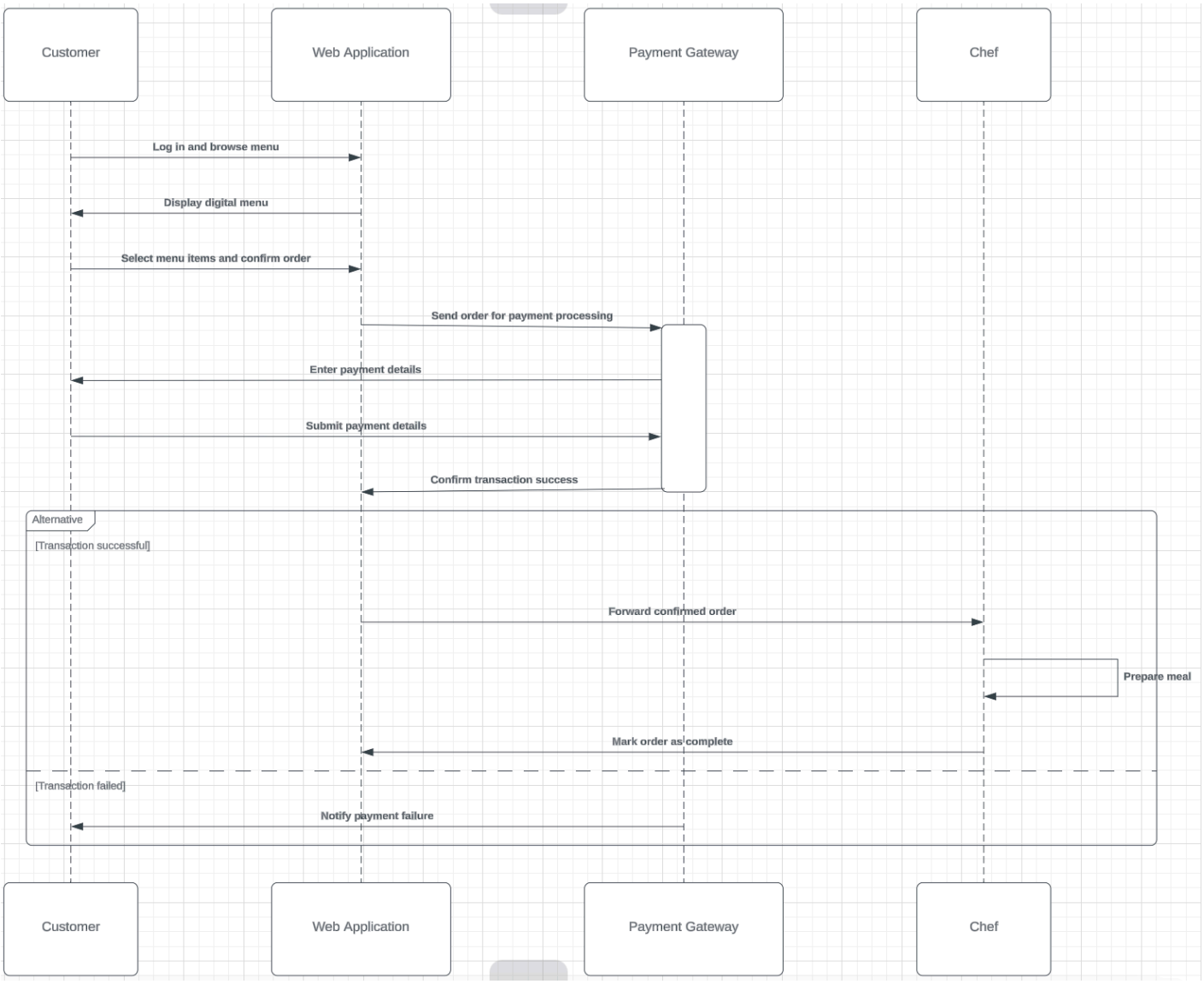


Diagram: Showcasing the detailed functioning