Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	28 JUNE 2025
Team ID	LTVIP2025TMID50619
Project Name	Visualizing Housing Market Trends: An Analysis of Sales Prices and features using Tableau.
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User registration and login.	1: Users shall be able to register with email and password. 2: Users shall receive a verification email upon registration.
FR-2	User roles & access control	1: The system shall have at least three roles: user, realtor, and admin. 2: Admins shall have access to all features and data.
FR-3	Data intestion and processing	1: The system shall support CSV and JSON file uploads. 2: The system shall integrate with public APIs (e.g., Zillow, Redfin).
FR-4	Data storage	1: The system shall store property listings with fields like price, location, size, and date. 2: The system shall store historical trends per region and property type.
FR-5	Market trend analysis	1: The system shall calculate average, median, and mode prices over time. 2: The system shall group analysis by monthly, quarterly, and yearly intervals.
FR-6	Visualization and reporting	1: The system shall display line charts for price trends over time. 2: The system shall display bar charts for property type distributions. 3: The system shall support tooltips and zoom functionality.

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The user interface shall be intuitive and follow common design standards (e.g., consistent navigation, accessible forms). A new user should be able to complete a basic trend query within 5 minutes of first use without external help.
NFR-2	**Security**	The system shall implement OAuth 2.0 or similar for secure login and role-based access control. All sensitive data shall be encrypted in transit using TLS 1.2+ and at rest using AES-256.
NFR-3	**Reliability**	The system shall gracefully recover from hardware or software failures without data loss.
NFR-4	**Performance**	The system shall respond to user actions (e.g., filtering, loading charts) within 2 seconds under normal load conditions. The system shall process and ingest new housing data within 5 minutes of import initiation.
NFR-5	**Availability**	The system shall be available 99.9% of the time, excluding scheduled maintenance. The system shall perform automatic daily backups of all critical data.
NFR-6	**Scalability**	The system shall be able to add more servers to handle increasing loads without downtime. The system shall support housing data growth up to 100 million records without loss of functionality.