# University of Information Technology and Sciences


## SRS Document

## Project Name: "Food prices across Bangladesh"

### Course Code: CSE 356

### Course Title: Software Engineering And System Analysis

| Submitted by | Submitted to |
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# 1. Introduction:

## 1.1 Purpose:

This SRS document outlines the requirements for a website that displays food product prices across 64 districts in Bangladesh. It is designed to allow users to check current food prices, file complaints, and provide a secure admin login for authorized personnel to update prices. Moreover we can find weekly, monthly, yearly graphs of the price fluctuation of non-packaged foods.

## 1.2 Document Conventions:


| Documents Number | Documents Name | **Page Number** |
|---|---|---|
| I. | Er_Diagram | 04 |
| II. | DFD | 04-05 |
| III. | Use Case | 06 |
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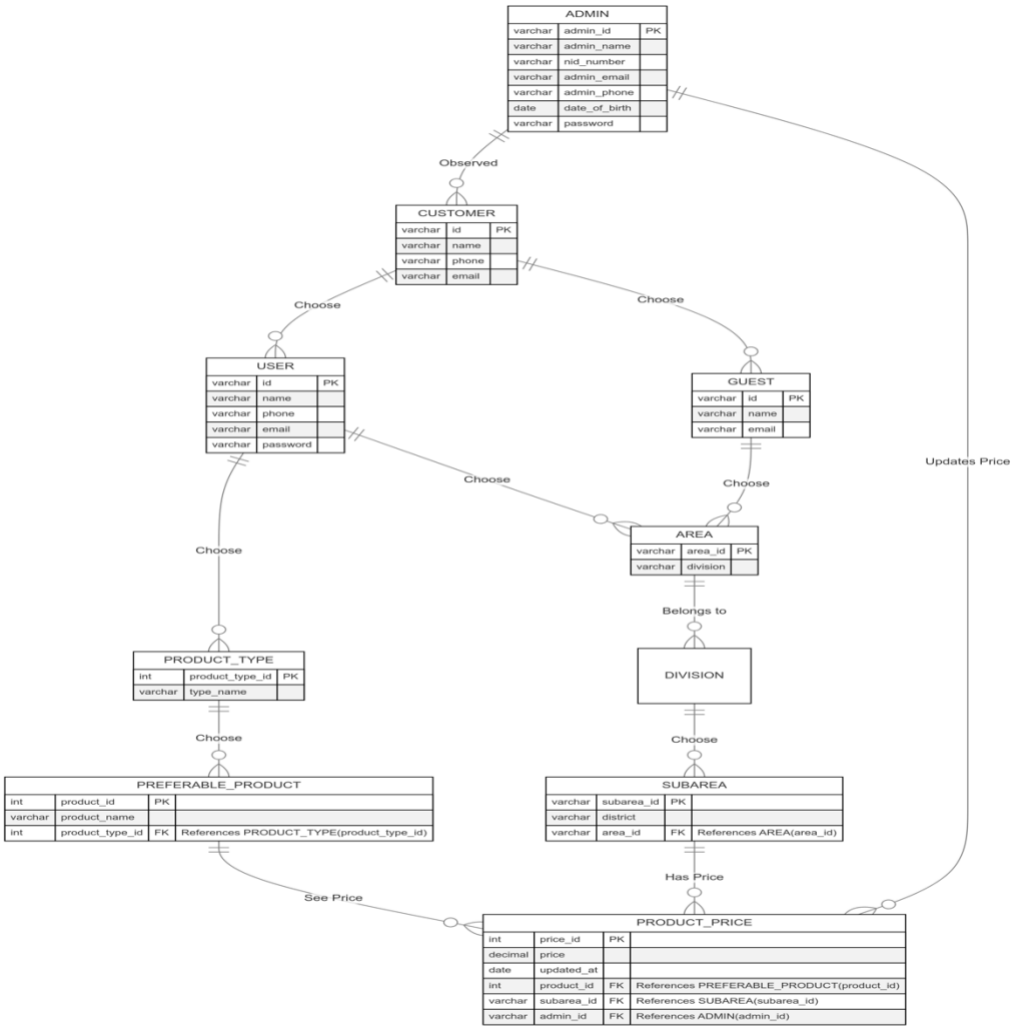
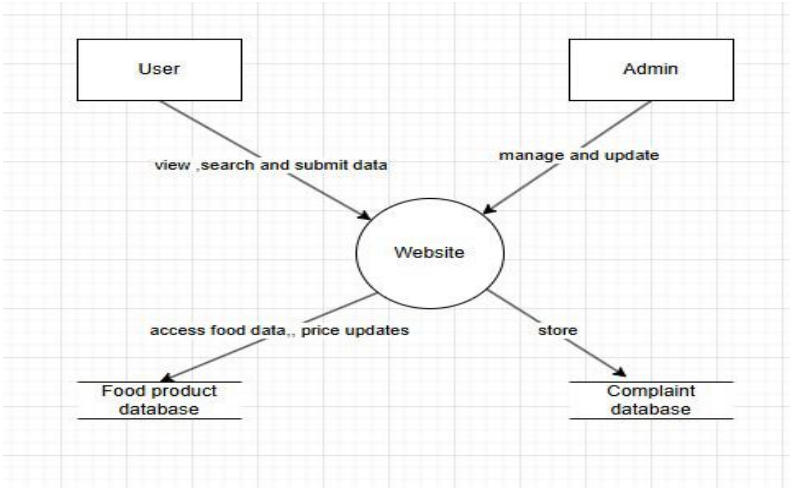
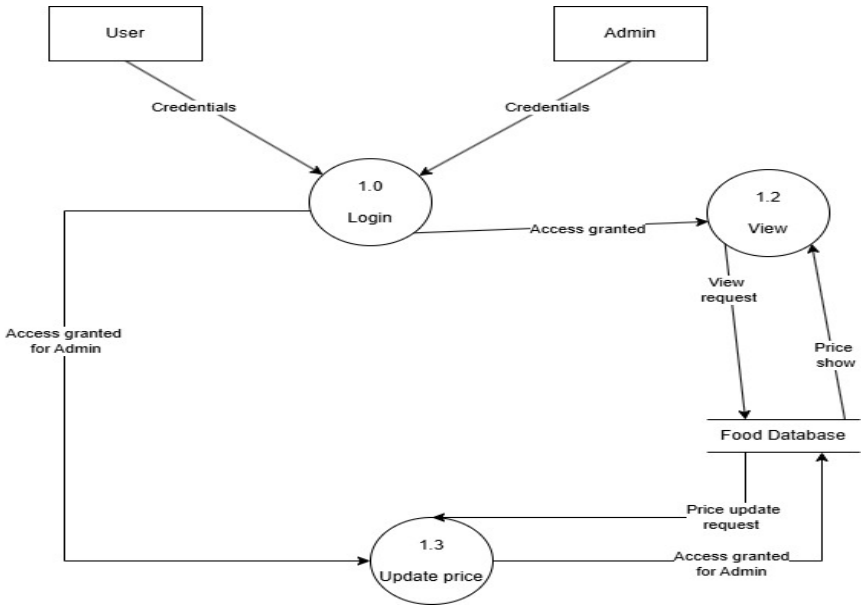
# I.Er_Diagram:



