



## **Assignment**

Course Code: CSE414

Course Title: Web Engineering

Assignment Topic:

### **DARUCHINI RESTRURANT MANAGEMENT SYSTEMS**

#### **Submitted to**

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# DARUCHINI RESTRURANT MANAGEMENT SYSTEMS

## 1. Introduction

DARUCHINI Canteen is one of the most popular and student-friendly establishments located in the boys' hall of our university campus. Renowned for its late-night availability and diverse menu offerings, the cafe serves as a hub for students seeking delicious meals and a place to socialize, study, or relax. Its strategic location and extended operating hours, from 07:00 AM to 01:00 AM, make it a convenient choice for students, faculty, and staff. Cafe caters to a wide range of culinary preferences, providing almost every type of food at affordable prices, aligning perfectly with the student demographic it serves.

Over the years, DARUCHINI has developed a loyal customer base due to its friendly service, vibrant ambiance, and ability to meet the unique demands of the university population. However, as the university continues to expand and the number of students grows, the cafe faces challenges in maintaining operational efficiency and meeting customer expectations. These challenges include managing inventory, processing a high volume of orders during peak hours, ensuring timely delivery of food, and integrating digital payment solutions.

This project, developed as part of the **Web Engineering course**, aims to address these challenges by designing an integrated and efficient cafe management system. The goal is to streamline operations, improve customer satisfaction, and DARUCHINI business growth. By leveraging modern technology, we aim to tackle existing inefficiencies, such as delays in service, stock shortages, and limited reporting capabilities, while providing a scalable solution that can adapt to future needs.

**Scope of the Project** The project focuses on understanding the current operations of DARUCHINI, identifying bottlenecks, and proposing a robust system that incorporates real-time inventory management, order processing, digital payment integration, and customer feedback collection.

### **The new system will ensure:**

Faster and more accurate order processing to minimize delays during peak hours. Improved inventory management to prevent stock outs and wastage. Enhanced customer experience through streamlined payment options and user-friendly interfaces. Detailed reporting and analytics to help management make data-driven decisions.

This report details the process of **Web Engineering** starting with requirements determination and feasibility analysis, and moving through system design, implementation, and evaluation. It also highlights the insights gained from customer surveys and stakeholder interviews, which helped shape the system's specifications. By implementing this system, aims to not only enhance its operational efficiency but also establish itself as a model of modernized cafe management on campus. The project is expected to yield significant benefits, including reduced operational costs, increased revenue, and a better overall customer experience, ensuring remains a favorite destination for students for years to come.

- 2. Requirements Determination** To improve the management of Cafe, we spoke with cafe management, staff, and customers to understand their needs. Here is a clear and simple list of what the system should do:

### **Functional Requirements**

#### **Inventory Management**

- Track stock levels in real time.
- Send alerts when stock is running low.
- Manage dine-in, takeout, and pre-orders easily.
- Include a digital menu for quick ordering.

#### **Payment Processing**

- Allow payments via Cash, bKash, Nagad, Rocket, and 1Card.
- Provide instant receipts to customers.

#### **Analytics and Reporting**

- Create daily, weekly, and monthly sales reports.
- Show peak hours and popular items.

### **5. Feedback System**

- Collect customer feedback to identify areas for improvement

### **Non-Functional Requirements**

1. Ease of Use: The system should be simple and user-friendly for staff and customers.

- 2. Performance: It should work quickly, even during busy hours.
- 3. Security: Protect customer payment details and other sensitive information.
- 4. Scalability: Be ready to add new features, like delivery services, in the future. This clear set of requirements will help create a system that improves how TR Cafe operates and serves its customers.

4. Customer Survey:

To understand the cafe’s operational challenges, we conducted a survey among 100 students. The survey included the following questions:

- 1. How often do you visit Cafe?
- 2. Are you satisfied with the variety of food available?
- 3. How would you rate the payment options provided?
- 4. What challenges do you face while ordering food?
- 5. Do you experience delays in receiving your orders?
- 6. How satisfied are you with the behavior of the staff?
- 7. What additional features or services would you like TR Cafe to offer?
- 8. How likely are you to recommend Cafe to others?

