

learning, blockchain, and quantum computing, which will shape the next generation of applications and systems.

1.1 PROBLEM STATEMENT

Here are some problems encountered in the management of a bakery in the traditional way

1. Inventory Management Challenges

The bakery faces challenges in tracking inventory, leading to overstocking or understocking of ingredients. This results in wastage, increased costs, and disruptions in production schedules.

2. Order Management Issues

Manual order handling often results in miscommunication, delayed order processing, and errors in fulfilling customer requirements, affecting customer satisfaction and retention.

3. Inefficient Staff Scheduling

The bakery struggles to manage staff schedules effectively, leading to overstaffing during low demand hours and understaffing during peak hours, causing inefficiencies and reduced productivity.

4. Lack of Real-Time Sales Analytics

The absence of a real-time sales tracking system prevents the bakery from identifying bestselling items, understanding customer preferences, and making data-driven decisions to optimize offerings.

5. Poor Customer Relationship Management

The bakery lacks a system to maintain customer data, track loyalty, and manage feedback, leading to missed opportunities for personalized marketing and improved customer engagement.

6. Ineffective Waste Management

The bakery does not have a system to monitor and minimize waste effectively, which contributes to higher operational costs and environmental concerns

7. Difficulty in Menu Updates

The bakery faces challenges in updating its menu for seasonal items, offers, or price changes due to the lack of a centralized, easily modified system.

8. Compliance with Food Safety Standards

Ensuring compliance with food safety regulations is difficult without a proper tracking and reporting mechanism, which could expose the bakery to regulatory risks