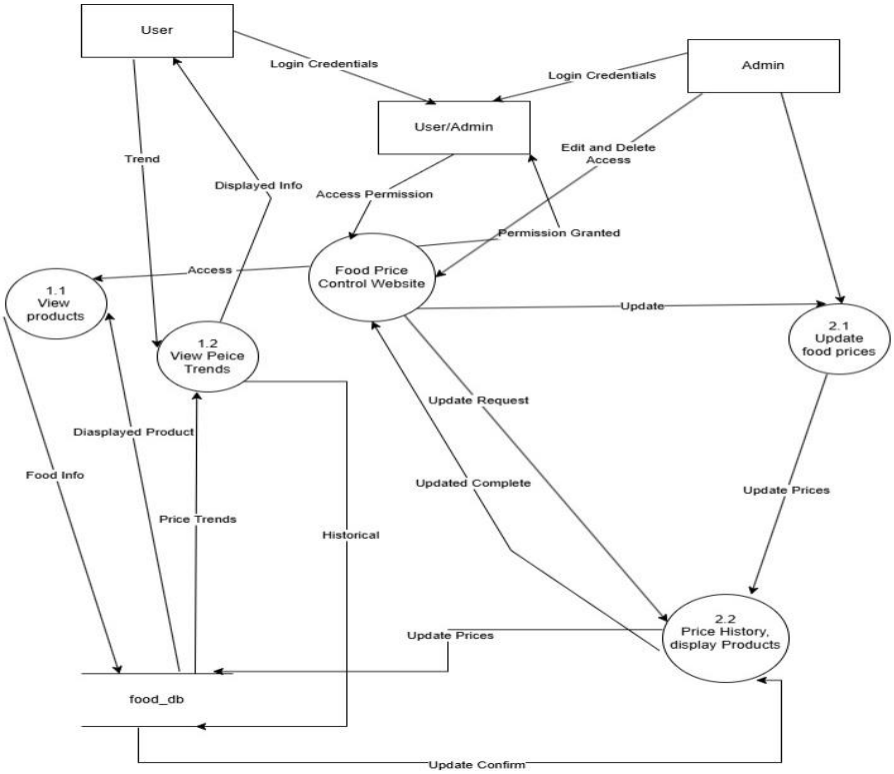

# II.DFD Level-0:



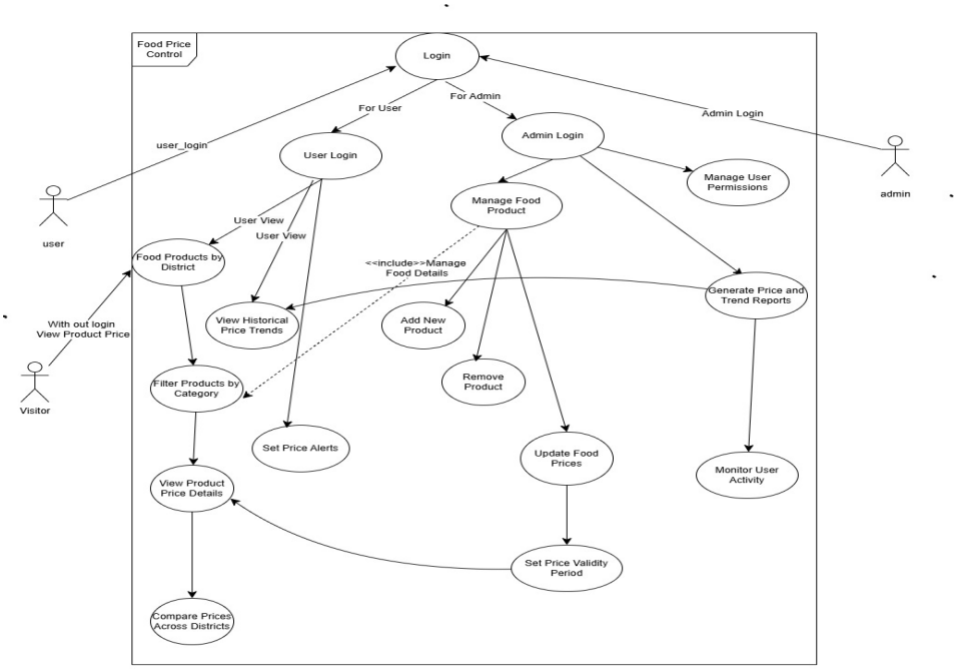
**DFD Level-1:**



