

Online Bakery Shop System

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ABSTRACT

The Online Bakery Shop is a web-based application developed to simplify the process of browsing and purchasing bakery-related products in a structured and user-friendly manner. Traditional shopping methods for bakery items often involve limited accessibility and manual effort. This system offers an organized digital platform that enhances customer convenience and streamlines product management for administrators.

The project is divided into two main modules: Admin and User. The admin module includes submodules for adding brands, categories, and products. While adding a new product, the admin selects its brand and category, and enters relevant details such as product name, image, and MRP. Each product, brand, and category is assigned a unique ID and displayed clearly in the admin list views. The admin can also view orders placed by users once they are received by the system.

The User module allows customers to view products directly or explore them by brand (e.g., Amul, Britannia, Parle) or by category (e.g., Milk Products, Cakes, Sweets, Rusk). Dedicated pages are available for all products, all categories, and all brands. Users can view product details, select quantity, add items to the cart, or use the 'Buy Now' option to place orders. Customers can also view their order history, including the date and time of the order, product details, payment method (e.g., UPI, card), and total amount paid.

With a simple interface and centralized management, the Online Bakery Shop ensures ease of access and efficiency in online ordering. The project focuses on functionality and clarity, making it suitable for diploma-level academic implementation. By digitizing the ordering process, this system reduces manual work, improves accessibility, and provides a convenient solution for both customers and administrators.

1. INTRODUCTION

The Online Bakery Shop is a technological opportunity for bakery product businesses and small-scale sellers seeking a simple, structured, and user-friendly alternative to the traditional physical store-based approach of selling products. It offers a digital solution that organizes products by brand and category, helping users easily browse and order items online. Like any other software, the system comes with certain advantages and disadvantages.

The software application streamlines the process of managing and ordering bakery-related items through a clean interface and a centralized product database. It provides administrators with control over adding and managing products, brands, and categories using unique IDs, while also allowing them to track customer orders after they are received by the system. Product details such as name, image, MRP, category, and brand are entered by the admin during product creation.

For customers, the system allows them to browse products directly or filter by specific brands (like Amul, Parle, Britannia) and categories (like Milk Products, Cakes, Sweets, Rusk). Users can securely log in, view product details, choose quantity, and either add items to the cart or proceed with immediate purchase using the 'Buy Now' option. The system also allows users to view their order history, including time and date of order, payment method (e.g., UPI or card), product image, name, quantity, and total amount paid.

The software brings ease and clarity to the traditional bakery shopping experience by offering structured product listings and clear customer interaction. One of the main purposes of the system is to present bakery items and allow order placement in a simple, accurate, and accessible way for users, while reducing the manual work of administrators.

2. MODULES OF THE SYSTEM

Student Result management system (SRMS) divided in two modules–

- i. User
- ii. Admin

Admin Features-

- Admin Dashboard
- Admin can add/update/delete Brand
- Admin can add/update/delete Category
- Admin can add/update/delete Product
- Admin selects category and brand while adding a new product
- Admin can view list of products along with unique Product ID, Brand ID, and Category ID
- Admin can view orders placed by users
- Admin can view basic order details like product, quantity, and payment method

User Features-

- User Registration and Login.
- User can view all products
- User can browse products by Brand (e.g., Amul, Parle, Britannia).
- User can browse products by Category (e.g., Cakes, Sweets, Rusk, Milk Products).
- User can view product details including image, MRP, and available quantity
- User can select quantity before adding product to cart
- User can add products to cart or use 'Buy Now' for quick purchase
- User can view their cart and manage items
- User can view order history including product details, payment method, date, and time
- User can view total amount paid for each order

3. LITERATURE SURVEY

According to Laudon & Traver (2018), e-commerce has significantly reshaped how businesses operate by providing a digital platform for showcasing products, managing transactions, and interacting with customers. The rise of online shopping systems has made it essential for businesses, especially retail-oriented ones like bakeries, to adopt digital methods for selling products and handling customer orders. These systems are not only more accessible but also more efficient compared to traditional physical stores.

Gupta and Kohli (2006) explain that the adoption of web-based systems in small businesses helps streamline operations by providing centralized management for inventory, orders, and customer information. In a bakery-focused context, this means better control over product listings, categories, and brand-based organization — making it easier for both the admin and the customer to interact with the system effectively.

According to Turban et al. (2015), online platforms also improve customer experience by offering a user-friendly interface, product filtering options, and the ability to view detailed product information before purchasing. In the case of bakery-related products, this translates to customers being able to browse sweets, cakes, rusks, or milk-based products conveniently from their devices, select quantity, and place orders with minimal steps.

