

**VIDEO EXPLANATION LINK: [Adobe Acrobat Reader \(64-bit\) - FINAL BI PROJECT-2.pdf - Adobe Acrobat Reader \(64-bit\) - 16 March 2025](#)**

## 1. Data Preparation and Cleaning

**Tasks:**

- Extract and transform data in Power Query.
- Clean data: remove duplicates, handle missing values, and format columns.
- Deliverables: Screenshot of Power Query Editor showing cleaned data.

**Steps:**

1. Load Datasets into Power BI.
2. Open Power Query Editor:
  - Remove duplicates from FlightID, PassengerID, and TicketID. But No duplicates found.
  - Handle missing values:
    - If "Status" is empty, fill it with "NA". But no missing values found.
  - Format columns ensured All data formats and correct data types.
3. Click Close & Apply.

The screenshot shows the Power Query Editor interface with the following details:

- Queries [3]**: Shows three datasets: flight\_information, ticket\_information, and passenger\_information.
- flight\_information** table preview:
 

|    | FlightID | FlightNumber | Airline   | Destination | Status    |
|----|----------|--------------|-----------|-------------|-----------|
| 1  | 1001     | FL1102       | Airline D | Houston     | On Time   |
| 2  | 1002     | FL1435       | Airline B | Chicago     | On Time   |
| 3  | 1003     | FL1860       | Airline A | New York    | Cancelled |
| 4  | 1004     | FL1270       | Airline C | Chicago     | Delayed   |
| 5  | 1005     | FL1106       | Airline C | New York    | Delayed   |
| 6  | 1006     | FL1071       | Airline A | Phoenix     | On Time   |
| 7  | 1007     | FL1700       | Airline C | Los Angeles | Cancelled |
| 8  | 1008     | FL1020       | Airline C | Los Angeles | Delayed   |
| 9  | 1009     | FL1614       | Airline A | Los Angeles | Cancelled |
| 10 | 1010     | FL1121       | Airline D | Chicago     | Cancelled |
| 11 | 1011     | FL1466       | Airline A | Phoenix     | On Time   |
| 12 | 1012     | FL1214       | Airline D | New York    | Delayed   |
| 13 | 1013     | FL1330       | Airline C | Houston     | On Time   |
| 14 | 1014     | FL1458       | Airline C | New York    | Delayed   |
| 15 | 1015     | FL1087       | Airline C | Houston     | Delayed   |
| 16 | 1016     | FL1372       | Airline B | New York    | Delayed   |
| 17 | 1017     | FL1099       | Airline D | Phoenix     | Delayed   |
| 18 | 1018     | FL1871       | Airline B | Houston     | Delayed   |
| 19 | 1019     | FL1663       | Airline B | Chicago     | Cancelled |
| 20 | 1020     | FL1130       | Airline A | New York    | On Time   |
| 21 | 1021     | FL1661       | Airline B | New York    | Cancelled |
| 22 | 1022     | FL1308       | Airline A | Houston     | Delayed   |
| 23 | 1023     | FL1769       | Airline A | Chicago     | On Time   |
| 24 | 1024     | FL1343       | Airline B | Chicago     | Delayed   |
| 25 | 1025     | FL1491       | Airline D | Phoenix     | On Time   |
| 26 | 1026     | FL1413       | Airline D | Chicago     | Cancelled |
| 27 | 1027     | FL1805       | Airline D | Chicago     | On Time   |
| 28 | 1028     | FL1385       | Airline D | Chicago     | On Time   |
- Query Settings** pane on the right shows the dataset name as 'flight\_information'.
- APPLIED STEPS** pane shows the steps taken: 'Source', 'Navigation', 'Promoted Headers', 'Changed Type', 'Removed Columns', and 'Removed Duplicates'.

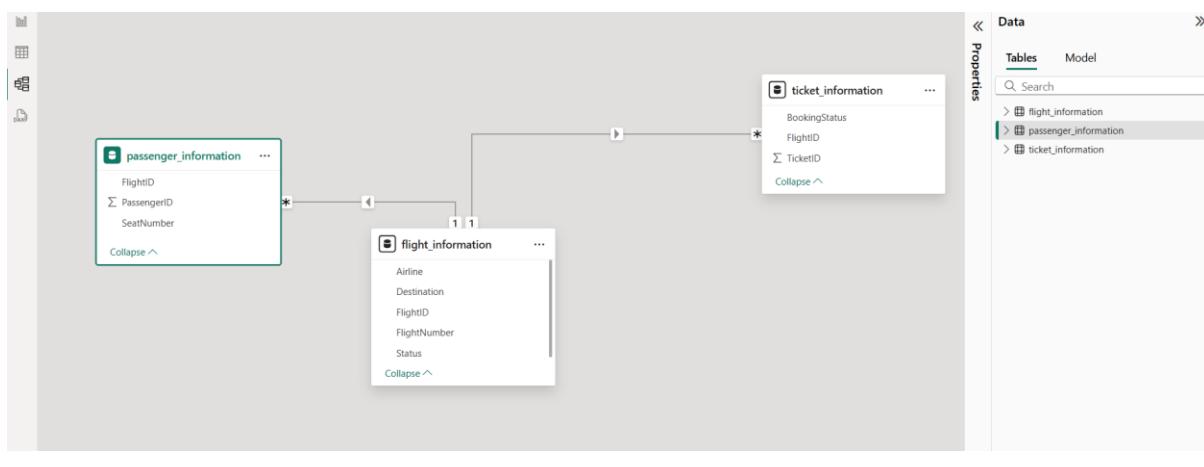
## 2. Data Modeling

**Tasks:**

- Create relationships between datasets (FlightID as the key).
- Understand cardinality and configure the model appropriately.
- Deliverables: Screenshot of the data model with relationships.

