University of the Punjab

Gujranwala Campus

Final Project Proposal :

Online Bakery Management System

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1. Project Overview Statement

Project Title: Online Bakery Management System

Group Leader: Aiman Qamar

Project Members:2

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Project Goal:

The goal of the Online Bakery Management System is to streamline bakery operations by automating order processing, inventory management, and customer engagement.

Objectives:

Sr.#	
1	To Facilitate seamless order placement and processing.
2	To Automate real-time inventory management.
3	To Provide a user-friendly customer interface for easy payment handling.
4	To Enable real-time order tracking for customers.
5	To Send automated email confirmations and updates.
6	To Maintain a customer database for personalized services.

Project Success Criteria:

The project will be considered successful if it enhances customer satisfaction with a streamlined online ordering experience.

Organization Address (if any): University of Punjab, Gujranwala Campus

Type of project: ❑ Research ■ Development

Target End users:

The target users for an online bakery management system are bakery owners/managers for streamlining operations, staff for managing tasks and inventory, and customers for easy ordering and tracking. Each group benefits from tailored features to enhance efficiency and satisfaction.

Development Technology: ■ Object-Oriented-Structured

Platform: ■ Web based ❑ Distributed

❑ Desktop based ❑ Setup Configurations

❑ Other_____

Suggested Project Supervisor:

1.1 Assumptions Risks And Obstacles:

Assumptions:

- Customers have access to the internet and can place orders through the platform.
- The bakery maintains an updated inventory of products available on the system.

- Secure payment gateways and delivery services are already integrated or available.

Risk:

- Risk of customer data breaches or payment fraud.
- Website downtime disrupting order placements.
- Inventory mismatches causing order fulfillment issues.

Obstacles:

- Challenges in ensuring real-time inventory synchronization.
- Managing website performance during high traffic periods.
- Ensuring timely delivery logistics for customer satisfaction.

2. High-level System Components

- Order Management System
- Inventory Management System
- Customer Relationship Management (CRM)
- Payment Processing Module
- Reporting and Analytics
- Notification System
- Administration and User Management

3. List Of Optional Functional Units

Here are **optional functional units** for an Online Bakery Management System that go beyond basic functionality and include HR and other features:

- **Human Resources (HR) Management:**
  Manage employee details, work schedules, payroll, and performance tracking to streamline staff management.
- **Customer Feedback and Review System:**
  Allow customers to provide reviews and feedback on products and services to help improve quality and customer satisfaction.
- **Marketing and Promotions Management:**
  Create, schedule, and track promotional campaigns, discounts, and loyalty programs to attract and retain customers.
- **Event Order Management:**
  Handle large or custom orders for special events like weddings, birthdays, and corporate events, including detailed customization options.

These units enhance the overall functionality and scalability of the system, making it a comprehensive solution for bakery management.

4.Exclusion

- **On-Site Dining Management**

Does not manage seating or dine-in services for customers.