of the website

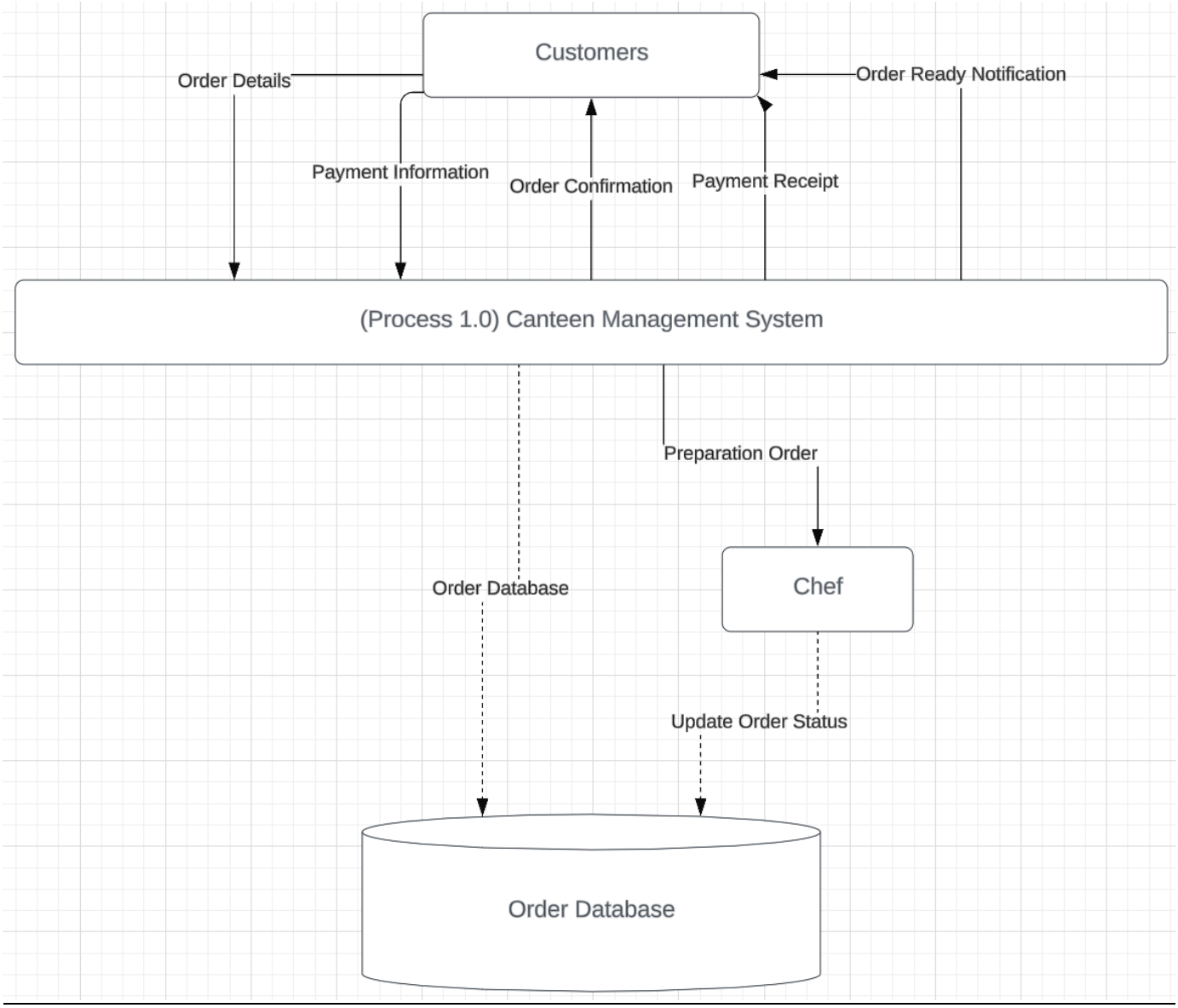


Diagram: DFD Level 0

