**Project Design Phase-II**

**Solution Requirements (Functional & Non-functional)**

|  |  |
| --- | --- |
| Date | 31 January 2025 |
| Team ID | LTVIP2025TMID51556 |
| Project Name | Visualizing Housing Market Trends: An Analysis of Sales |
| 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 | Data Cleaning and Preparation | * Handle missing values in key analytical column * Remove duplicate records from the dataset. * Create necessary calculated fields |
| FR-2 | Display Core Market Trends | * Visualize historical average sale prices over time using **Line Charts**. * Visualize total sales volume over time using **Line Charts.** * Show trends in median price per square foot using **Line/Area Charts**. * Highlight seasonal patterns in sales and prices using **Line/Area Charts or Comparison Charts.** |
| FR-3 | Enable Geographic Market Analysis | * Display average sale prices on an interactive **Map Visualization** by zip region. * Visualize sales volume on an interactive **Map Visualization** by zip code/region. * Allow users to select and filter data by specific geographical areas. * Highlight areas of high vs. low appreciation or sales activity on the map. |
| FR-4 | Provide Property-Specific Insights | * Compare average prices across different numbers of bedrooms/bathrooms using **Bar Charts.** * Analyze price distribution based on living square footage using **Histograms or Box Plots.** * Show the impact of property attributes on price using **Bar Charts or Scatter Plots**. * Analyze average 'Days on Market' (if derivable) by property type or location using **Bar Charts**. |
| FR-5 | Allow User Interaction and Filtering | * Implement dynamic date range filters. * Provide filters for specific property characteristics. |
| FR-6 | Dashboard Creation | * Integrate multiple related visualizations into a single, cohesive dashboard layout. |
| FR-7 | Story Creation | * Develop a narrative flow using a sequence of interactive story points. * Highlight key insights and trends from various visualizations within the story. * Provide context and explanations for the data points and trends presented in each story point. |

**Non-functional Requirements:**

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

|  |  |  |
| --- | --- | --- |
| **FR No.** | **Non-Functional Requirement** | **Description** |
| NFR-1 | Usability | The dashboard must be intuitive and easy to navigate for all users. |
| NFR-2 | Security | Ensure secure access and data integrity for the dashboard and its data. |
| NFR-3 | Reliability | The dashboard must consistently display accurate data and function without errors. |
| NFR-4 | Performance | The dashboard should load quickly and respond rapidly to user interactions. |
| NFR-5 | Availability | The dashboard must be consistently accessible to authorized users during operational hours. |
| NFR-6 | Scalability | The solution should handle increased data volume and user load efficiently. |