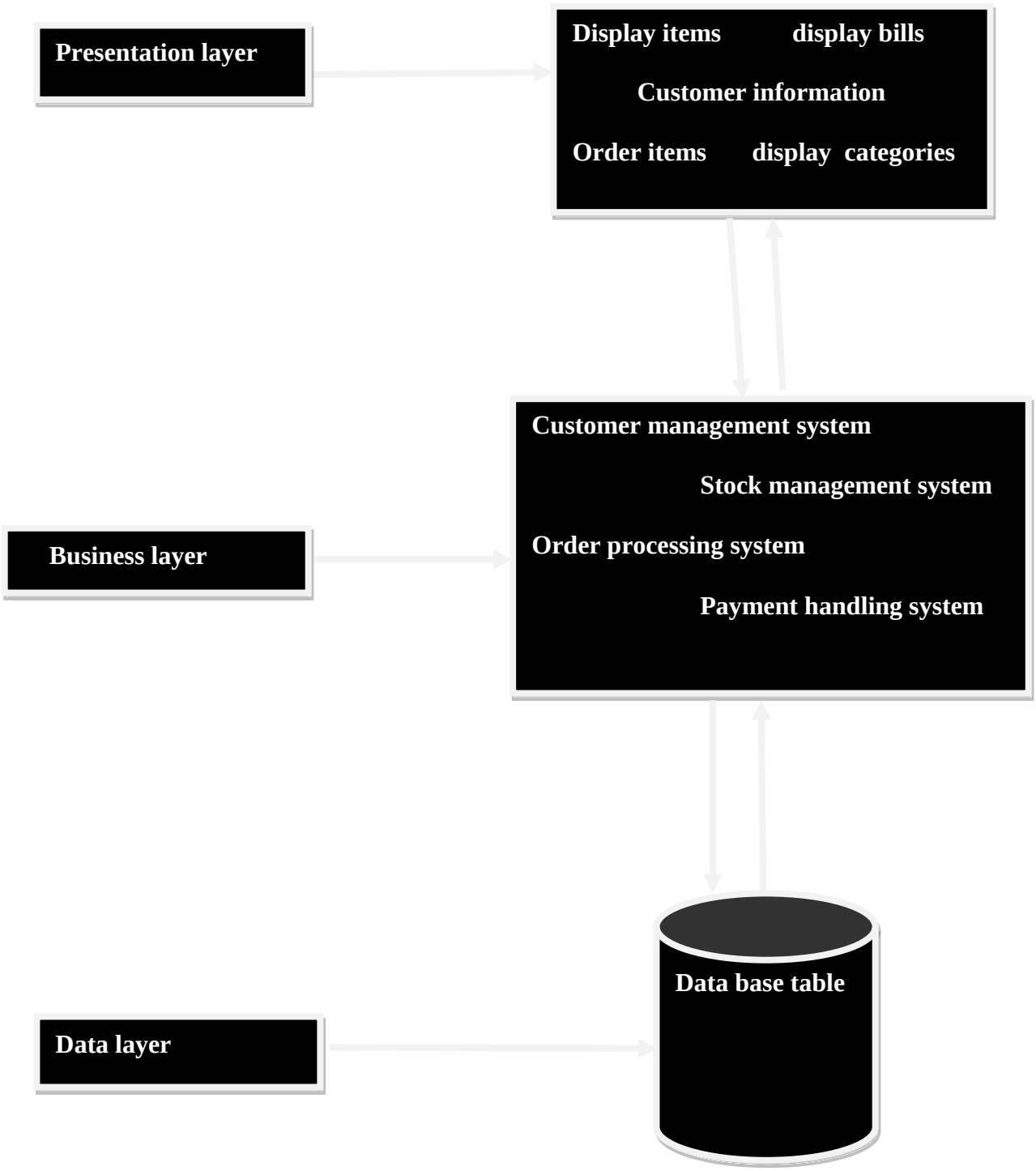
- **Third-Party Delivery Integration** –

May not support integration with external delivery platforms like Uber Eats.

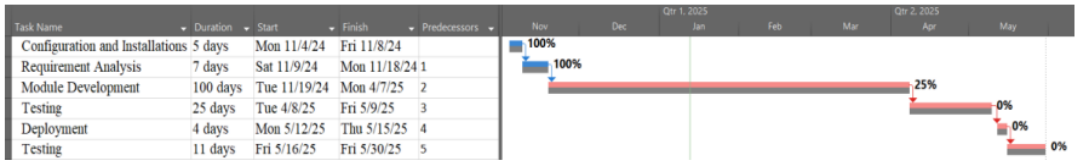
- **Offline Sales Tracking** –

Does not include sales made through physical stores unless manually entered.

5. Application Architecture



6. Gantt chart



Task Name	Duration	Start	Finish	Predecessors
Configuration and Installations	5 days	Mon 11/4/24	Fri 11/8/24	
Requirement Analysis	7 days	Sat 11/9/24	Mon 11/18/24	1
Module Development	100 days	Tue 11/19/24	Mon 4/7/25	2
Testing	25 days	Tue 4/8/25	Fri 5/9/25	3
Deployment	4 days	Mon 5/12/25	Thu 5/15/25	4
Testing	11 days	Fri 5/16/25	Fri 5/30/25	5

7. Hardware and Software Specification

7.1 Server Side Hardware Specification:

- **Processor (CPU)**:

A multi-core processor (e.g., Intel Xeon or AMD EPYC) for handling multiple user requests efficiently.

- **Memory (RAM)**:

At least 8GB to 16GB of RAM to ensure smooth performance and quick response times.