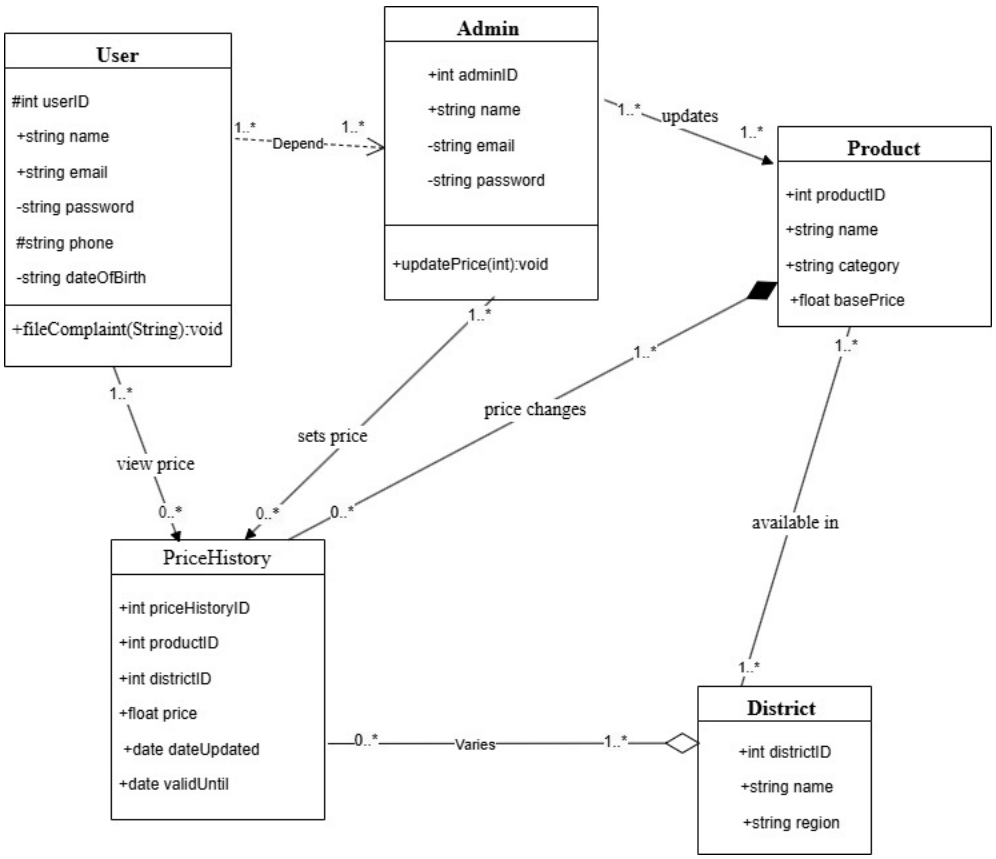

**DFD Level-2:**



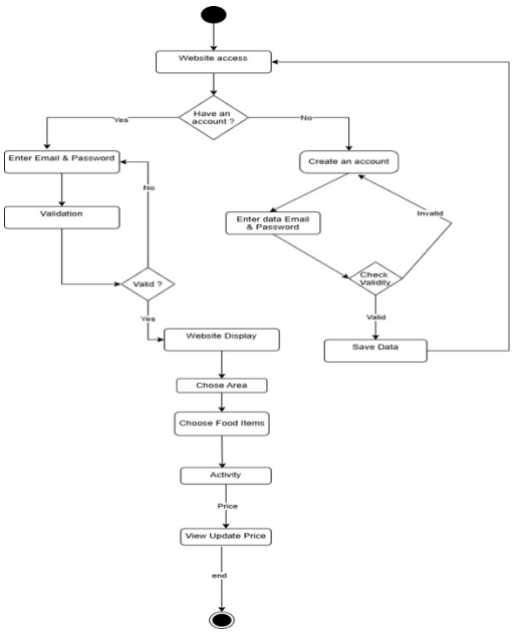
## III.Use Case:



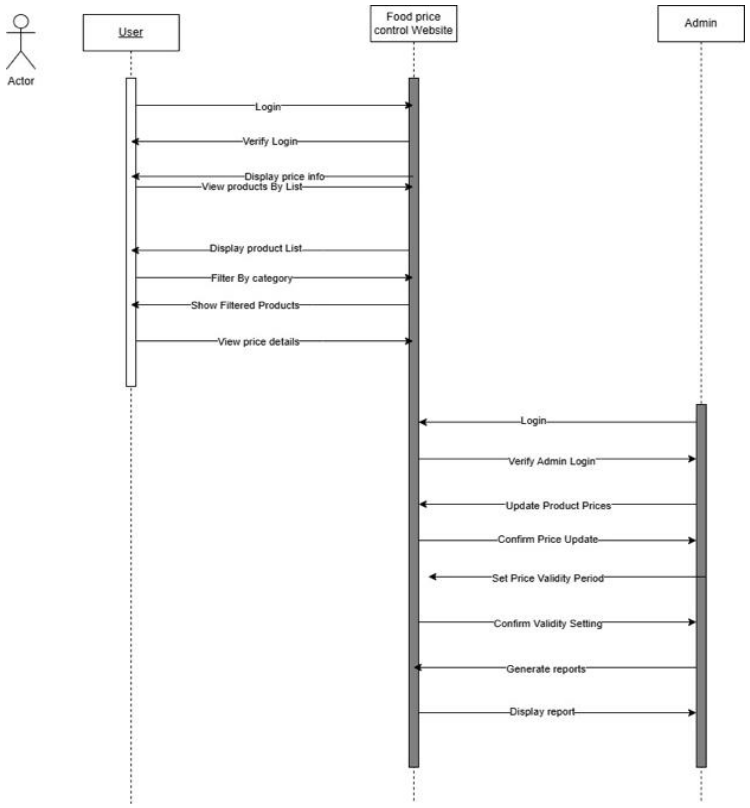

## IV.Class Diagram:



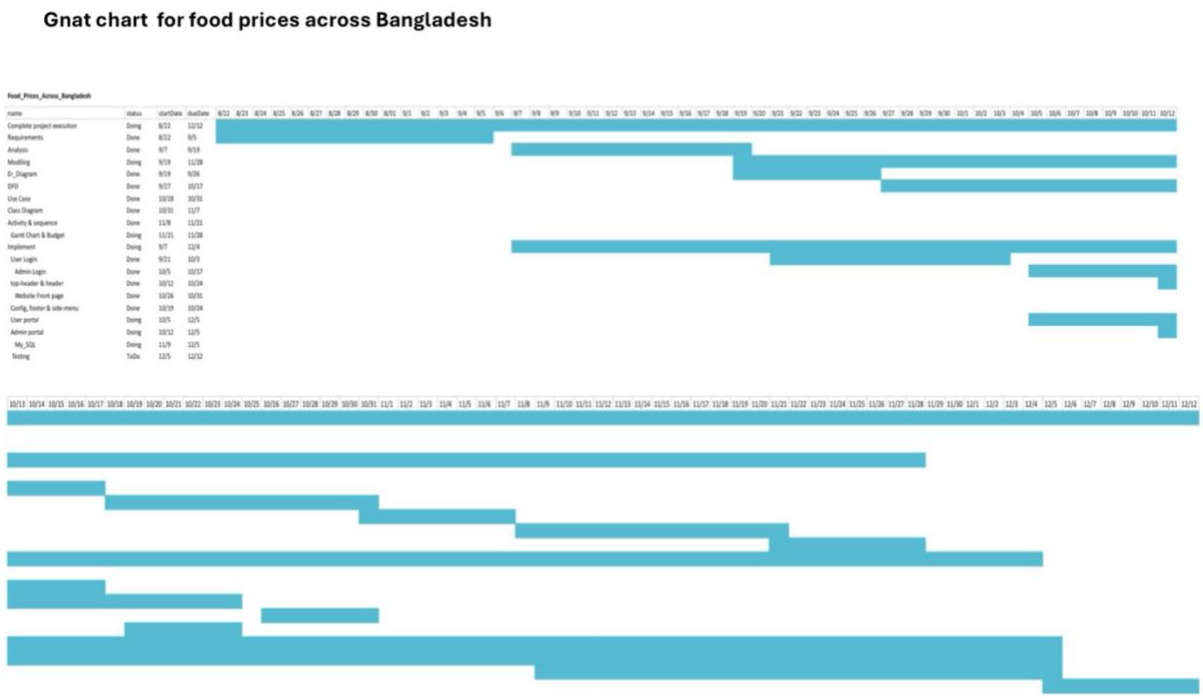
## V.Activity Diagram：




## VI.Sequence Diagram：



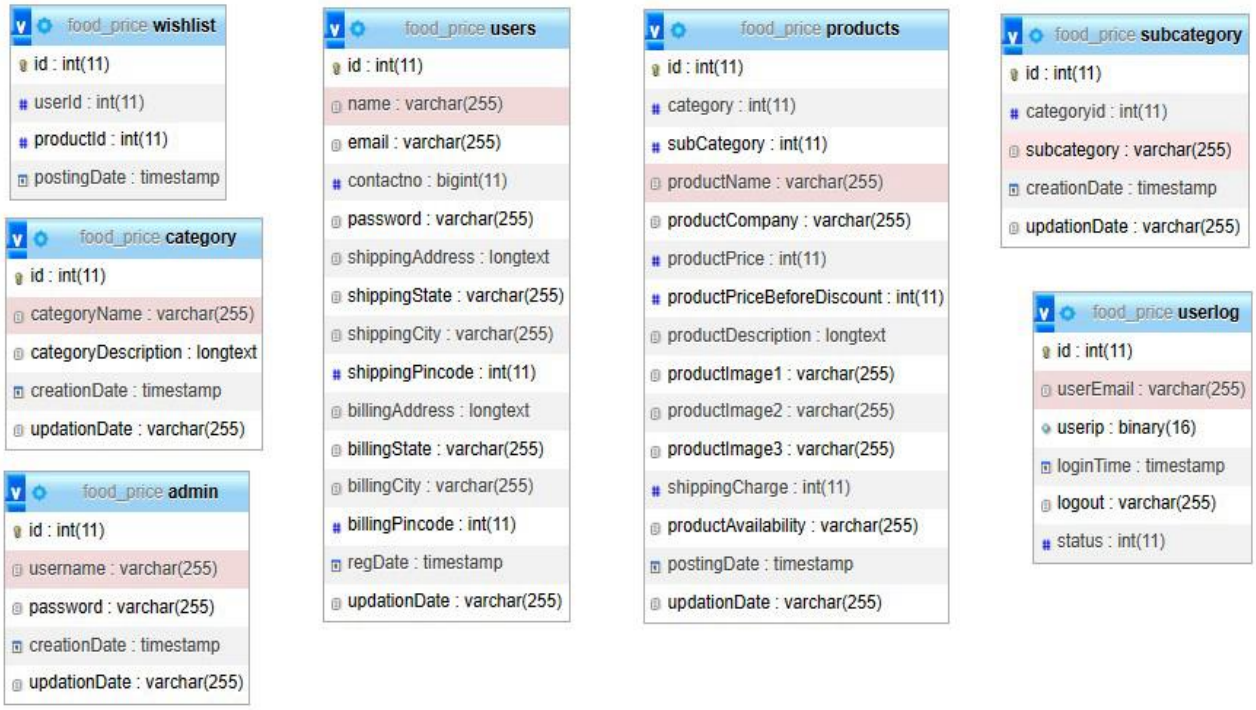
# VII.Gantt Chart:




# VIII.Budget Details:

| Category | Sub-Category | Estimated Cost (BDT) | Details |
|---|---|---|---|
| Website Development | Frontend Design | 40,000 | High-quality design with advanced navigation, animations, and an intuitive user interface. |
| | Backend Development | 80,000 | Advanced admin panels, secure user authentication, and automated price update functionalities. |
| | Responsive Design | 15,000 | Fully optimized for all screen sizes, including tablets and smartphones. |
| | Hosting and Domain | 15,000/year | Premium hosting with high-speed servers, unlimited bandwidth, and enhanced security features. |
| Database Management | Food Product Database Setup | 40,000 | Comprehensive database for storing food product information, prices, and district-specific details. |
| | District-Level Price Integration | 30,000 | Integration of price data for 64 districts with date-specific price trends and search functionality. |
| | Data Backup and Recovery | 20,000 | Cloud-based daily backups and disaster recovery systems. |
| Security | Admin-Level Security | 25,000 | Multi-factor authentication (MFA), IP restrictions, and role-based access control for admins. |
| | Data Encryption | 20,000 | AES-256 encryption for user complaints, login credentials, and sensitive data. |
| | Firewall & DDoS Protection | 15,000/year | Protecting the website from cyber threats and unauthorized access. |
| | SSL Certificate | 8,000/year | High-level encryption for secure transactions and data exchanges. |
| Marketing & Promotion | Digital Advertising | 30,000 | Social media, Google Ads, and district-specific campaigns to attract users. |
