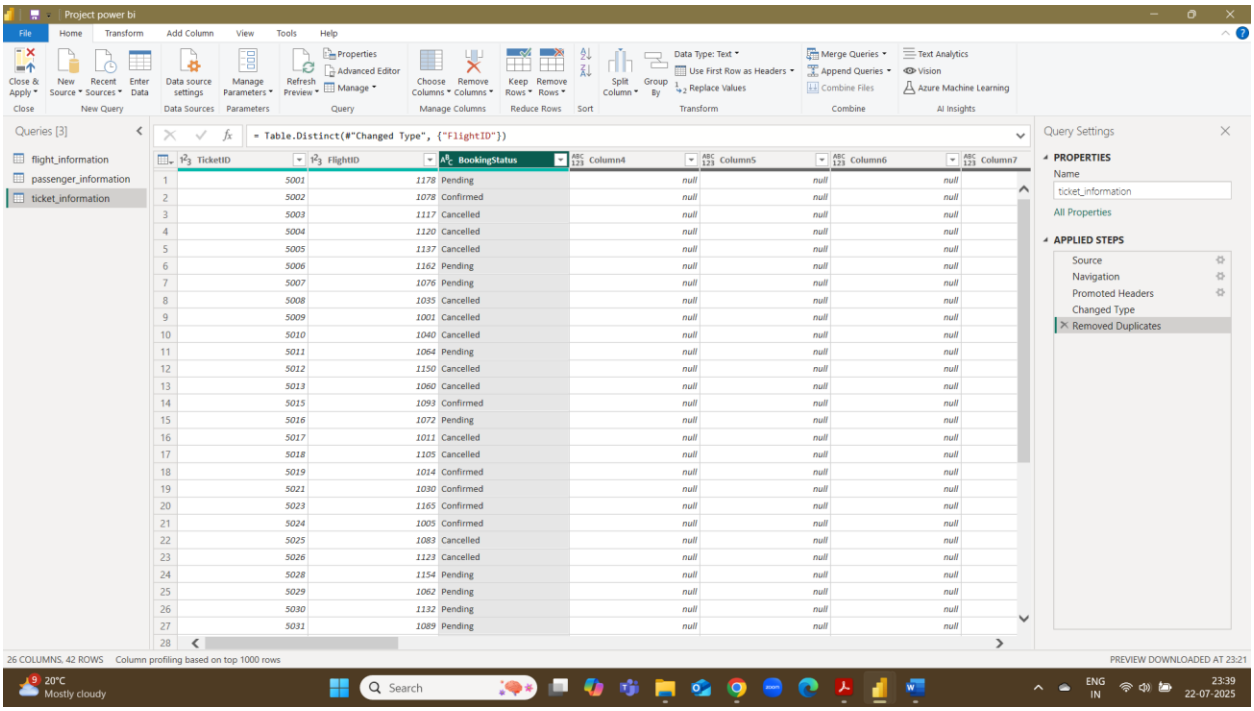
Project : Airline Data Management and Analysis Using Power BI