- **Storage**:

SSD storage with a minimum capacity of 256GB for faster data retrieval and order processing. Additional capacity may be needed based on data volume.

- **Bandwidth**:

A high-speed internet connection with sufficient bandwidth to handle website traffic, especially during peak times.

- **Backup System**:

Reliable backup hardware or cloud solutions to prevent data loss.

7.2 Client Side Hardware Specification:

- **Device**:

A smartphone, tablet, laptop, or desktop computer with a modern web browser.

- **Processor (CPU)**:

A basic dual-core processor or higher for smooth browsing (e.g., Intel Core i3, AMD Ryzen 3, or equivalent).

- **Memory (RAM)**:

At least 4GB of RAM for multitasking and faster page loading.

- **Storage**:

Sufficient free storage space (at least 500MB) for caching website data or installing a dedicated app.

- **Internet Connection**:

A stable broadband or mobile internet connection with at least 1 Mbps speed for seamless browsing and transactions.

7.3 Server Side Software Specification:

- **Operating System**:

A server-compatible OS like Linux (Ubuntu, CentOS) or Windows Server.

- **Web Server**:

Apache, Nginx, or Microsoft IIS for hosting the website or web application.

- **Database Management System (DBMS)**:

MySQL, PostgreSQL, or MongoDB for storing and managing data like customer orders and inventory.

- **Programming Language**:

Backend support for languages like PHP, Python, Java, Node.js, or Ruby to handle server logic.

- **Application Framework**:

Frameworks like Laravel, Django, Spring, or Express.js for efficient development and scalability.

7.4 Client Side Software Specification:

- **Operating System**:

A modern OS such as Windows, macOS, Android, or iOS.

- **Web Browser**:

An updated browser like Google Chrome, Mozilla Firefox, Safari, or Microsoft Edge for accessing the system.

8. Tools And Technologies Used With Reasoning

8.1 Developmental Tools :

Why use HTML, CSS, and JavaScript in Frontend:

- **Full Web Experience:**

Together, they enable developers to build complete, interactive, and visually appealing websites.

- **Cross-Browser Compatibility**:

Supported by all major web browsers, ensuring wide accessibility.

- **Scalability:**

Can be used for small static websites or large-scale web applications.

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Drawbacks Of Other Frontend Language:

- **Similar Designs**

Many websites using Bootstrap look the same because of its default styles.

- **Large File Size**

Includes extra features you may not use, which can slow down your website.

- **Not Always Mobile-Friendly**

Some components may need extra adjustments to work perfectly on all devices.

Why PHP Use As Backend Language ?

In our proposed project we use PHP as a backend language. Although there are many other languages like Python, Kotlin, Rust etc.

- **Easy to Learn:** PHP is simpler to understand and use, especially for web development.
- **Built for Websites:** It has built-in tools that make creating websites easier than some other languages.
- **Widely Supported:** Almost all hosting services support PHP, making it cheaper and more accessible.

Drawbacks Of Other Backend Languages:

Here are some disadvantages of other backend languages compared to PHP:

- **Python:**
- Slower execution speed for web applications compared to PHP.
- Not specifically designed for web development, so requires additional frameworks like Django or Flask.
- **Rust:**
- Complex and harder to learn, especially for beginners.Longer development time due to its focus on safety and performance.
- **Kotlin:**
- Less common for backend development, so fewer libraries and resources are available.
- Hosting support is limited compared to PHP, making it harder to deploy.

8.2 CASE Tools :

- **Jira**:A project management and issue tracking tool widely used in agile software development. It helps teams plan, track, and manage software development tasks, sprints, and bugs.
- **MS Word:** A word processing software commonly used for creating, editing, and formatting text-based documents. It is essential for documentation, reports, and written communication.

• **Canva**: A graphic design tool with an intuitive interface, allowing users to create social media posts, presentations, and marketing materials. It offers templates and drag-and-drop functionality for ease of use.
• **MS Project**: A project management software that enables planning, scheduling, and managing projects. It provides tools for creating timelines, tracking progress, and allocating resources.
• **Slack**: A communication platform for teams that facilitates real-time messaging, file sharing, and integration with other tools. It helps streamline communication and collaboration in teams.
• **Draw.io**: A diagramming and flowchart tool that enables users to create diagrams, workflows, and system architecture designs.