| | SEO Optimization | 10,000 | Advanced SEO strategies, including keyword targeting and content optimization. |
| | Content Marketing | 10,000 | Creating blogs, articles, and videos to drive traffic and educate users. |
| | Email and SMS Campaigns | 8,000 | Automated notifications, updates, and promotional offers to users. |
| Maintenance & Updates | Monthly Updates | 30,000/year | Updating food prices, complaint handling, and feature enhancements. |
| | Customer Support | 18,000/year | Dedicated support team to manage user complaints and queries. |
| | Technical Support | 20,000/year | Monitoring performance, fixing bugs, and ensuring 99.9% uptime. |
| Additional Features | Complaint Management System | 40,000 | Advanced complaint filing, tracking, and resolution systems with analytics. |
| | Analytics and Reporting Tools | 30,000 | Detailed reporting tools for tracking price trends, complaint stats, and user behavior. |
| | AI-Based Price Prediction | 50,000 | AI integration to predict future price trends based on historical data. |
| Scalability & Advanced Tools | Mobile App Development | 80,000 | A mobile application for users to view prices, file complaints, and get notifications. |
| | Multilingual Support | 15,000 | Website and app support for both Bangla and English to reach a wider audience. |
| | Cloud Integration | 30,000/year | Hosting databases and backups on cloud services like AWS or Google Cloud for scalability. |
| | API Development | 25,000 | APIs for integration with third-party systems, e.g., government databases or e-commerce platforms. |
| Training & Workshops | Admin Training Sessions | 15,000 | Training sessions for admins to efficiently update prices and handle complaints. |
| | User Education Campaigns | 10,000 | Teaching users how to use the website/app effectively. |
| | | | |
| | **Total budget** | **749000/= Tk** | |

