Project Design Phase
Solution Architecture

Date	28 june 2025
Team ID	LTVIP2025MID48289
Project Name	Visualizing Housing Market Trends: An Analysis of Sales Prices and Features"
Maximum Marks	4 Marks

Solution Architecture:

1. Data Sources:

   o File-based sources: CSV, Excel, or SQL databases.

   o Online real estate datasets: such as those from Kaggle or Zillow.
     These sources provide historical housing sales data including prices, locations, and property features.

2. Data Preprocessing:

   o Python or Excel for initial cleaning and formatting.

   o Tableau Prep for visual data wrangling and reshaping.
     This step ensures the dataset is accurate, consistent, and ready for analysis.

3. Processed Dataset Layer:
   Once preprocessing is done, a structured and refined dataset is created. It includes:

   o Cleaned tables free from null values and anomalies.

   o Calculated fields such as price per square foot, year groups, or location codes.
     This layer acts as the direct input to Tableau Desktop for visualization.

4. Tableau Desktop:
   The heart of the visualization development process. Using Tableau Desktop, several types of dashboards are created:

   o Price Trends: Line charts showing price fluctuations over time.

   o Feature Impact: Scatter plots or bar charts showing how property features like bedrooms or square footage affect price.

   o Geo Heatmaps: Regional pricing visualized on maps.

   o Filter Panels: Allow users to filter data by year, location, price range, and property type.
     These dashboards offer a rich, interactive exploration of housing data.

5. User Presentation:
   This is the final output consumed by users. Dashboards are published through:

- o Tableau Public Link: Easily accessible online without needing Tableau license.

- o Embedded Web Portal: Integration into a custom website or internal portal.

- o PDF/Image Exports: For static reporting or sharing insights offline. This stage ensures insights are visually clear, accessible, and actionable by all stakeholders.
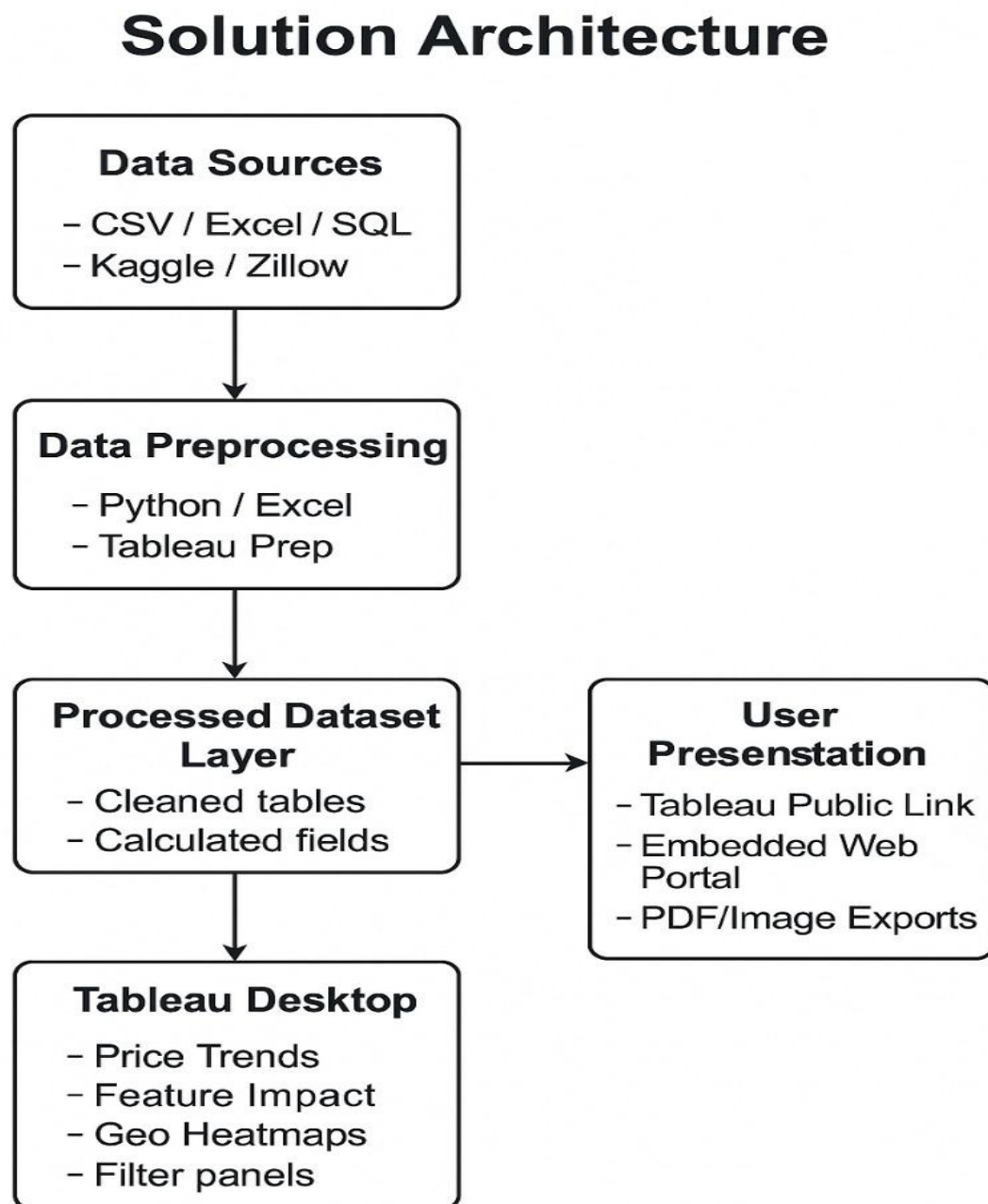
6. **Example - Solution Architecture Diagram:**

Solution Architecture

Data Sources
- CSV / Excel / SQL
- Kaggle / Zillow

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Data Preprocessing
- Python / Excel
- Tableau Prep

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Processed Dataset Layer
- Cleaned tables
- Calculated fields

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User Presenstation
- Tableau Public Link
- Embedded Web Portal
- PDF/Image Exports

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Tableau Desktop
- Price Trends
- Feature Impact
- Geo Heatmaps
- Filter panels

Figure 1: Architecture and data flow of the voice patient diary sample application

Reference: https://aws.amazon.com/blogs/industries/voice-applications-in-clinical-research-powered-by-ai-on-aws-part-1-architecture-and-design-considerations/