

## Project Design Phase

### Solution Architecture

Date	06 NOV 2025
Team ID	NM2025TMID07115
Title	CRM Application for Jewel Management - (Developer)
Maximum Marks	10 Marks

### Overview

The solution architecture defines the structure and interaction of the CRM system components for jewelry management. It ensures scalability, reliability, and efficiency, supporting customer management, inventory, order tracking, billing, and communication.

### Architecture Layers

- **Presentation Layer (Frontend)**

Purpose: User interface for jewelers, sales staff, inventory managers, and customers.

- **Components:**

Web application (desktop browser)

Mobile application (iOS/Android)

Dashboards for reporting and analytics

Technologies: React.js / Angular / Vue.js, Bootstrap / Tailwind, Mobile SDKs

### Application Layer (Backend / Business Logic)

Purpose: Handles business logic, workflows, and data processing.

Components:

Customer Management Module

Order & Customization Module

Billing & Payment Module

Inventory Management Module

Communication Module (email, SMS, push notifications)

Analytics & Reporting Module

Technologies: Node.js / Java / .NET, Python Django / Flask, RESTful APIs

## **Data Layer**

Purpose: Centralized storage and management of all data.

Components:

Customer Database (profiles, preferences, purchase history)

Product/Inventory Database (stock, categories, gemstones, gold/silver details)

Orders & Billing Database (orders, invoices, payment status)

Feedback & Communication Database (messages, notifications, reviews)

Technologies: MySQL / PostgreSQL / MongoDB, Cloud Storage (AWS RDS / Azure SQL)

## **Integration Layer**

Purpose: Connects the CRM with external systems.

Components:

Payment Gateway Integration (for online transactions)

SMS / Email Services Integration Accounting

Software Integration

ERP / Inventory Systems Integration (optional)

Technologies: REST / SOAP APIs, Webhooks

## **Security & Access Layer**

Purpose: Protects sensitive customer and financial data. Components:

Role-based Access Control (Admin, Manager, Sales Staff)

Data Encryption (at rest and in transit)

## Audit Logging

Technologies: JWT Tokens / OAuth2, SSL/TLS, AES Encryption

## Data Flow / Workflow

Customer data is entered/updated via frontend (web/mobile).

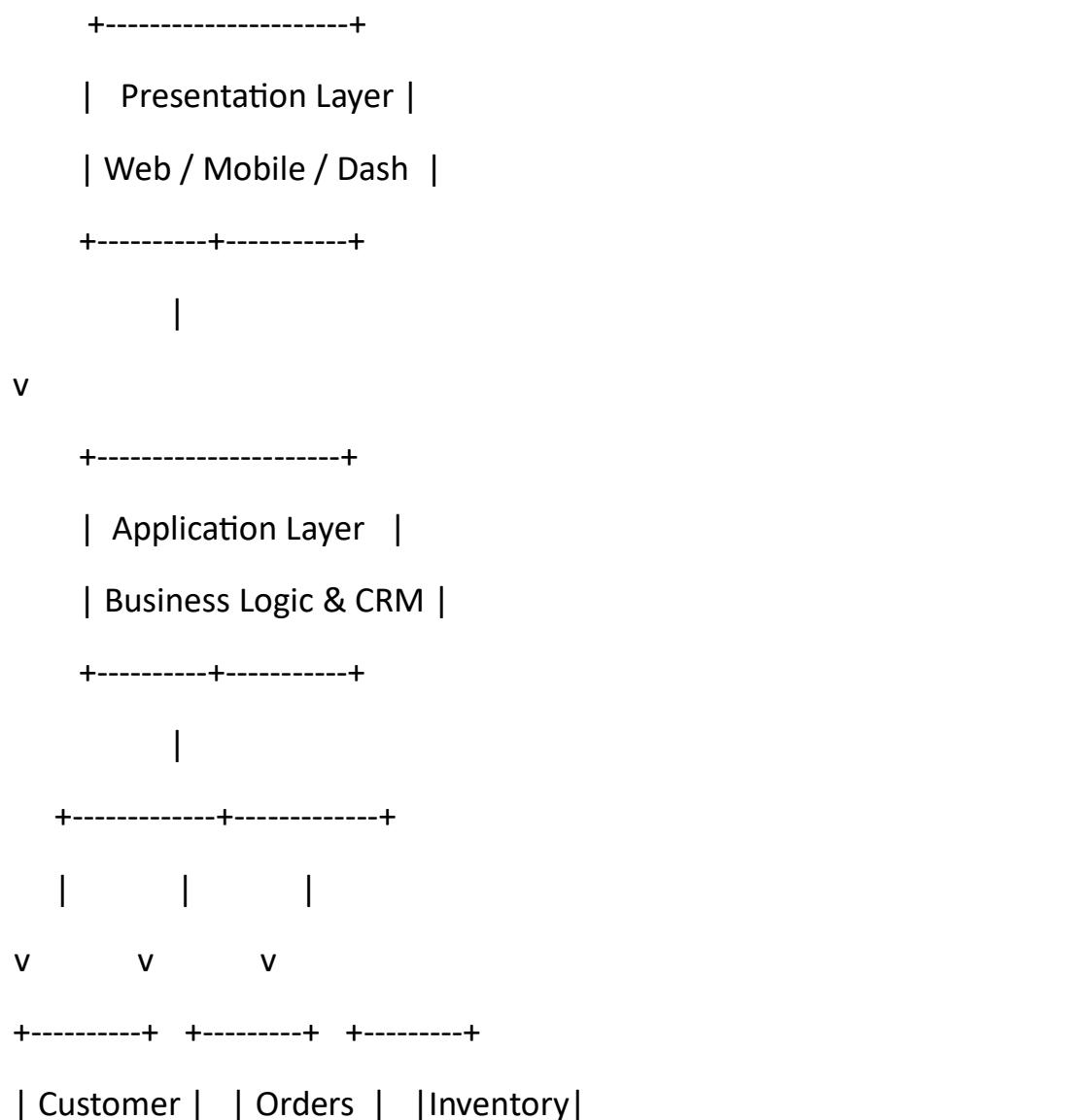
Business logic validates and processes orders, inventory, and billing.