## IX.My_SQL :




## 1.3 Intended Audience and Reading Suggestions:

This document is intended for:

-All citizens of Bangladesh

## 1.4 Project Scope:

The project aims to provide a platform where users can view food prices, submit complaints, and admins can securely update the food list and prices. It will cover all 64 districts of Bangladesh, with prices categorized weekly, monthly, and yearly. It will be beneficial to monitor the time-to-time price variations in different areas.

## 1.5 References:

Though it is solely our own idea, we researched and found some related websites that helped us enrich the scope of our project.

Here are the links to the websites we've gone through:

- https://www.foodsecurityportal.org/tools/food-price-monitor
- https://www.usda.gov/topics/food-supply-chain

# 2. Overall Description:

## 2.1 Product Perspective:

The website will display a comprehensive list of food prices, organized by district and time period. Users will have the ability to view price changes and submit complaints, while admins will be able to log in and update the prices.

## 2.2 Product Features:

1. Food Price Tracking: View real-time and historical food prices for all 64 districts of Bangladesh.
2. Price Update by Admins: Admins can add or update food prices, including validity periods.
3. User Complaint System: Users can file complaints with detailed information about specific food items.
4. Historical Price Reports: Users can view price trends over weekly, monthly, and yearly periods.
5. District-Based Navigation: Users can select a district to see its specific product price details.
6. Search and Filter: Search for food items by name, category, or district.
7. User Authentication: Separate login systems for Admins and Users.
8. Responsive Design: Accessible on desktop, tablet, and mobile devices.

## 2.3 User Classes and Characteristics:

### a. General Public (End Users):

These are everyday users, such as consumers, who visit the website to view food prices across districts.

Characteristics: • Varying levels of technical knowledge, from novice to

experienced.

- Need a simple and easy-to-use interface.
- Likely to access the website through smartphones, tablets, or computers.
- Interested in accurate, real-time data.

### b. Administrators:

Government officials or authorized personnel & local representatives in the 64 districts who input price data regularly to manage and update food price data.

Characteristics:

- Technical knowledge about the backend system.
- Requires a secure, restricted interface for updating data.
- Needs to handle bulk updates efficiently.

## 2.4 Operating Environment:

### Frontend:

Compatible with all modern browsers (Google Chrome, Firefox, Microsoft Edge).

Responsive design optimized for mobile (Android/iOS), tablet, and desktop.

### Backend:

Hosted on a cloud server (e.g., AWS, Azure, or local hosting).

Developed using PHP or Python-based frameworks like Django/Laravel.

### Database:

MySQL or PostgreSQL for structured data storage.

### Operating Systems Supported:

Linux and Windows servers for backend.

### User devices:

Any OS with a modern browser.

## 2.5 Design and Implementation Constraints:

1. Internet Dependency: Requires a stable internet connection for real-time price updates.
2. Admin Restrictions: Only verified admins can access the admin portal; multi-factor authentication required.
3. Database Size: Must handle large-scale data, including food prices, user complaints, and historical records.
4. Regulatory Compliance: Must comply with local data protection laws in Bangladesh.
5. Performance: Must handle high traffic, especially during peak times (e.g., holidays, market fluctuations).
6. Language Support: Primary interface in Bengali and English.

## 2.6 Assumptions and Dependencies:

### Dependencies:

The website relies on accurate market data from third-party sources or manual admin input.
Server uptime should be 99.9% to avoid disruptions.

### Assumptions:

Users have basic knowledge of web navigation.
Complaints filed by users are genuine and follow a verification process.
Admins are trained to use the admin portal effectively.

# 3. System Features:

## 3.1 Functional Requirements:

### a. Price Display by District:

Function: Display current food prices for each of the 64 districts in Bangladesh.

Details:

- Users should be able to select a district and view a list of food items along with their prices.