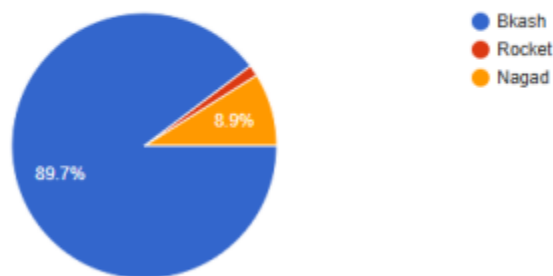
Survey Data Analysis	
Question	Response Percentage
How often do you visit Cafe?	Daily: 40%, Weekly: 45%, Rarely: 15%
Are you satisfied with the food variety?	Yes: 85%, No: 15%
How would you rate payment options?	Excellent: 60%, Good: 30%, Poor: 10%
Do you face delays in receiving orders?	Yes: 35%, No: 65%
Staff behavior satisfaction	Excellent: 70%, Good: 25%, Poor: 5%
Likelihood of recommending (1-10 scale)	9-10: 70%, 6-8: 25%, 1-5: 5%

Key Insights:

- 85% of customers are satisfied with the food variety.
- 35% of customers reported delays in order delivery, indicating a need for process optimization.
- Payment options received an Excellent/Good rating from 90% of respondents.

## 5. Survey Chart

Payment by  
146 responses



**6. Requirements Specification** Based on the information from surveys and discussions, the system will have the following parts:

### 1. Inventory Management Module

- Keeps track of stock levels in real time.
- Sends alerts when stock is running low.

### Order Management Module

- Handles dine-in, takeout, and pre-order requests.
- Includes a digital menu that can be accessed using a mobile app or QR code.
- Supports multiple payment methods, such as Cash, bKash, Nagat, Rocket, and 1Card.
- Provides customers with instant digital receipts after payment.

## Analytics and Reporting

- Tracks sales and customer data.
- Shows popular food items and busy hours to help management make better decisions.

### **Customer Feedback System**

- customers share their opinions through a simple interface.
- Organizes feedback to find useful suggestions for improvement. These features will help Cafe run smoothly, serve customers better, and grow its business effectively

## **7. Feasibility Analysis**

- The required technology, like POS systems and cloud-based inventory management software, is easily available.
- The university's existing network infrastructure can handle the system's digital operations.

### **Economic Feasibility**

- The system will cost around 50000 BDT for hardware and software.
- Expected revenue growth is 15% per year, which should cover the costs within 12 months.

### **Operational Feasibility**

- Staff will receive proper training to use the new system without any problems.
- Stakeholders are supportive and ready to adopt the system based on their feedback.

**10. Conclusion:** The implementation of a comprehensive management system for Cafe is a significant step toward modernizing its operations and enhancing its overall service quality. As a vital part of the boys' hall and a favorite hangout spot for students, Cafe holds immense potential to grow its business while continuing to serve as a hub for social interactions, study breaks, and late-night cravings. This project, built as part of our System Analysis and Design course, thoroughly analyzes the challenges faced by the cafe and proposes a solution that aligns with both current needs and future goals. The proposed system addresses critical areas such as inventory management, order processing, payment integration, and customer feedback collection. By automating stock monitoring and providing low-stock alerts, the system ensures that food items are always available, reducing the chances of customer dissatisfaction.

Furthermore, the integration of multiple payment methods, including Cash, bKash, Nagad, Rocket, and 1Card, makes transactions smoother and more convenient for customers.

With an estimated cost of 50000 BDT and projected annual revenue growth of 15%, the system is expected to pay for itself within a year. The technical infrastructure of the university supports the deployment of this system, and the staff's willingness to adopt it ensures a smooth transition

In conclusion, this project is not just a technical solution but a roadmap for transforming Cafe into a modern, efficient, and customer-centric establishment. By implementing this system, the cafe can enhance its reputation, improve customer satisfaction, and achieve significant business growth. The knowledge and skills gained during the development of this project have also provided valuable insights into system analysis and design, which will be instrumental in tackling similar challenges in the future.