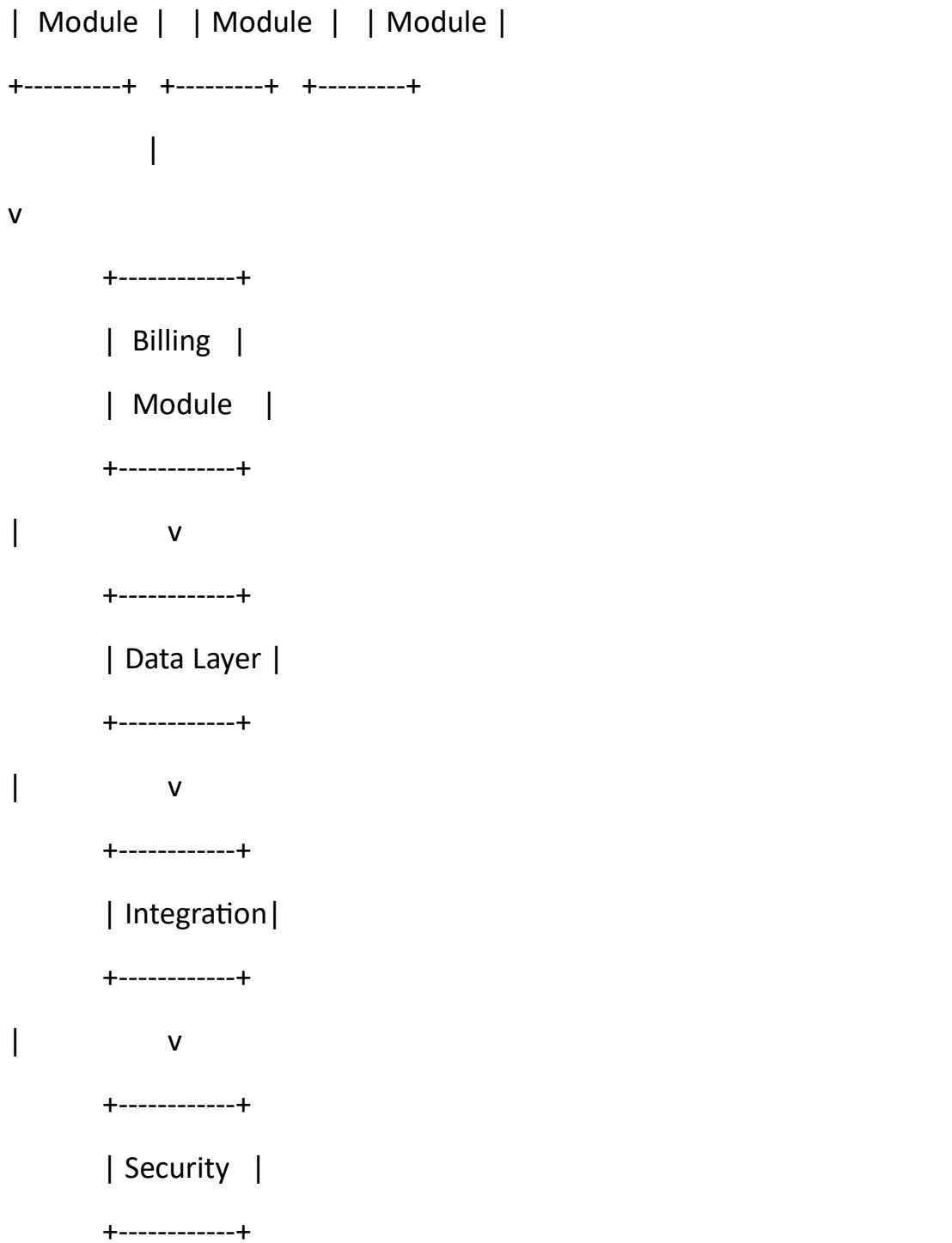
Inventory status is updated in real-time and alerts are sent if stock is low.

Notifications (reminders, offers, delivery status) are sent to customers automatically.

Analytics and reports are generated for management decisions.

## Diagram Representation (High-Level)





## Key Advantages

Centralized CRM data ensures efficient customer and inventory management.

Automated workflows reduce manual errors in billing and follow-ups.

Integration with payment gateways and communication services enhances customer experience.

Modular architecture allows scalable development and future enhancements.