**Scenario:** A product-based software company handles customer queries through a Customer Service portal. All the users raise Incidents if they encounter any problem with the product. So, the company wants to know the statistics and reports through a dashboard to understand their employee performance and identify areas for improvement.

**Problem Statement**: The problem is that the company needs a database to create a dashboard. So, the company hires a data engineer to create a database management system in SSMS, handle the data orchestration with the existing data first, and then make a visualization dashboard through Power BI and draw required insights.

The formulation of a dashboard via Power BI entails the following procedural steps:

* **Database Creation:** [Incident\_Data]
* **Tables Creation:** Create tables in the following order using below create queries.
  + *Tables Names -* [Department, Category, Incident\_Status, Employee, Incident]
  + *Column Names of All Tables:*
  + *Incident:* [Id (*Primary Key*), Incident\_Status\_Id, Reassignment\_Count, Reopen\_Count, Made\_SLA, Created\_By, Created\_At, Assigned\_To, Updated\_By, Updated\_At, Resolved\_By, Resolved\_At, Category, Urgency, Priority]
  + *Employee:* [Id (*Primary Key*), User\_Name, Department\_Id]
  + *Department:* [Id (*Primary Key*), Department\_Name]
  + *Category:* [Id (*Primary Key*), Issue\_Type]
  + *Incident\_Status:* [Id (*Primary Key*), Status]
  + *Foreign Keys:* 
    - Incident[Created\_By] -> Employee[Id]
    - Incident[Assigned\_To] -> Employee[Id]
    - Incident[Updated\_By] -> Employee[Id]
    - Incident[Resolved\_By] -> Employee[Id]
    - Incident[Category] -> Category[Id]
    - Incident[Incident\_Status\_Id] -> Incident\_Status[Id]
    - ​​Employee[Department\_Id] -> Department[Id]
* **ER Diagram:** Representation in SSMS
* **Data Insertion:** Insert records from the provided .csv file into the tables using bulk insertion, then verify the data insertion.



* **Data Manipulation:**
  + First Update all rows of ‘Resolved\_At’ to ‘NULL’ in the ‘Incident’ Table where ‘Resolved\_By’ value is ‘0’.
  + Next, Update all rows of ‘Resolved\_By’ to ‘NULL’ in the ‘Incident’ Table where ‘Resolved\_By’ value is ‘0’.
  + Now, Insert (3142, ‘Jane Foster’, 3) details into the ‘Employee’ table.
  + Verify Insertion using select query.
  + Delete that record from the table.
* **Data Analysis:** Examine different metrics and trends within the dataset to gain insights and identify patterns. This involves calculating key performance indicators, analyzing data based on various categories, and identifying areas for improvement. The goal is to extract valuable insights that can inform decision-making and drive operational efficiency.
  + *Total Incident Count, Active Incident Count, Priority Incident Count:* Provide counts for total incidents, active incidents, and incidents categorized by priority.
  + *Incident Count on Status basis:* Analyze incident counts based on different statuses (e.g., New, In Progress, Resolved).
  + *Category Incident Count:* Determine incident counts for each ‘type of issue’.
  + *Department Incident Count:* Calculate incident counts for each ‘department’.
  + *Department wise Category Incident Count:* Break down incident counts by ‘department’ and ‘type of issue’ to identify department-specific trends.
  + *Average Resolution Time for each Type of Priority:* Calculate the average time taken to resolve incidents based on priority levels.
  + *Closed Incidents without Proper Resolution:* Identify incidents that were closed without a proper resolution.
  + *Employee Leaderboard:* Rank employees based on their incident count and display Employee Names with Rank, Incident count, Average resolution time in days.
* *View for Incident Statistics:* Create a view that includes detailed statistics for each resolved incident, such as the Id, Name of employee resolved, opened time, resolved time, time taken to resolve, priority, and average time taken for that particular priority type of that incident.
* *Stored Procedure for Employee Employee Leaderboard on Priority(Input Parameter)*: Develop a stored procedure that generates a leaderboard of employees based on incident count with priority as input parameter. Display Employee Names with Rank, Incident count, Priority, Average resolution time in days.
* Connect to SQL server and import data from SQL Server to Power BI
* *Data Visualization Power BI Dashboard:*
  + Card Charts for KPI’s of Total Incident Count and Active Incident Count
  + Pie Chart for Incident Count on Status basis
  + Donut Chart for Category Incident Count
  + Bar Chart for Department Incident Count
  + Import ‘Incident\_Statistics’ view data from SQL server to Power BI to create a table. Now apply conditional formatting on ‘time taken to resolve’ and ‘average time taken for that particular priority type of that incident’ columns to create heatmap visualization.
  + Add Slicers for Status, Category, Urgency, Priority to control the charts
  + Remove Interaction of ‘Status’ slicer from Heatmap, and KPI’s
* Upload the Report (.pbix file) in the PowerBI workspace from your local machine.
* Review the report to ensure everything looks as expected. Check for any errors or issues that need to be addressed. Publish the report when ready.