1. Data Preparation and Cleaning (10 Marks)

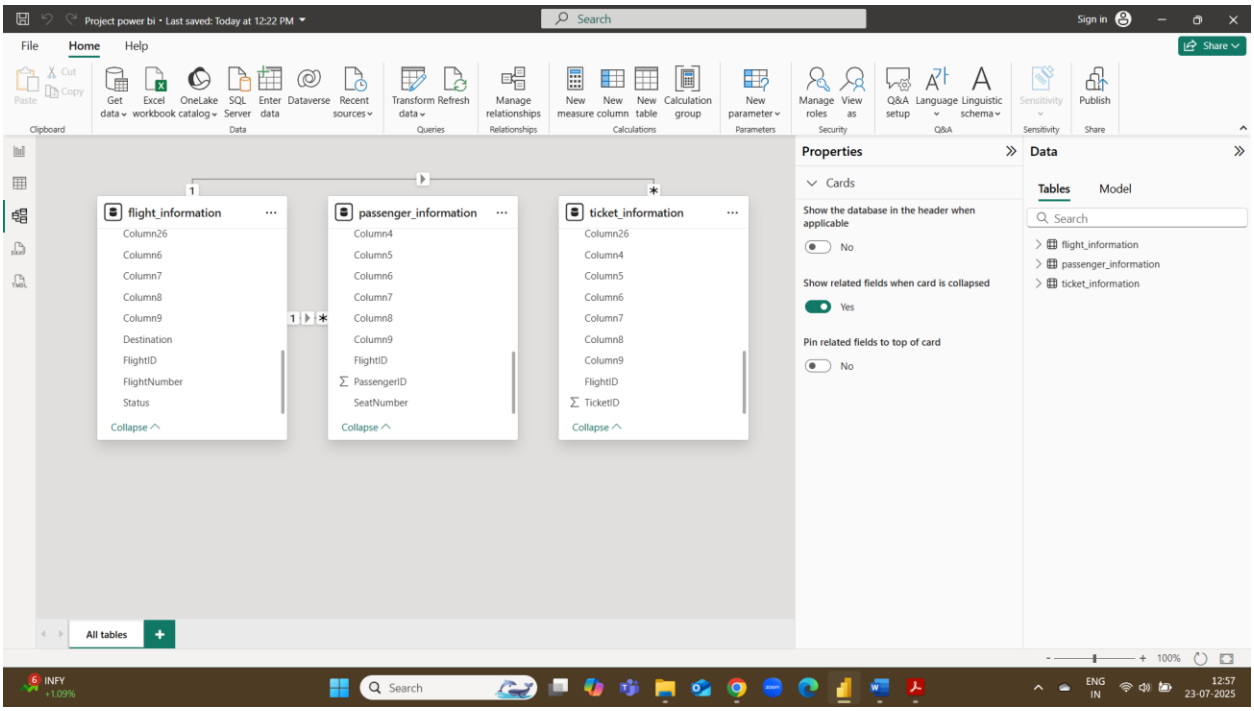
- **Extract and transform data in Power Query:**
    - Open Power BI Desktop.
    - Click "Get Data" and import your Flight_Information, Passenger_Information, and Ticket_Information datasets.
    - Once loaded, click "Transform Data" to open the Power Query Editor.
- **Clean data:**
    - **Remove duplicates:** Select each table, right-click on the FlightID column, and choose "Remove Duplicates."
    - **Handle missing values:** Inspect each column. If there are missing values, right-click on the column header and choose options like "Replace Values," or "Fill Down/Up" based on the data context.
    - **Format columns:** Ensure data types are correct (e.g., FlightID as text or number, Booking Status as text). Adjust if necessary by clicking on the data type icon next to the column name.
- **Deliverables:** Screenshot of Power Query Editor showing cleaned data.



2. Data Modeling (10 Marks)

Create relationships between datasets (FlightID as the key):

- After applying and closing the Power Query Editor, gone to the "Model" view in Power BI Desktop.
- Drag and drop the FlightID column from Flight_Information to FlightID in Passenger_Information to create a relationship.
- Similarly, drag FlightID from Flight_Information to FlightID in Ticket_Information.
- Power BI automatically detect the cardinality (e.g., One-to-Many). Verified that Flight_Information is on the "one" side and Passenger_Information and Ticket_Information are on the "many" side for the FlightID relationships.



