Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	31 January 2025
Team ID	LTVIP2025TMID47623
Project Name	Exploration of Electricity Consumption Patterns
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2 :

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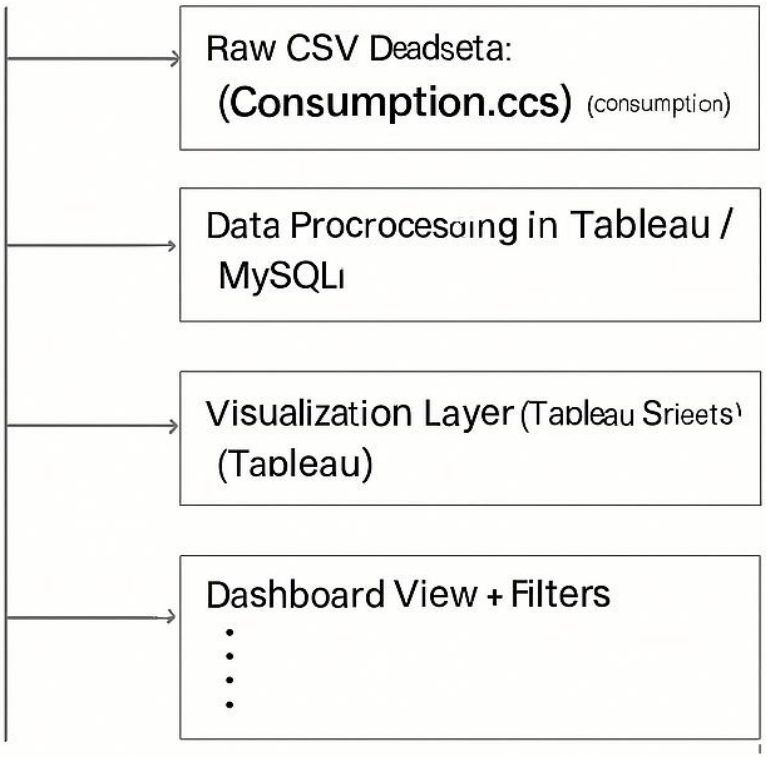

Guidelines:

- Include all the processes (As an application logic / Technology Block)
- Provide infrastructural demarcation (Local / Cloud)
- Indicate exterral interfaces (third party API's etc.)
- Indicate Data Storage components / services
- Indicate interface to machine learning models (if applicable)

Table-1 : Components & Technologies:

S.No	Component	Description	Technology / Tool
1. 1	**User Interface**	Interface to view dashboard and interact with visual elements	**Tableau Public / Tableau Desktop**
2. 2	**Application Logic-1**	Data preprocessing and transformation before visualization	**Python (Pandas) / Tableau Prep**
3. 3	**Application Logic-2**	Creation of calculated fields and filters (e.g., year, region)	**Tableau Calculated Fields**
4. 4	**Application Logic-3**	Visual logic: building charts, graphs, and dashboard interactivity	**Tableau Visualization Engine**
5. 5	**Database**	Local storage of electricity dataset	**Flat File (.CSV)**
6. 6	**Cloud Database**	Optional: host dataset online for remote access	**Google Sheets / Tableau Cloud**
7. 7	**File Storage**	Dataset stored prior to upload into Tableau	**Local Filesystem / Google Drive**
8. 8	**External API-1**	Not used (N/A for this dashboard)	N/A
9. 9	**External API-2**	Not used	N/A
10. 10	**Machine Learning Model**	Not used in current scope	N/A
11. 11	**Infrastructure**	System used for dashboard design and publishing	**Local (Windows/MacOS)** / Tableau Public

Table-2: Application Characteristics:

S. No.	Characteristics	Description	Technology / Tool
1	Open-Source Frameworks	Tableau Public is free for dashboard creation; Python used optionally for data preprocessing	Tableau Public, Pandas
2	Security Implementations	Local files are kept private; dashboards shared via restricted Tableau Public links	Google Drive Permissions, Tableau Sharing Controls
3	Scalable Architecture	Architecture allows integration of additional years, states, or visuals without redesign	3-Tier Design (Data → Logic → UI)
4	Availability	Dashboards accessible anytime via Tableau Public or downloadable as PDF/image	Tableau Public, Google Drive
5	Performance	Optimized using Tableau Extracts and pre-cleaned CSVs for faster load and filter application	Tableau Extract Engine, Preprocessed CSVs