Proof of Concept

DLithe

Be Agile..Be in Demand

Online Grocery Store

Technological requirements: JSP, JDBC, HTML, CSS, JS, AJAX, MYSQL

System Purpose and Scope:

- Offer customers a convenient and efficient platform to purchase groceries and household items from their homes.
- The application will bridge the gap between traditional grocery shopping and e-commerce by providing a seamless online experience.
- The search and browse functionality will allow users to find groceries and household items by name or category.
- Responsive grocery delivery web application with user accounts, search/browse, cart management, secure checkout, and order tracking.

Functional Requirements:

1. **User Management:**

- Users can register for an account with a username, password, and email address.

- Users can login to their account using their username or email address and password.
- Edit their account information, including billing and shipping addresses.

2. Product Search and Browse:

- Users can search for products by name using a search bar.
- Users can browse products by category through a navigation menu.
- Search results and browse listings shall display relevant product information such as name, image, price, and unit size.

3. Shopping Cart Management:

- Add products to their shopping cart.
- View the contents of their shopping cart, including product information, quantity, and total price.
- Able to modify the quantity of items in their cart.
- Remove items from their cart.

4. Checkout Process:

- Proceed to checkout from their shopping cart.
- During checkout, users are able to select a preferred billing address from their saved addresses or enter a new one.
- The checkout process shall offer secure payment processing.

- Receive a confirmation email with order details.

5. **Order Tracking and History:**

- Able to view a list of their past orders.
- Order history and displays details such as order date, order number, total amount, and items ordered.
- Able to track the delivery status of their current orders.

Non-Functional Requirements:

1. **Usability:**

- Search results and product listings shall be clear and concise, allowing users to find desired items quickly.
- Navigation: The website shall provide an intuitive and user-friendly navigation structure, enabling users to access different sections (e.g., categories, cart, account) with minimal effort.
- Responsiveness: The website shall be fully responsive, ensuring a seamless user experience across various devices, including desktops, tablets, and smartphones.

2. **Performance:**

- Load Time: The website shall load within 3 seconds for 95% of users under normal operating conditions.
- Scalability: The system shall handle a high number of concurrent users (e.g., 10,000) during peak hours without performance degradation.
- Search Speed: Search queries shall return results within 2 seconds.

3. **Reliability:**

- Uptime: The website shall have an uptime of 99.9%, ensuring availability throughout the year.
- Error Handling: The system shall provide meaningful error messages and gracefully handle unexpected issues without crashing.
- Data Consistency: The system shall ensure data consistency across all transactions, reflecting accurate stock levels and order statuses.

4. **Security:**

- Data Protection: The system shall protect user data through encryption (e.g., SSL/TLS for data in transit, AES for data at rest).

- User Authentication: The system shall implement secure authentication mechanisms, including multi-factor authentication for sensitive operations.
- Compliance: The system shall comply with relevant data protection regulations (e.g., GDPR, CCPA).

5. **Maintainability:**

- Code Quality: The system shall adhere to coding standards and best practices, facilitating easy maintenance and updates.
- Documentation: The system shall include comprehensive documentation for developers and administrators, covering architecture, deployment, and troubleshooting.
- Modularity: The system shall be modular, allowing individual components to be updated or replaced without affecting the entire system.

6. **Portability:**

- Browser Compatibility: The website shall be compatible with all major web browsers (e.g., Chrome, Firefox, Safari, Edge).
- Deployment Flexibility: The system shall be deployable on various cloud platforms (e.g., AWS, Azure, Google Cloud) and on-premises environments.

7. Efficiency:

- Resource Utilization: The system shall efficiently utilize server resources, optimizing CPU, memory, and network usage.
- Batch Processing: The system shall support efficient batch processing for tasks like inventory updates and report generation.