3. Enhanced Data Insights (10 Marks)

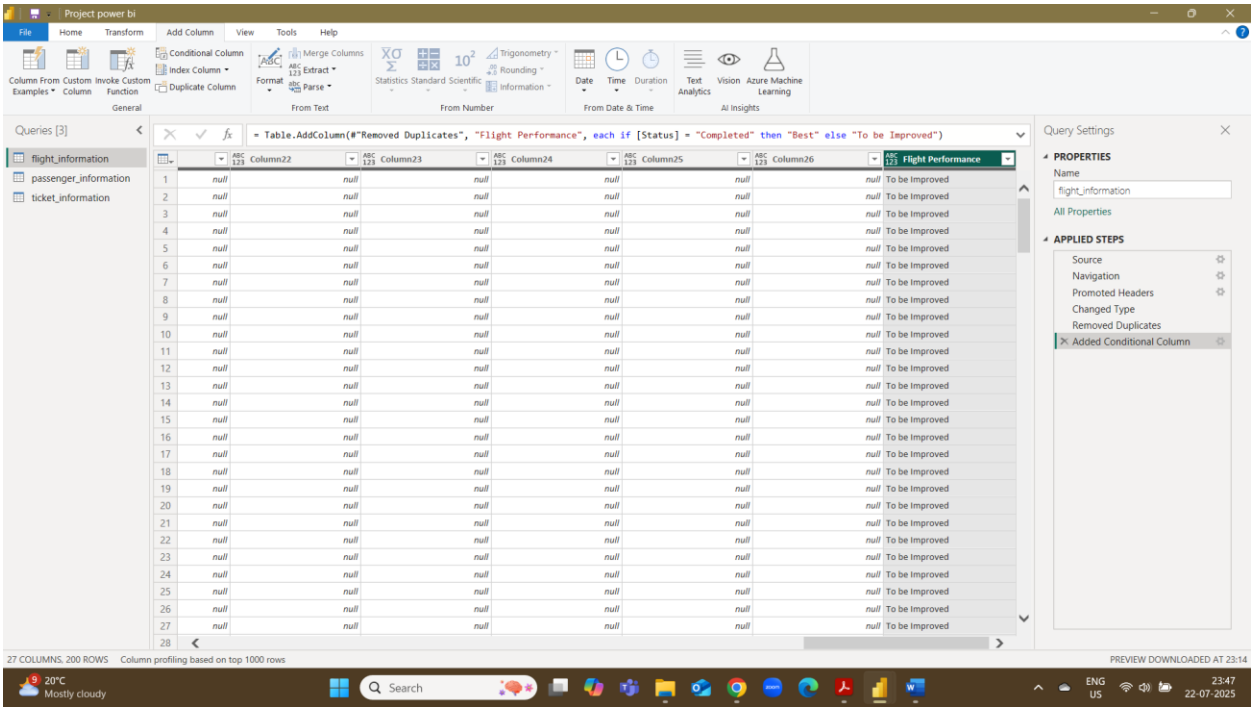
Add a conditional column to classify flights as "Best" or "To Be Improved" based on status:

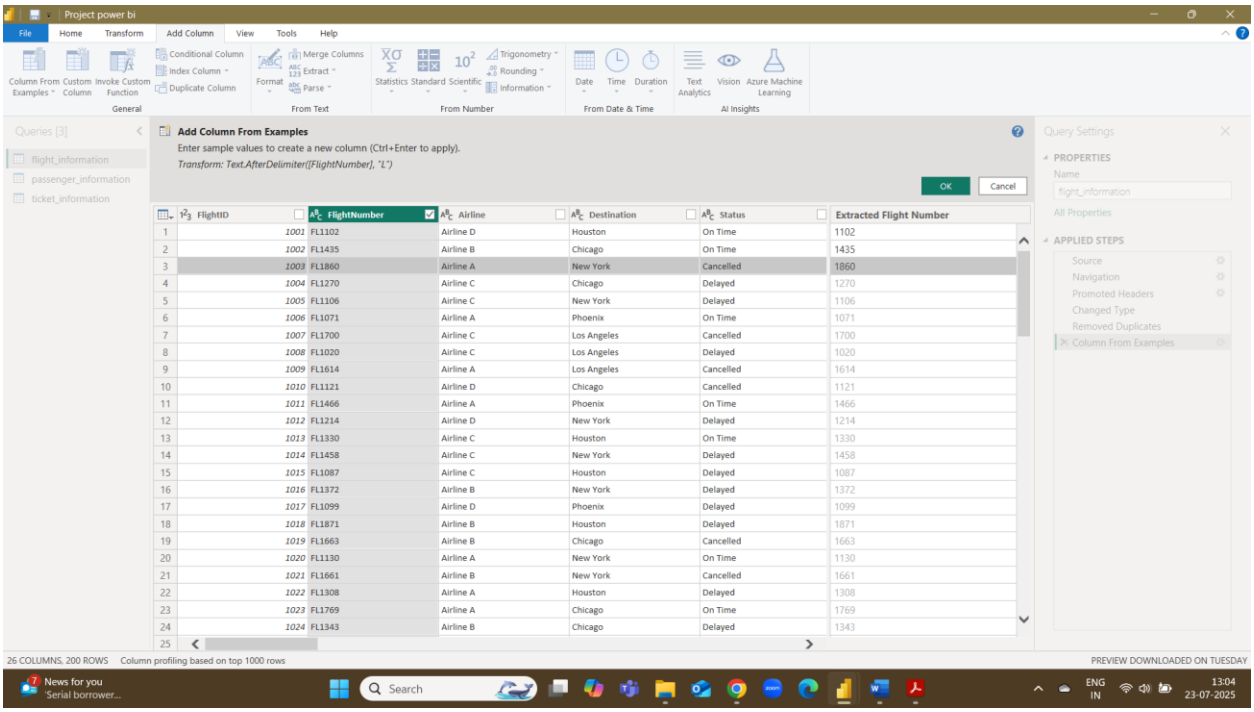
- In Power Query Editor, selected the Flight_Information table.
- Gone to "Add Column" tab, then click "Conditional Column."
- Set up the condition:
    - Column Name: Flight Performance.
    - If Status equals "Completed", then "Best".
    - Else "To Be Improved".

