

# **HOME BAKED DELIVERY SYSTEM**

## **PROJECT REPORT**

*Submitted in fulfilment for the Course Project of UBCA301L – Full Stack Application Development*

*in*

**B.C.A**

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**SCORE**



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(Deemed to be University under section 3 of UGC Act, 1956)

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## **PROBLEM STATEMENT:**

In today's digital age, customers increasingly rely on online platforms for purchasing food and bakery products. However, many small and medium-scale bakeries still operate using traditional, manual methods of order-taking and customer management. This approach often results in inefficiency, limited accessibility, and poor customer experience.

Customers must physically visit the bakery or rely on phone calls or messaging apps to place their orders. This manual process leads to miscommunication, delayed responses, and order inaccuracies, especially during peak hours. Furthermore, without an online presence, bakeries miss out on potential customers who prefer convenient online browsing and ordering options.

From a management perspective, maintaining paper-based order records or handling customer requests manually can lead to data loss, duplication, and difficulties in tracking sales and customer preferences. There is also no systematic way to display product details, categorize items, or manage pricing dynamically.

In addition, customers have limited visibility into the range of available products, ongoing offers, or ingredient details, which restricts their ability to make informed choices. In a competitive marketplace, this lack of accessibility and convenience can significantly affect a bakery's customer retention and growth.

Therefore, there is a strong need for a digital solution that provides a user-friendly, responsive web platform allowing customers to easily browse bakery items, place orders, and receive confirmation instantly. The proposed system should also allow the bakery to manage products, track orders, and maintain customer data efficiently in a centralized database.

By addressing these challenges, the project HomeBaked aims to bridge the gap between traditional bakery operations and modern e-commerce standards, ensuring smoother workflows, enhanced customer satisfaction, and improved business efficiency.

## **SYSTEM DESIGN:**

The HomeBaked system has been designed using a modular and layered architecture that ensures flexibility, scalability, and ease of maintenance. It integrates both the frontend user interface and the backend server-side processing to deliver a seamless online ordering experience for customers and efficient data handling for the bakery administrators.

### **Overview:**

The system follows the Client–Server Architecture, where:

The frontend (client side) is responsible for interacting with the users.

The backend (server side) handles business logic, database operations, and communication with the frontend.

This architecture ensures clear separation of concerns, improves performance, and allows for future scalability such as mobile app integration.

### **System Components:**

The HomeBaked system consists of the following major components:

#### **1. Frontend (User Interface)**

Technology Used: React.js

The frontend provides an intuitive, responsive, and user-friendly interface.

It allows customers to:

- Browse and view bakery products with images, descriptions, and prices.

- Add or remove items from the shopping cart.
- Enter customer details and place orders through a checkout form.
- View order confirmation and details after successful placement.
- The frontend communicates with the backend using HTTP requests (via Fetch API).

## **2. Backend (Application Server)**

Technology Used: Node.js with Express.js framework

The backend manages the application's business logic and handles client requests.

Key responsibilities include:

- Processing and validating customer order data.
- Generating a unique Order ID for each purchase.
- Communicating with the database to store and retrieve order information.
- Sending responses back to the frontend for order confirmation.

## **3. Database Layer**

Technology Used: MongoDB (NoSQL database)

The database stores all critical information such as:

- Customer details (name, phone number, address).