Bhatti (2020) notes that while advanced automation and security features can enhance online systems, simplicity and usability should remain a priority, especially for small businesses or educational-level projects. This aligns with the approach taken in the Online Bakery Shop system — where the focus is on a clean layout, brand and category navigation, and straightforward order handling, rather than high-end commercial features.

Furthermore, Singh & Sharma (2017) state that in local business environments, implementing basic e-commerce platforms helps bridge the gap between manual selling and digital transformation. This is particularly important in areas where bakery businesses still rely on handwritten records or spreadsheets for stock and sales management. A structured system like the Online Bakery Shop can significantly improve organization, reduce effort, and enhance customer satisfaction.

The reviewed literature clearly shows the growing relevance and effectiveness of simple web-based platforms in modern retail. The Online Bakery Shop project fits within this evolving landscape by offering a tailored, easy-to-use system for managing and browsing bakery products in a categorized and brand-specific manner.

4. SCOPE OF THE PROJECT

The study aims at developing and implementing a web-based Online Bakery Shop system for small businesses or educational use, especially where digital solutions are still underutilized. This project replaces traditional manual product listing and order tracking processes, providing a more structured and user-friendly platform. The proposed system is a multi-user web application developed using the Java programming language, with NetBeans IDE for development and MySQL as the database management system. The system is divided into two main modules: Admin and User (Customer).

The Admin module provides complete control over the system. Admins can add, update, and manage product categories, brands, and product listings, as well as view and manage customer orders. On the other hand, users (customers) can browse products by category or brand, add items to their cart, view product details, select quantities, and proceed to place an order. Customers also have access to view their previous orders, payment methods, and order-related information. The system ensures that users can only interact with the customer-facing features and cannot make any changes to the backend data. Overall, the project demonstrates how simple digital tools can improve the efficiency, clarity, and accessibility of product management and online ordering.

5. METHODOLOGY

The development of the Online Bakery Shop project follows a structured object-oriented approach. The system design begins with the use of Unified Modeling Language (UML) diagrams such as class diagrams and use case diagrams to outline the system's logic and structure. For database design, Entity-Relationship Diagrams (ERDs) are used to define the relationship between entities like products, brands, categories, users, and orders. Proper normalization is applied to reduce redundancy and improve data consistency.

The entire application is developed using the Java programming language and executed in NetBeans IDE. Java provides a robust platform for developing desktop-based and web-connected applications. The system uses MySQL as the database management system, and connectivity between the application and database is handled

using JDBC (Java Database Connectivity). The front end is built using basic HTML and Java Swing components to provide a clean and user-friendly interface. This methodology ensures a responsive and organized system that is efficient and suitable for a diploma-level final year project.

6. IMPLEMENTATION

Several open source tools, Programming Languages and Database have been used here to complement and improve this system.

- i. NetBeans (NetBeans IDE 8.2
- ii. Browser: Chrome or any

DATABASE

MySQL, is an open-source relational database management system used for storing data.

PROGRAMMING LANGUAGE

- i. CSS, Cascading Style Sheets is a style sheet language used for describing the presentation of a document written in a markup language like HTML.
- ii. HTML, Hypertext Markup Language is the standard markup language for documents designed to be displayed in a web browser.
- iii. Bootstrap, contains CSS- and JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components.
- iv. Java, hypertext preprocessor is used for backend development
- v. JavaScript, Used for Animations and login authentication and session management. ix. Some online 3rd party resources are used to get the job done.

7. CONCLUSION

The Online Bakery Shop System is designed to simplify and modernize the process of browsing, selecting, and purchasing bakery products online. The system offers a more structured and efficient way for the admin to manage products, categories, brands, and orders, while customers can conveniently browse items, add them to the cart, select quantities, and place orders using available payment methods. This shift from traditional manual methods to a digital platform helps save time, reduce human errors, and enhance customer experience.

The system ensures ease of use through a user-friendly interface and provides secure access for both admin and users. It reduces administrative workload by allowing centralized product and order management. As a diploma-level project, it demonstrates core principles of software development using Java and NetBeans and highlights key functionalities expected from a basic e-commerce platform tailored for a bakery product environment.

Future Enhancements may include:

- Improved interface design for smoother navigation.
- Integration of product search and filtering options.
- Adding more detailed customer order history and tracking features.
- Allowing image optimization for faster product loading on low-speed internet.
- Option to add more roles like delivery staff for better order flow management.

- Adding promotional features like discount codes or featured product sections.

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