Use "Column from Examples" to extract the flight number from FlightNumber:

- In Power Query Editor, select the Flight_Information table.
- Select the FlightNumber column.
- Go to "Add Column" tab, then click "Column from Examples" -> "From Selection."

- Typed the desired flight number extraction in the new column for a few rows. Power BI automatically infer the pattern. Renamed this new column “Extracted Flight Number”.





4. Calculations Using DAX (10 Marks)

Total passengers for a specific flight:

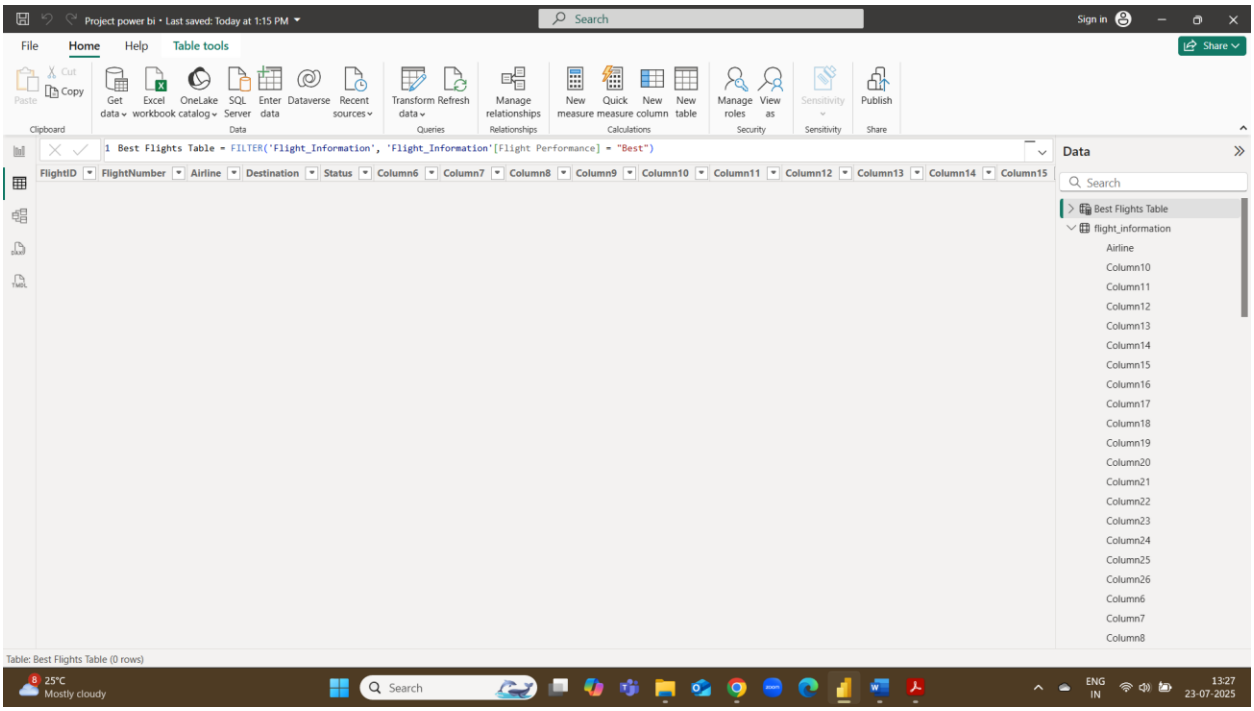
- In Power BI Desktop, gone to "Report" view.
- Selected the Passenger_Information table in the "Fields" pane.
- Click "New Measure."
- Enter the DAX formula: Total Passengers = COUNTROWS('Passenger_Information')