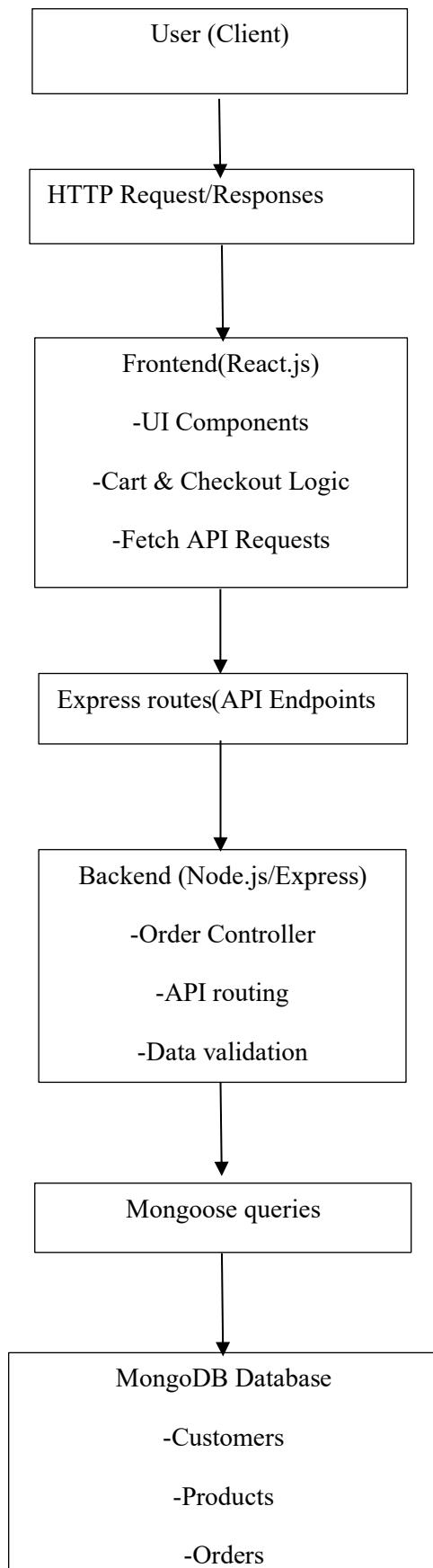
- Product information (name, price, image, description).
- Order details (order ID, items, payment method, total amount, timestamps).
- MongoDB provides a flexible schema, making it easy to store JSON-like documents.

The backend connects to MongoDB using Mongoose ODM for efficient data operations.

#### **Data Flow Diagram (Conceptual Flow):**

- ❖ Step 1: The customer visits the HomeBaked website and browses products displayed on the frontend.
- ❖ Step 2: Selected products are added to the cart for checkout.
- ❖ Step 3: The customer fills out their details and submits the order form.
- ❖ Step 4: The frontend sends the order data to the backend via an HTTP POST request.
- ❖ Step 5: The backend validates the data, generates an order ID, and stores it in MongoDB.
- ❖ Step 6: The backend sends a success response to the frontend with the order details.
- ❖ Step 7: The frontend displays the Order Confirmation Page showing all customer and order information.

## System Architecture Diagram (Description):



## **Advantages of the Design:**

- Modular and Scalable: Each layer (frontend, backend, database) can be updated independently.
- Secure: Sensitive data like customer details and payment info are securely handled.
- Efficient Communication: Uses RESTful APIs for fast and lightweight data exchange.
- Responsive Design: Ensures compatibility across desktops, tablets, and mobile devices.
- Maintainable Codebase: Clear separation of concerns allows easier debugging and enhancement.

## **Software Requirement Specifications:**

### **1. Introduction**

#### **1.1 Purpose**

The purpose of this Software Requirement Specification (SRS) document is to define the requirements for the HomeBaked web application — an online platform that allows customers to browse, select, and order bakery products from the comfort of their homes.

This document describes both the functional and non-functional requirements, detailing the system's behavior, features, and constraints.

#### **1.2 Scope**

The HomeBaked system provides a digital platform for customers to easily explore available bakery items, place customized orders, and receive real-time order confirmations.

The system also assists the bakery management by storing all order details, customer information, and transaction history in a centralized database.

## Key Features:

- Browse a variety of bakery items with details (name, image, description, and price).
- Add and remove items from the cart dynamically.
- Provide delivery details through an intuitive checkout form.
- Place orders online and receive confirmation with an order ID.
- Manage all customer orders through a connected backend database (MongoDB).

## 1.3 Objectives

The objectives of HomeBaked include:

- To simplify the process of ordering bakery products online.
- To create a responsive, user-friendly, and visually appealing web application.
- To ensure secure and efficient data management using a modern backend framework.
- To enhance customer satisfaction through a reliable and fast online experience.

## 1.4 Definitions, Acronyms, and Abbreviations

- ❖ Term      Description
- ❖ UI        User Interface
- ❖ API       Application Programming Interface
- ❖ DB         Database
- ❖ SRS       Software Requirement Specification
- ❖ CRUD      Create, Read, Update, Delete
- ❖ JSON      JavaScript Object Notation
- ❖ MERN     MongoDB, Express.js, React.js, Node.js

## **2. Overall Description**

### **2.1 Product Perspective**

HomeBaked is a web-based application built using the MERN stack.

It follows a client-server architecture, where:

- The frontend (React.js) handles user interactions.
- The backend (Node.js + Express.js) processes business logic and communicates with the database.
- The database (MongoDB) stores order and customer details.