### b. Real-Time Data Updates:

Function: Ensure food price data is updated regularly.

Details:

. Administrators or Data Entry Operators should be able to input or update prices in real-time or periodically.

.The system must validate data for accuracy and prevent duplicate entries.

### c. User Authentication and Authorization:

Function: Control access to different areas of the website.

Details:

- Public users do not need to log in to view prices.
- Administrators and Data Entry Operators require login credentials to update data.
- Role-based access: only authorized personnel can update district-wise data.

### d. Mobile-Friendly Interface:

Function: Ensure the website is responsive.

Details:

- The site should work smoothly on mobile devices, with easy navigation and viewing of prices.
- These are the core components that will guide the development and usability of the Food Price Control Website.

## 4. External Interface Requirements:

### 4.1 User Interfaces:

1. Home Page

• Features:

• Displays the website name and primary purpose.

• Includes login options for User roles.

• A navigation menu for quick access to different sections, including districts, food categories, and complaints.

• Highlights important updates or announcements (e.g., new features, major price changes).

2. Admin Interface

- Login Page:
- Requires username, password.
- Restricted access to verified admins only.
- Dashboard:
- Displays options to update prices and view historical data.
- Filters to select districts and specific food categories for price updates.
- Price Update Form:
- Fields to enter product name, updated price, and last updated timestamp.
- Option to upload relevant product images.

3. User Interface

- Login Page:
- Requires basic authentication (username and password).
- Option to create a new account.
- Product Price Page:
- Dropdown menus to select district .
- Displays food prices with associated images, last updated timestamp.
- Dropdown or select option to select specific food items.

## 4.2 Software Interfaces:

Well understood and mature technologies such as PHP,CSS, Bootstrap, JavaScript, backend technologies (PHP), and databases like MySQL will likely be used.

### 4.3 Communications Interfaces:

### 1. Client-Server Communication:

• The website will use HTTP protocol to ensure secure communication between the client (browser) and server.

• APIs will be utilized for real-time updates of food prices and retrieving historical data.

### 2. Database Communication:

• Backend systems will communicate with a MySQL database to store and retrieve data such as food prices, user and admin details , and admin updates.

• Use of SQL queries for efficient database operations.

### 3. Error Reporting:

• Real-time error logging and reporting system to notify admins or developers about communication issues.

• Logs stored securely and accessible only to authorized personnel.

## 5. Nonfunctional Requirements:

### 5.1 Performance Requirements

### 1. Response Time:

• The website should load within 3 seconds for users.

• Admin price updates should reflect within 5 seconds.

### 2. Concurrent Users:

• Must support 5000 simultaneous user requests without degradation in performance.

### 3. Data Query Time:

• Historical price reports should be generated within 10 seconds.

### 4. Scalability:

• Should accommodate a growing database and increasing user base.

## 5.2 Safety Requirements:

### 1. Admin Login Security

• Multi-Factor Authentication (MFA): Admins must verify identity with a password and an OTP sent via email or SMS.

• Use tools like Google Authenticator.

• Restrict login to authorized personnel only.

### 2. Data Encryption

• Encrypt sensitive user data (e.g., names, complaints) using AES-256 (Advanced Encryption standard - 256 bit)

• Use TLS (Transport Layer Security) for secure communication between the website and server.

• Passwords stored with hashing algorithms like crypt.

### 3. Secure Database

• Use a trusted DBMS like MySQL.

• Implement role-based access control (RBAC):

• Admin: Read/write access.

• Users: Read-only access.

• Prevent SQL injection with prepared statements and parameterized queries.

• Encrypt database backups and limit access to authorized users.

## 5.3 Security Requirements:

• Use firewalls to block unauthorized database access.

• Maintain activity logs for suspicious behavior monitoring.

• Regularly update all software and systems to fix vulnerabilities.

## 5.4 Software Quality Attributes

### 1. Reliability:

- The system must maintain 99.9% uptime.

### 2. Usability:

- Intuitive interface for both users and admins with minimal learning curve.

### 3. Security:

- Use HTTPS for secure data transmission.
- Encrypt sensitive user data (e.g., complaints, personal details).

### 4. Maintainability:

- Modular design to facilitate updates and debugging.

### 5. Portability:

- Compatible across multiple devices and operating systems.

### 6. Scalability:

- The architecture must support future expansions (e.g., new districts or food categories).