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Technical Architecture

The proposed system for the Complaint Registration for Public Grievances project will have the following key components:

1. **User Interface**: The user interface will be built using Figma for design and MERN Stack (MongoDB, Express.js, React.js, Node.js) for the frontend and backend.
2. **Application Logic**: The core application logic will be implemented using Node.js and Express.js for handling user authentication, complaint registration, status updates, and feedback processing.
3. **Database**: The system will utilize MongoDB as the database to store and manage the complaint data, user information, and feedback.
4. **File Storage**: File storage requirements will be handled using IBM Block Storage or other suitable storage services.
5. **External API**: The system will integrate with external APIs such as the Aadhaar API for user verification and potentially other APIs for additional functionalities.
6. **Infrastructure**: The application will be deployed on a cloud platform like IBM Cloud or AWS, utilizing services like Cloud Foundry or Kubernetes for scalability and availability.

## Components and Technologies

| **S.No** | **Component** | **Description** | **Technology** |
| --- | --- | --- | --- |
| 1. | User Interface | Web-based interface for users to interact with the application | Figma, MERN Stack (MongoDB, Express.js, React.js, Node.js) |
| 2. | Application Logic | User authentication and authorization, complaint registration, status updates, and feedback processing | Node.js, Express.js |
| 3. | Database | Storage of complaint data, user information, and feedback | MongoDB |
| 4. | File Storage | Storage of files related to complaints | IBM Block Storage or other suitable storage services |
| 5. | External API-1 | Integration with Aadhaar API for user verification | Aadhaar API |
| 6. | External API-2 | Integration with other APIs for additional functionalities | Other APIs |
| 7. | Infrastructure | Deployment of the application on a cloud platform | IBM Cloud, AWS, Cloud |

## Application Characteristics

| **S.No** | **Characteristics** | **Description** | **Technology** |
| --- | --- | --- | --- |
| 1. | Open-Source Frameworks | Leveraging open-source frameworks to build the application | MERN Stack |
| 2. | Security Implementations | Implementing security measures to protect user data and the application | SHA-256 encryption, IAM controls, OWASP guidelines |
| 3. | Scalable Architecture | Designing the architecture to be scalable and accommodate increasing user demand | Microservices, containerization (Docker), and cloud-native deployment |
| 4. | Availability | Ensuring high availability of the application through load balancing and distributed deployment | Load balancers, distributed servers, and cloud-based availability mechanisms |
| 5. | Performance | Optimizing the application's performance to handle a large number of requests and provide a responsive user experience | Caching, Content Delivery Networks (CDNs), and other performance-enhancing technologies |

By utilizing the MERN Stack and integrating with external APIs, the Complaint Registration for Public Grievances project can be developed with a robust and scalable architecture that meets the specified requirements.  
  
  