### **2.2 Product Functions**

The major functions of the system include:

- Displaying bakery items dynamically on the homepage and menu page.
- Enabling users to add selected items to the shopping cart.
- Allowing users to enter delivery details and payment preferences at checkout.
- Saving the order details into MongoDB.
- Generating a unique order ID for each purchase.
- Displaying an order confirmation page with all relevant order details.

### **2.3 User Characteristics**

Customer:

- Non-technical end-users who browse and order bakery items online.
- Requires a simple, intuitive interface and responsive design.

Administrator (Bakery Owner):

- Responsible for viewing and managing customer orders in the database.
- Requires reliable backend access for monitoring and record-keeping.

## **2.4 Constraints**

- The system depends on internet connectivity for operation.
- The backend must be running for data to be saved in MongoDB.
- The application should be hosted on a server that supports Node.js.
- Data storage and retrieval are limited by MongoDB database capacity.

## **2.5 Assumptions and Dependencies**

- Users have a modern web browser (Chrome, Firefox, Edge).
- MongoDB service must be active for database connectivity.
- Node.js and npm must be properly configured on the server.
- Proper API communication between frontend and backend is required.

# **3. Specific Requirements**

## **3.1 Functional Requirements**

- ❖ ID      Requirement Description
- ❖ FR1     The system shall allow users to view all available bakery items.
- ❖ FR2     The system shall allow users to add or remove items from the shopping cart.
- ❖ FR3     The system shall allow users to enter personal and delivery information.
- ❖ FR4     The system shall generate a unique order ID for each placed order.
- ❖ FR5     The system shall store order details in MongoDB.
- ❖ FR6     The system shall send confirmation details to the frontend.
- ❖ FR7     The system shall display an order confirmation page after successful order placement.

## **3.2 Non-Functional Requirements**

- ❖ ID      Requirement Description
- ❖ NFR1    Performance: The system must load product pages within 3 seconds.
- ❖ NFR2    Security: Customer data must be transmitted securely between client and server.

- ❖ NFR3 Usability: The interface must be simple, responsive, and intuitive.
- ❖ NFR4 Reliability: The system must handle concurrent users without crashes.
- ❖ NFR5 Scalability: The backend should allow integration of new features such as admin login or payment gateway.
- ❖ NFR6 Availability: The application should remain operational 24/7 when hosted online.

### **3.3 Hardware Requirements**

- ❖ Component Minimum Requirement
- ❖ Processor Intel Core i3 or higher
- ❖ RAM 4 GB or above
- ❖ Storage 500 MB (for project files and MongoDB data)
- ❖ Display 1366 × 768 resolution minimum

### **3.4 Software Requirements**

- ❖ Software Description
- ❖ Operating System Windows 10 / Linux / macOS
- ❖ Frontend Framework React.js
- ❖ Backend Framework Node.js with Express.js
- ❖ Database MongoDB
- ❖ Development Tools Visual Studio Code, MongoDB Compass
- ❖ Browser Google Chrome / Mozilla Firefox
- ❖ Package Manager npm (Node Package Manager)

## **4. Conclusion**

The HomeBaked system provides a complete and efficient solution for digitalizing traditional bakery operations. It simplifies the customer experience, enhances order management, and promotes business growth through technology. This SRS defines all key requirements to ensure that the system is robust, reliable, and user-centric, aligning with modern e-commerce standards.

# IMPLEMENTATION

## 4.1 Source code

<https://drive.google.com/file/d/1kcVnSOgz66JWjKQxxNZabgML4jFAQxGn/view?usp=sharing>

## 4.2 Screenshot

### 4.2.1 Frontend

#### Home:

The screenshot shows the homepage of the HomeBaked website. At the top, there is a navigation bar with links for "HomeBaked", "Menu", "About", and "Cart (0)". Below the navigation bar, the main heading "Welcome to HomeBaked" is displayed in a large, bold font. A descriptive paragraph follows, stating: "Discover the joy of freshly baked cakes, cupcakes, and pastries — all crafted with love, warmth, and natural ingredients. Every bite tells a story of sweetness and care." A red button labeled "Explore Our Menu" with a fork icon is positioned below the text. Below this section, there is a heading "Our Bestsellers" with a small bread icon. Four product cards are shown in a grid:

- Chocolate Fudge Cake**: An image of a dark chocolate cake. Description: "Rich, moist, and topped with silky chocolate ganache." Button: "Add to Cart".
- Vanilla Cupcakes**: An image of several vanilla cupcakes with white frosting and colorful sprinkles. Description: "Soft, fluffy, and perfectly sweet — a timeless favorite." Button: "Add to Cart".
- Raspberry Tart**: An image of a tart topped with fresh raspberries. Description: "Velvety smooth layers of cocoa and cream cheese frosting — pure indulgence." Button: "Add to Cart".
- Cinnamon Swirl Bread**: An image of a loaf of cinnamon swirl bread. Description: "Bursting with fresh Cinnamon — a perfect treat for your mornings." Button: "Add to Cart".

At the bottom of the page, there is a section titled "Health Benefits of Our Ingredients" with a small leaf icon. A small note states: "At HomeBaked, we create desserts that are not only delicious but nourishing. Every ingredient is chosen for its purity and natural goodness."

**HomeBaked**

Menu About Cart (0)

### Health Benefits of Our Ingredients 🌱

At HomeBaked, we create desserts that are not only delicious but nourishing. Every ingredient is chosen for its purity and natural goodness.


**Natural Honey**  
 A sweet, antioxidant-rich alternative to refined sugar.


**Farm-Fresh Eggs**  
 High-quality protein that keeps our cakes moist and rich.


**Whole Wheat Flour**  
 Full of fiber and nutrients — better for your health.


**Pure Cocoa**  
 Loaded with antioxidants and natural energy boosters.

### Our Story ❤️

HomeBaked began in a cozy kitchen with one goal — to share love through the art of baking. What started as a small family passion has now become a trusted name for quality and care. Every cake, muffin, and pastry carries the warmth of home and the joy of pure ingredients.

### Taste the Love in Every Bite ☺

Indulge guilt-free knowing your favorite desserts are baked with care, quality, and wholesome ingredients.

[Order Now](#)

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 123 Sweet Street, Sugar Town  
 Made with ❤️ for bakery lovers

## Menu:

**HomeBaked**

Menu About Cart (0)

### Our Menu

Baked fresh with organic, wholesome ingredients.

Search terms:  All

**Cakes**



**Strawberry Shortcake**  
 ★★★★ (4.5)  
 \$24.00  
[Add to Cart](#)



**Chocolate Fudge Cake**  
 ★★★★ (4.5)  
 \$26.50  
[Add to Cart](#)



**Vanilla Cupcakes**  
 ★★★★ (4.5)  
 \$12.00  
[Add to Cart](#)

**Cookies**



**Classic Chocolate Chip Cookies (6)**  
 ★★★★ (4.5)



**Oatmeal Raisin Cookies (6)**  
 ★★★★ (4.5)

**HomeBaked**

Menu About Cart (0)

**Pastries**



**Butter Croissant**  
 ★★★★ (4.5)  
 \$3.75  
[Add to Cart](#)



**Almond Croissant**  
 ★★★★ (4.5)  
 \$4.25  
[Add to Cart](#)



**Blueberry Danish**  
 ★★★★ (4.5)  
 \$4.25  
[Add to Cart](#)



**Raspberry Tart**  
 ★★★★ (4.5)  
 \$6.75  
[Add to Cart](#)

**Breads**



**Country Sourdough**  
 ★★★★ (4.5)  
 \$7.50  
[Add to Cart](#)



**Baguette**  
 ★★★★ (4.5)  
 \$3.50  
[Add to Cart](#)



**Cinnamon Swirl Bread**  
 ★★★★ (4.5)  
 \$6.25  
[Add to Cart](#)

## About:

The screenshot shows the 'About' page of the HomeBaked website. At the top, there is a navigation bar with links for 'HomeBaked', 'Menu', 'About', and 'Cart (0)'. Below the navigation, there is a section titled 'About HomeBaked' with a paragraph of text and a bulleted list of features: 'Freshly baked daily', 'Organic, high-quality ingredients', and 'Local delivery and pick-up'. To the right of this text is a photograph of various baked goods like bread rolls, croissants, and a tart. At the bottom of the page, there is a copyright notice: '© 2025 HomeBaked. All rights reserved.' followed by 'Made with ❤️ for bakery lovers'.

