

C-SW311 Software Design and Development

Fall 2025

Project: Customer Relationship Management (CRM) System for Breadfast

The main goal of this project is to design and implement an integrated Customer Relationship Management (CRM) system for Breadfast, a fast-growing food delivery and logistics enterprise. Breadfast manages thousands of daily orders involving fresh bakery items, groceries, and household essentials delivered directly to customers' doors. The system will connect key operational departments such as Customer Support, Sales, Delivery Operations, and Inventory Management, providing a unified platform for efficient order processing, real-time tracking, and data-driven decision making.

The CRM scenario begins when a customer places an order through the Breadfast application or website. Once the order is submitted, it is registered in the CRM with a unique Order ID and timestamp. The system links this order to the customer's unified profile, which consolidates personal information, delivery addresses, payment methods, communication history, and loyalty points. This unified customer view enables Breadfast agents to access complete data from a single screen, ensuring fast, accurate, and personalized support whenever customers interact with the company.

The CRM also incorporates a smart Segmentation Engine that automatically categorizes customers based on multiple criteria. Value-based segmentation identifies high-spending customers and frequent buyers, while behavioral segmentation highlights those who prefer specific categories, such as pastries or dairy. Location-based segmentation divides customers according to delivery zones, helping optimize logistics and marketing efforts. These segments are dynamic, updating automatically as customer behavior or purchase frequency changes over time.

After the order is created and verified, the system routes it to the Order Management module. A centralized Order Dashboard displays all orders in real-time, categorized by their current status: new, preparing, out for delivery, delivered, or cancelled. Staff can easily update an order's lifecycle status, such as changing from 'Accepted' to 'Preparing' or 'Order is on the way.' The CRM synchronizes these updates instantly across departments to minimize communication delays and reduce human error.

Mira Michael
Zeina Shalaan
Maya Shalash
Menna-Tallah Amr

Breadfast's Delivery and Logistics Hub is a core feature of the CRM system. The hub integrates real-time GPS tracking for riders, enabling dispatchers to monitor deliveries and assign new orders based on rider proximity and availability. Each delivery zone is predefined, with time slots that control order volume and prevent overbooking. If a delivery slot reaches its capacity, the system automatically blocks new orders for that zone, ensuring timely deliveries and balanced workload distribution. Rider performance metrics, including delivery punctuality and order count per hour, are continuously tracked and displayed on the management dashboard.

To support data-driven operations, the CRM includes a Sales and Analytics Dashboard that visualizes trends in customer behavior and product performance. Managers can quickly identify best-selling and low-performing products to inform menu planning and inventory decisions. Analytics on delivery speed, cancellation rates, and order frequency help highlight areas for process improvement and customer satisfaction.

The system integrates light ERP capabilities through the Inventory and Supplier Management module. This feature enables tracking of both raw materials and finished goods, generating alerts when stock levels fall below thresholds. The CRM records supplier information and links each supplier to the products they provide, simplifying procurement planning. Additionally, the system generates waste management reports to identify recurring surplus or unsold products, allowing Breadfast to minimize food waste and optimize ordering patterns.

Operational efficiency is enhanced through advanced features like Bulk Actions and Role-Based Access Control (RBAC). Bulk Actions allow administrators to update multiple orders, customers, or notifications simultaneously, reducing repetitive tasks. RBAC defines user permissions according to roles such as Rider, Customer Agent, Manager, and Admin, ensuring data security and clear access boundaries. Real-time dashboards continuously monitor key metrics like delivery delays, out-of-stock frequencies, and rider productivity, empowering managers to identify and resolve operational bottlenecks promptly.

The Breadfast CRM system unifies customer management, order tracking, delivery coordination, and operational analytics under a single, integrated platform. It provides full visibility into the customer journey while maintaining internal efficiency and scalability. This implementation not only improves customer satisfaction and loyalty but also lays the foundation for future expansion into a comprehensive enterprise resource planning (ERP) system.

Mira Michael
Zeina Shalaan
Maya Shalash
Menna-Tallah Amr