Total tickets booked:

- Selected the Ticket_Information table.
- Click "New Measure."
- Enter the DAX formula: Total Tickets Booked = COUNTROWS('Ticket_Information')

Filtered table showing "Best" flights only:

- To create a new table: Go to "Table tools" -> "New table."
- DAX formula: Best Flights Table = FILTER('Flight_Information', 'Flight_Information'[Flight Performance] = "Best")
- Screenshot of DAX calculations (from the measure pane or formula bar) and their results in a card visual or table.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1 Best Flights Table = FILTER('Flight_Information', 'Flight_Information'[Flight Performance] = "Best")
FlightID
FlightNumber
Airline
Destination
Status
Column6
Column7
Column8
Column9
Column10
Column11
Column12
Column13
Column14
Column15
Data
Best Flights Table
flight_information
Airline
Column10
Column11
Column12
Column13
Column14
Column15
Column16
Column17
Column18
Column19
Column20
Column21
Column22
Column23
Column24
Column25
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Column7
Column8
Table: Best Flights Table (0 rows)
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Mostly cloudy
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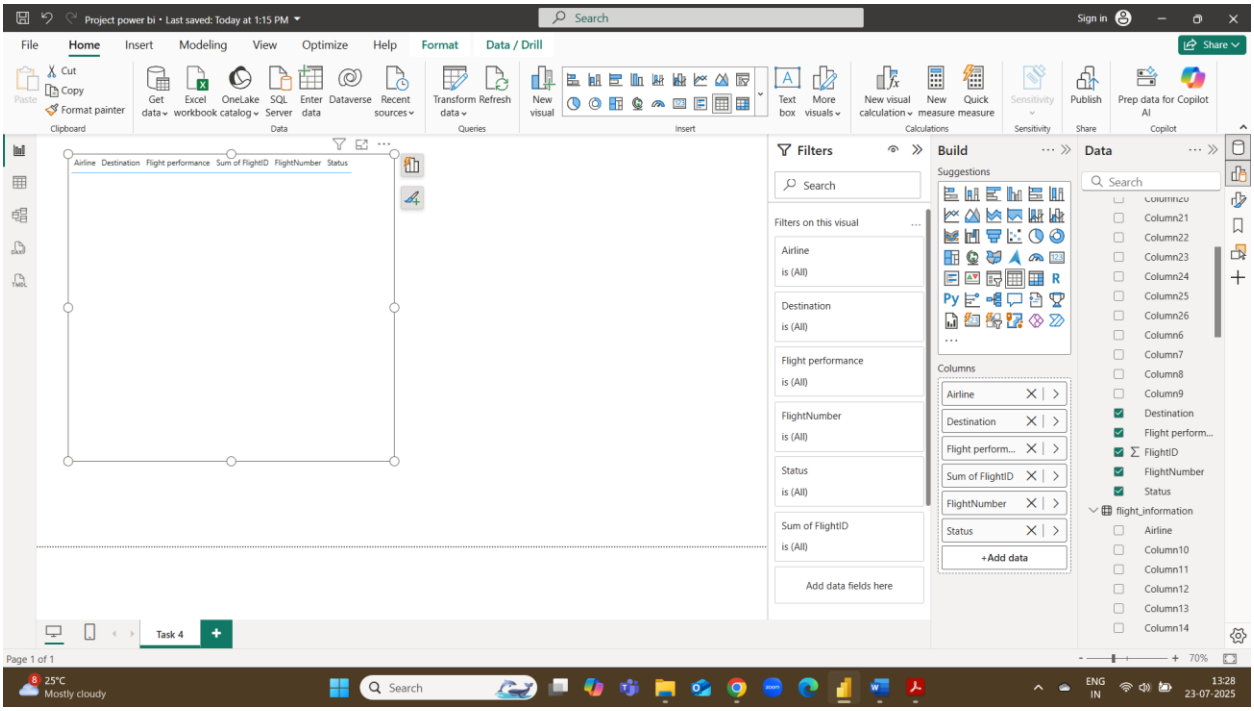
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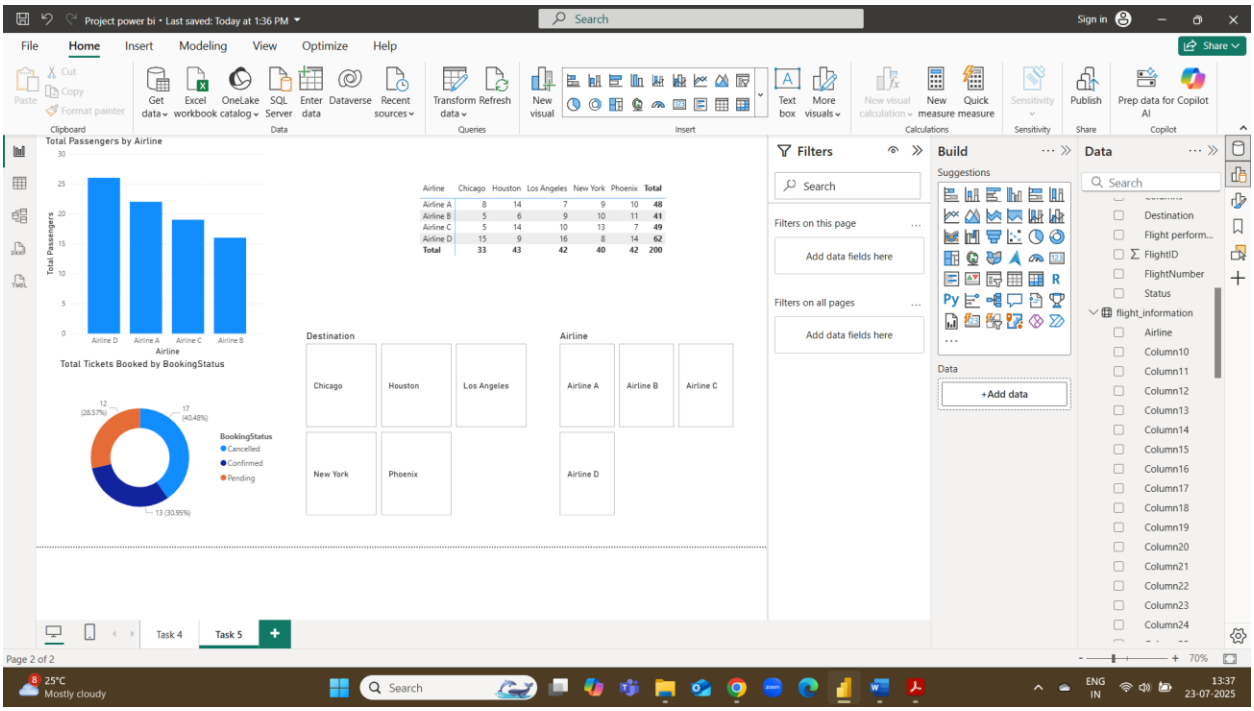
5. Visualization and Interactive Features (20 Marks)

Create visuals for:

- **Passenger count by airline:**
    - Use a Column Chart.
    - X-axis: Airline (from Flight_Information)
    - Y-axis: Total Passengers
- **Ticket booking statuses:**
    - Use a Donut Chart.
    - Legend: Booking Status (from Ticket_Information)
    - Values: Total Tickets Booked
- **Flights by airline and destination:**
    - Used a Matrix visual.
    - For Matrix: Rows: Airline, Columns: Destination, Values: Count of FlightID

Add interactive features for:

- **Destination and Airline:**
    - Add two Slicer visuals to report page.
    - One Slicer: Destination (from Flight_Information)
    - Second Slicer: Airline (from Flight_Information)
    - Ensure all relevant visuals interact with these slicers (default behavior).



6. Final Dashboard and Power BI Service (20 Marks)