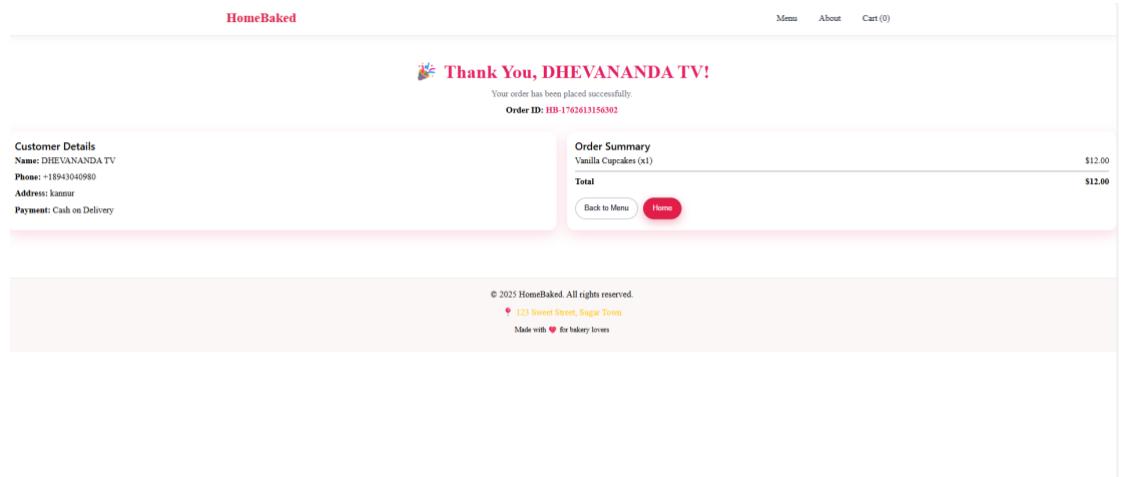
## Cart:

The screenshot shows the 'Cart' page of the HomeBaked website. At the top, there is a navigation bar with links for 'HomeBaked', 'Menu', 'About', and 'Cart (1)'. Below the navigation, there is a section titled 'Your Cart' with a sub-instruction 'Review your goodies before checkout.' A single item is listed: 'Vanilla Cupcakes' at \$12.00 each, quantity 1. There are 'Remove' and 'Proceed to Checkout' buttons. At the bottom of the page, there is a copyright notice: '© 2025 HomeBaked. All rights reserved.' followed by 'Made with ❤️ for bakery lovers'.

## Checkout:

The screenshot shows the 'Checkout' page of the HomeBaked website. At the top, there is a navigation bar with links for 'HomeBaked', 'Menu', 'About', and 'Cart (1)'. Below the navigation, there is a section titled 'Checkout' with a sub-instruction 'Provide your details to place your order.' A form is displayed for entering payment details: 'Full Name\*' (DHEVANANDA TV), 'Phone Number\*' (+18943040980), 'Delivery Address\*' (kennic), 'Message on Cake (optional)' (Happy Birthday!), 'Payment Method' (Cash on Delivery), and a 'Total: \$12.00' summary. A large red 'Submit Order' button is at the bottom. At the very bottom of the page, there is a copyright notice: '© 2025 HomeBaked. All rights reserved.'

## Order confirmation:



### 4.2.2 Backend:

The screenshot shows the MongoDB Compass interface connected to a database named 'homebaked'. The 'orders' collection is selected. The interface includes a sidebar for 'Compass' features like 'My Queries' and 'Data Modeling', and a main area for document management. A search bar at the top allows querying documents. The 'Documents' tab shows 20 results, with a preview of the first document's structure. The document structure is as follows:

```

{
  "_id": ObjectId("690f57a46ce7de4458cad8c"),
  "orderId": "HB-1762613156302",
  "customer": {
    "name": "DHEVANANDA TV",
    "phone": "+91943040980",
    "address": "kannur",
    "paymentMethod": "Cash on Delivery",
    "message": ""
  },
  "items": [
    {
      "name": "Vanilla Cupcakes",
      "quantity": 1,
      "price": 12,
      "lineTotal": 12,
      "image": "/images/products/vanilla-cupcakes.jpg",
      "_id": ObjectId("690f57a46ce7de4458cad8d")
    }
  ],
  "total": 12,
  "createdAt": 2025-11-08T08:06:14.569+00:00,
  "updatedAt": 2025-11-08T08:06:14.569+00:00
}

```