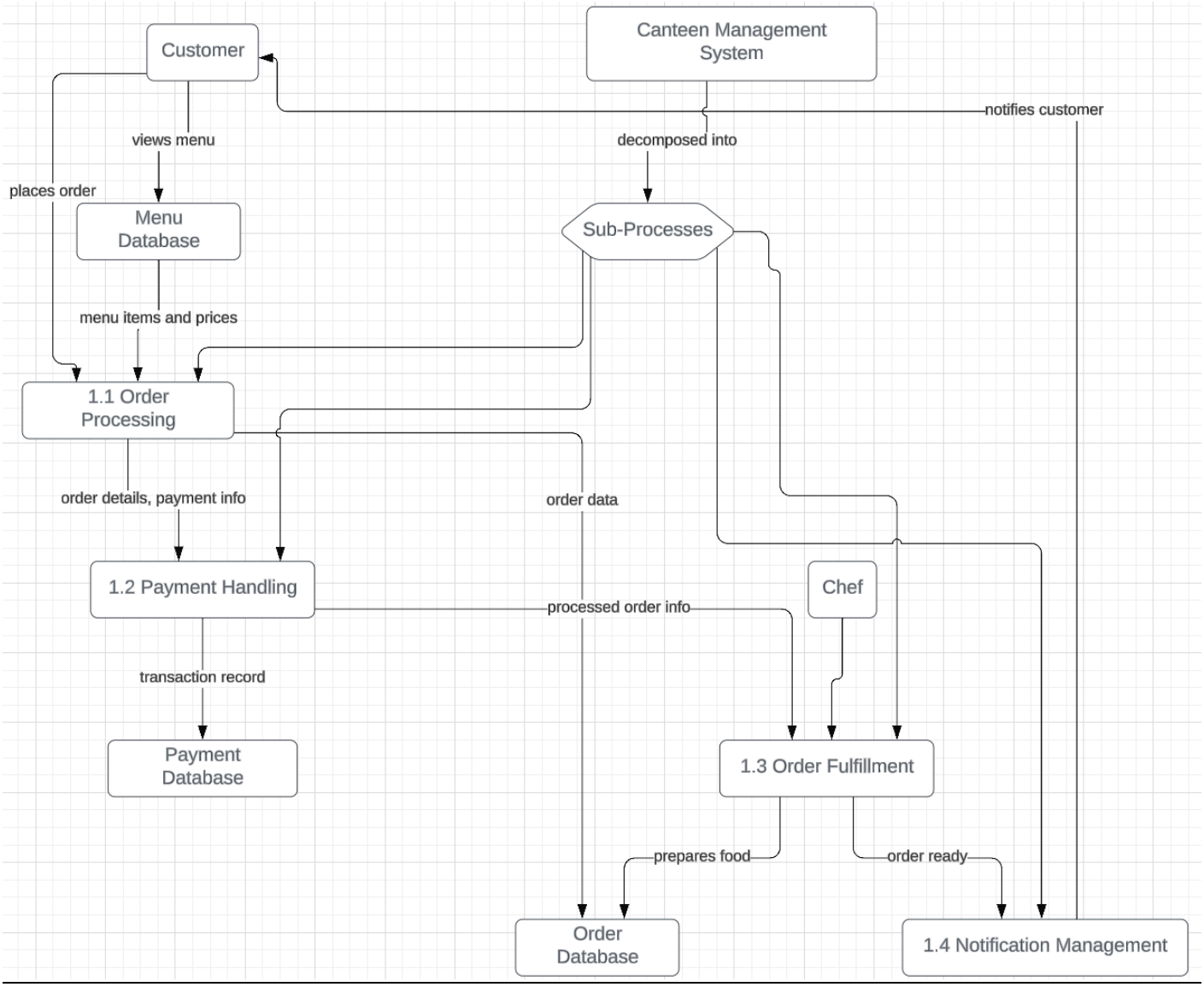
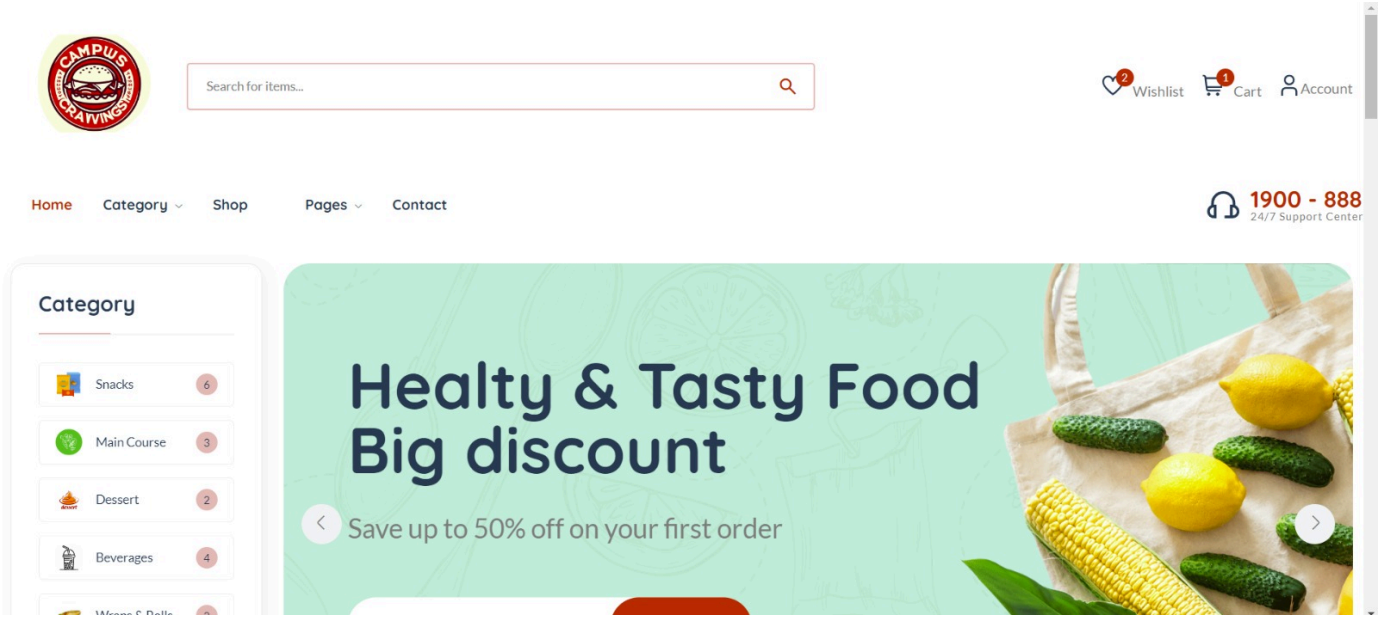


