PROJECT DESIGN PHASE – II TECHNOLOGY STACK (ARCHITECTURE & STACK)

CRM APPLICATION FOR JEWEL MANAGEMENT – (DEVELOPER)

Date	30 June 2025
Team ID	LTVIP2025TMID31185
Project Name	CRM APPLICATION FOR JEWEL MANAGEMENT – (DEVELOPER)
Maximum Marks	4 MARKS

💎 **Technical Architecture**

CRM Application for Jewellery Management (Developer)

📐 **Architectural Diagram (Concept Overview)**

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[Frontend (React/HTML)]

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[API Gateway / Backend (Python/Flask)]

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[CRM Business Logic] [External APIs]

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[Database Layer] |

Deployment: Cloud (IBM Cloud Foundry / Kubernetes Cluster)

📊 **Table 1: Components & Technologies**

S.No	Component	Description	Technology Used
1	**User Interface**	Web UI to manage jewellery items, sales, customers	React JS, HTML5, CSS3
2	**Application Logic-1**	Core CRM logic (registration, product handling, etc.)	Python (Flask / Django)
3	**Application Logic-2**	Voice-based search for jewellery items	IBM Watson STT (Speech-to-Text)
4	**Application Logic-3**	Chatbot for customer queries	IBM Watson Assistant
5	**Database**	Data storage (Customers, Products, Sales, Staff)	MySQL, MongoDB
6	**Cloud Database**	Cloud-hosted database for high availability	IBM DB2 on Cloud, IBM Cloudant
7	**File Storage**	Store product images and documents	IBM Cloud Object Storage / Local Filesystem
8	**External API-1**	SMS/Email Notification APIs	Twilio / SendGrid
9	**External API-2**	Customer KYC Verification via Aadhaar	UIDAI Aadhaar API
10	**Machine Learning Model**	Predict customer preferences based on purchase behavior	Custom ML model via IBM Watson Studio
11	**Infrastructure (Server/Cloud)**	Application hosted in cloud for scalability	IBM Cloud Foundry / Kubernetes / Docker

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📋 **Table 2: Application Characteristics**

S.No	Characteristics	Description	Technology Used
1	**Open-Source Frameworks**	Frameworks used in development	React, Flask/Django, MySQL, MongoDB

S.No	Characteristics	Description	Technology Used
2	**Security Implementations**	Data encryption, authentication, role-based access control	SHA-256, OAuth 2.0, SSL, IAM, OWASP Guidelines
3	**Scalable Architecture**	Designed using microservices, containerized deployment	3-tier Architecture, Docker, Kubernetes
4	**Availability**	Cloud-hosted with multi-zone deployment and load balancing	IBM Cloud Load Balancer, Distributed Servers
5	**Performance**	Use of Redis cache, CDN, optimized database queries for high performance	Redis, Cloud CDN, MySQL indexing, Async APIs

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✅ **Summary**

- **Deployment Type**: Cloud-Native (IBM Cloud)
- **Architecture Style**: Microservices with API Gateway
- **Focus Areas**: Customer Management, Product Catalog, Dashboard Insights, Notifications, KYC Integration

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- **Add deployment diagram or CI/CD pipeline?**