

# **Project Design Phase-I**

## **Solution Architecture**

### **Solution Architecture:**

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

- **Requirements Gathering**

- Understand the key business problems that need to be solved through data analysis and visualization. This includes goals, KPIs, and questions that stakeholders need answered.

- Identify the relevant Excel data sources that contain the required information to address those problems and questions.

- **Data Preparation**

- In Excel, clean and transform the data as needed to prepare it for analysis. This may involve removing errors, combining data from multiple sheets/files, shaping the data, etc.

- Identify the relevant fields/columns in the Excel data that are needed for the analysis and visualizations. Discard any unnecessary data.

- **Database Storage**

- Import the cleaned Excel data into a MySQL relational database.

- Properly structure the data into normalized tables with relationships between various entities.

- **Analysis and Visualization**

- Use Tableau to connect to the MySQL database as a live data source.

- Build interactive dashboards, charts, graphs and other visualizations that provide insights into the key business questions.

- Utilize Tableau's various analytic, modeling and visualization capabilities for effective analysis.

- Create a story in Tableau to take stakeholders through the key findings and insights from the data visually.

- **Publishing and Sharing**

- Publish the Tableau workbook containing the dashboards, stories etc. to Tableau Public cloud.

- This allows stakeholders to access the visualizations securely via the web for interactive analysis.

- **Web Integration**

- Build a Flask web application to serve as the front-end interface.

- Develop the web pages and UI components using HTML, CSS, etc.

- Integrate the Tableau content into the web app using Tableau's embed and API integration options.

- Authenticate users and provide role-based access to the published Tableau content.