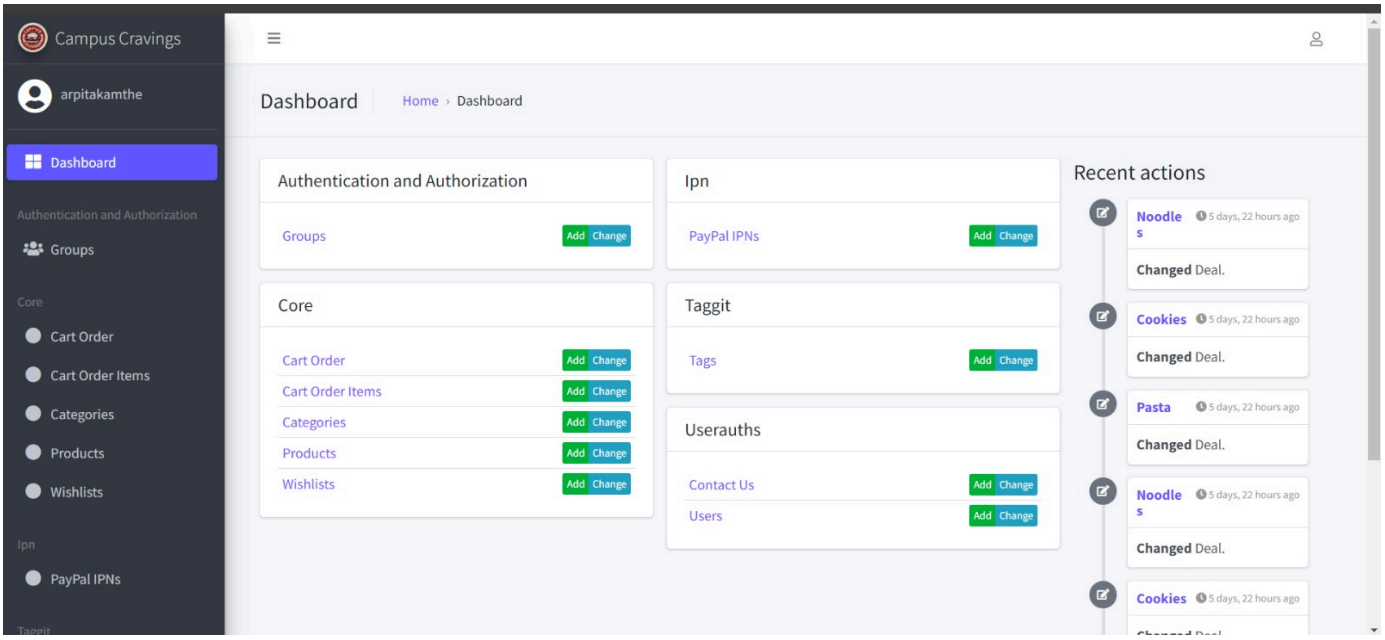
Diagram: DFD Level 1

9.Conclusion:

The Canteen Management System is an innovative step improving operations and customer experience in institutional canteens. It uses web technologies to make food ordering and management easier & fast, but as the user requirement changes it is important to modify the website with emerging technologies & trends.

10.Website Glimpse:





11.References:

Lucid Charts

Google

YouTube

Geeks for Geeks