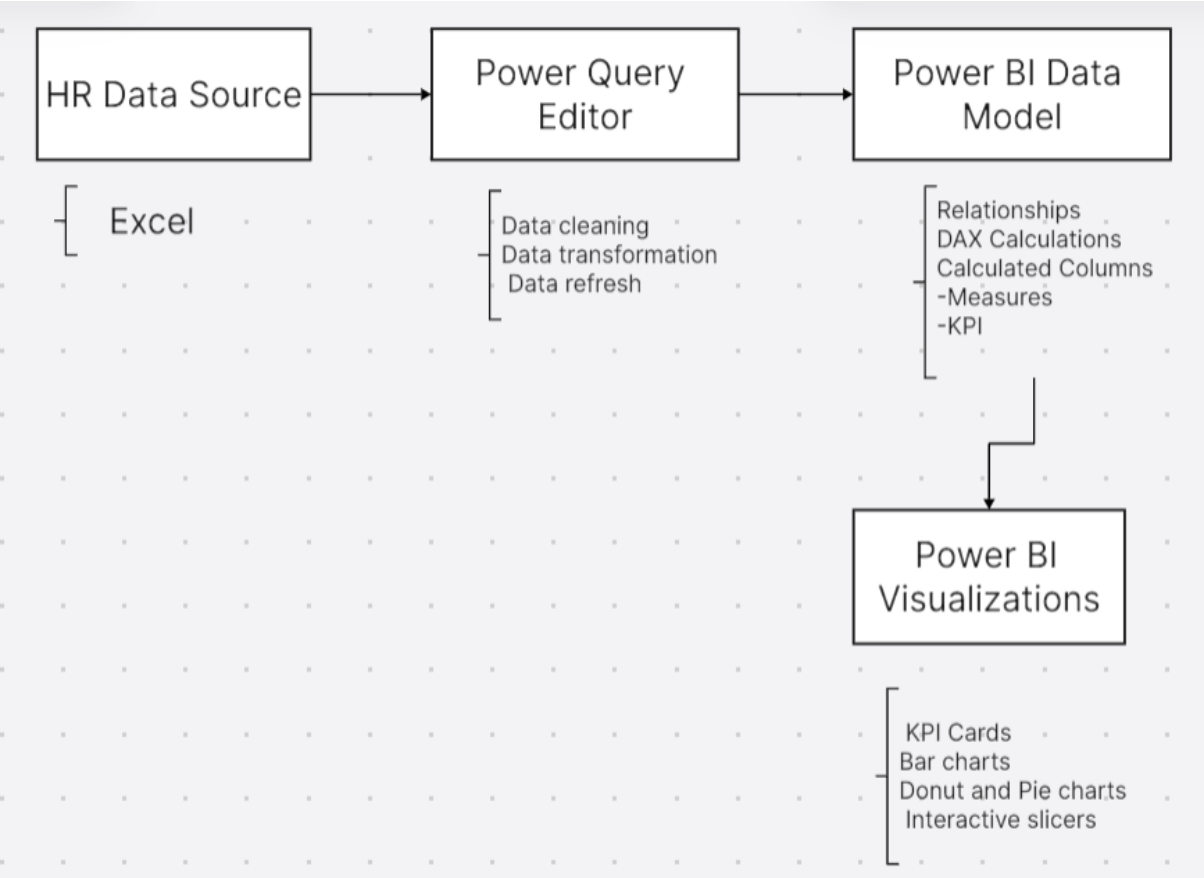
Project Architecture for HR Analytics – Absenteeism



1. Data Sources:

- **HR Data (Excel/CSV)**:
    - This contains key employee data such as personal details, job roles, departments, absenteeism hours, length of service, gender, age, and location.
    - Source files could be in formats such as **Excel**.

2. Data Ingestion:

- **Power BI Data Load**:
    - Data from various sources like Excel, CSV files, or databases is ingested directly into Power BI.

3. Data Modelling:

- **Relationships**:
    - The data model is structured with relationships between different tables such as:
        - **Employee Demographics Table** (Age, Gender, Location, Job Title)
        - **Absenteeism Data** (Absent Hours, Date of Absence)
        - **Department Table** (Department Name, Manager)
        - **Job Title Table** (Job Title, Salary, Grade)
    - These tables are connected by key fields like **Employee ID** and **Job Title** to create a relational data model within Power BI.

- **Data Transformation (Power Query)**:
    - Data transformation is performed using **Power Query**:
        - Clean and format raw data (e.g., ensuring date formats, handling null values).
        - Perform necessary calculations like total absentee hours, average absent hours, and length of service.
    - Calculated columns and measures are also created for performance metrics using DAX (Data Analysis Expressions) for KPIs such as **average absent hours**, **average service length**, etc.

4. Data Calculation and Metrics (DAX):

- **Key Measures**:
    - DAX formulas are used to compute critical metrics, such as:
        - Total Employees
        - Average Age
        - Average Length of Service
        - Average Absent Hours
        - Maximum Absent Hours
    - Custom DAX formulas are also used to filter data by department, gender, and city, providing deeper insights into absenteeism patterns.

5. Visualization Layer:

- **Power BI Visualizations**:
    - Multiple visualizations are created to provide insights into absenteeism:
        - **KPI Cards**: Used to display key metrics like total employees, average absenteeism, etc.
        - **Bar Charts**: Used to compare absenteeism by department, city, job title, and age group.
        - **Donut Chart**: Shows gender distribution in the workforce.
        - **Pie Charts**: Display absenteeism patterns by department and other categories.
    - **Slicers**: Interactive filters for departments and gender allow users to filter the visualizations and drill down into specific segments of the data.

6. Interactivity and Filtering:

- **Slicers and Filters**:
    - The dashboard provides interactive slicers for departments, gender, and city. These slicers allow users to explore the data and get customized views, enabling in-depth analysis of specific segments of the workforce.
    - Drill-through actions are enabled for deeper insights into any KPI or specific area like absenteeism by job role or location.