**Project Design Phase-II**

**Technology Stack (Architecture & Stack)**

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| Date | 25 June 2025 |
| Team ID | LTVIP2025TMID47510 |
| Project Name | Visualizing Housing Market Trends: An Analysis of Sale Prices and Features |
| Maximum Marks | 4 Marks |

**Technical Architecture:**

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| --- | --- | --- | --- |
| **S.No** | **Component** | **Description** | **Technology** |
| 1 | User Interface | Web & Mobile interface for users to access housing features | HTML, CSS, JavaScript, React JS, Flutter |
| 2 | Application Logic-1 | User registration, login, profile and listing handling | Python (Django) / Java (Spring Boot) |
| 3 | Application Logic-2 | Real-time property search & filters | REST APIs / GraphQL |
| 4 | Application Logic-3 | Chatbot for housing support | Google Dialogflow / IBM Watson Assistant |
| 5 | Database | User, property listings, feedback | MySQL / PostgreSQL |
| 6 | Cloud Database | Cloud-managed DB with backups | Firebase / AWS RDS |
| 7 | File Storage | Property images, documents | AWS S3 / Firebase Storage |
| 8 | External API-1 | Location & maps integration | Google Maps API |
| 9 | External API-2 | Aadhar verification for property owners | UIDAI Aadhar API |
| 10 | Machine Learning Model | Price prediction & fraud detection | Scikit-learn / TensorFlow |
| 11 | Infrastructure | Cloud deployment of application | AWS EC2, Kubernetes, Docker, GitHub Actions |

**Table-2: Application Characteristics:**

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| --- | --- | --- | --- |
| **S.No** | **Characteristics** | **Description** | **Technology Used** |
| 1 | Open-Source Frameworks | Django for backend, React for frontend | Django, React, Bootstrap, NGINX |
| 2 | Security Implementations | Secure login, data encryption, firewall | JWT, OAuth2, SSL, SHA-256, IAM policies |
| 3 | Scalable Architecture | 3-tier architecture + Microservices support for independent scaling | Docker, Kubernetes |
| 4 | Availability | High availability using load balancers & multi-zone deployment | AWS ELB, Cloud Load Balancer |
| 5 | Performance | Optimized DB queries, CDN for static content, Redis caching | Redis, Cloudflare CDN, Nginx Reverse Proxy |

**References:**

[**https://www.ibm.com/cloud/architecture**](https://www.ibm.com/cloud/architecture)

[**https://aws.amazon.com/architecture**](https://aws.amazon.com/architecture)

[**https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d**](https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d)