**Project Design Phase**

**Solution Architecture**

|  |  |
| --- | --- |
| Date | 26 -05-2025 |
| Team ID | LTVIP2025TMID60976 |
| Project Name | **Resolve Now : Your Platform for Online Complaints** |
| Maximum Marks | 4 Marks |

**Solution Architecture: Resolve Now**

**Overview:**

Resolve Now is designed as a robust, scalable, and user-friendly platform to facilitate transparent, secure, and efficient complaint management for consumers and businesses alike. The architecture supports seamless complaint submission, real-time communication, transparent tracking, and admin moderation.

**Key Features Addressed in Architecture:**

* **Simple complaint submission:** Easy, guided forms with optional anonymity.
* **End-to-end complaint lifecycle:** From submission, response, mediation to resolution.
* **Scalable user authentication & roles:** Complainants, respondents, moderators, and admins with role-based access control.
* **Secure data management:** Encryption of sensitive data and audit trails for transparency.
* **Real-time chat & notifications:** Instant messaging between parties and alerts for status changes.
* **Admin tools:** Dashboard for dispute resolution, spam filtering, escalation, and reporting.

**High-Level Architecture Components:**

| **Layer** | **Description** | **Technology Examples** |
| --- | --- | --- |
| **Presentation Layer** | Responsive web/mobile UI for complainants, respondents, and admins | React.js, Tailwind CSS, React Native (mobile) |
| **API Layer** | RESTful API handling authentication, complaint management, messaging, notifications | Node.js, Express.js, GraphQL optional |
| **Business Logic Layer** | Core services: complaint lifecycle management, messaging, role-based access, dispute handling | Node.js, Microservices architecture |
| **Data Layer** | Databases storing complaints, user profiles, messages, logs | MongoDB / PostgreSQL |
| **Real-time Layer** | WebSocket or similar for real-time chat and notifications | Socket.IO, Redis Pub/Sub |
| **Security Layer** | Authentication, authorization, encryption, audit logging | JWT, OAuth2, HTTPS/TLS, AES encryption |
| **Third-party Integrations** | Email/SMS notifications, legal/CRM systems, payment gateways (if applicable) | Twilio, SendGrid, Stripe |

**Example Solution Architecture Diagram (Conceptual):**

+-----------------------+

| User Devices | <--> Responsive Web / Mobile App (React / React Native)

+-----------------------+

|

v

+-----------------------+

| API Gateway / REST API| <--> Authentication & Authorization (JWT/OAuth2)

+-----------------------+

|

v

+-----------------------+ +----------------+

| Business Logic Layer | <------> | Real-time Chat |

| (Complaint Mgmt, Roles)| | & Notification |

+-----------------------+ +----------------+

|

v

+-----------------------+

| Database Layer | (User Data, Complaints, Messages, Logs)

+-----------------------+

|

v

+-----------------------+

| Third-Party Services | (Email, SMS, Legal APIs, Payments)

+-----------------------+