**Steps:**

1. Open Model View in Power BI.
2. Create relationships:
  - Flight\_Information[FlightID] = Passenger\_Information[FlightID] (One-to-Many)
  - Flight\_Information[FlightID] = Ticket\_Information[FlightID] (One-to-Many)
3. Ensured correct cardinality .



### 3. Enhanced Data Insights

#### Tasks:

- Add a conditional column to classify flights as "Best" or "To Be Improved" based on status.
- Use "Column from Examples" to extract the flight number from FlightNumber.
- Deliverables: Screenshot of the transformed data.

#### Steps:

1. In Power Query, add a Conditional Column:
  - If Status = 'On Time', classify as "Best".
  - For Rest = 'Delayed', classify as "To Be Improved".

The screenshot shows the Power Query Editor with the 'flight\_information' query selected. The 'Applied Steps' pane on the right shows a step named 'Added Conditional Column'. The main area displays a table with columns: FlightID, FlightNumber, Airline, Destination, Status, and Flight Classification. The 'Flight Classification' column contains values: Best for 'On Time' and To Be Improved for 'Delayed'. The 'Query Settings' pane shows the name is 'flight\_information'.

2. Use "Column from Examples" to extract flight numbers from FlightNumber.

The screenshot shows the Power BI Query Editor with three queries listed on the left: 'flight\_information', 'ticket\_information', and 'passenger\_information'. The main area displays a table titled 'Table.TransformColumnTypes(#"Inserted Text After Delimiter", {"Flight Number extracted", Int64.Type}, {"Flight Classification", type})'. This table contains 28 rows of flight data. A new column, 'Flight Number extracted', has been added to the right of the original columns. The 'Properties' pane on the right shows the query name as 'flight\_information'. The 'Applied Steps' pane at the bottom lists the steps taken: 'Source', 'Navigation', 'Promoted Headers', 'Changed Type', 'Removed Columns', 'Removed Duplicates', 'Added Conditional Column', 'Inserted Text After Delimiter', and 'Changed Type1'. The status bar at the bottom indicates 'PREVIEW DOWNLOADED AT 13:01'.

|    | FlightNumber | Airline   | Destination | Status    | Flight Classification | Flight Number extracted |
|----|--------------|-----------|-------------|-----------|-----------------------|-------------------------|
| 1  | D02 FL1102   | Airline D | Houston     | On Time   | Best                  | 1102                    |
| 2  | D02 FL1435   | Airline B | Chicago     | On Time   | Best                  | 1435                    |
| 3  | D03 FL1860   | Airline A | New York    | Cancelled | To Be Improved        | 1860                    |
| 4  | D04 FL1270   | Airline C | Chicago     | Delayed   | To Be Improved        | 1270                    |
| 5  | D05 FL1106   | Airline C | New York    | Delayed   | To Be Improved        | 1106                    |
| 6  | D06 FL1071   | Airline A | Phoenix     | On Time   | Best                  | 1071                    |
| 7  | D07 FL1700   | Airline C | Los Angeles | Cancelled | To Be Improved        | 1700                    |
| 8  | D08 FL1020   | Airline C | Los Angeles | Delayed   | To Be Improved        | 1020                    |
| 9  | D09 FL1614   | Airline A | Los Angeles | Cancelled | To Be Improved        | 1614                    |
| 10 | D10 FL1121   | Airline D | Chicago     | Cancelled | To Be Improved        | 1121                    |
| 11 | D11 FL1466   | Airline A | Phoenix     | On Time   | Best                  | 1466                    |
| 12 | D12 FL1214   | Airline D | New York    | Delayed   | To Be Improved        | 1214                    |
| 13 | D13 FL1330   | Airline C | Houston     | On Time   | Best                  | 1330                    |
| 14 | D14 FL1458   | Airline C | New York    | Delayed   | To Be Improved        | 1458                    |
| 15 | D15 FL1087   | Airline C | Houston     | Delayed   | To Be Improved        | 1087                    |
| 16 | D16 FL1372   | Airline B | New York    | Delayed   | To Be Improved        | 1372                    |
| 17 | D17 FL1099   | Airline D | Phoenix     | Delayed   | To Be Improved        | 1099                    |
| 18 | D18 FL1871   | Airline B | Houston     | Delayed   | To Be Improved        | 1871                    |
| 19 | D19 FL1663   | Airline B | Chicago     | Cancelled | To Be Improved        | 1663                    |
| 20 | D20 FL1130   | Airline A | New York    | On Time   | Best                  | 1130                    |
| 21 | D21 FL1661   | Airline B | New York    | Cancelled | To Be Improved        | 1661                    |
| 22 | D22 FL1308   | Airline A | Houston     | Delayed   | To Be Improved        | 1308                    |
| 23 | D23 FL1769   | Airline A | Chicago     | On Time   | Best                  | 1769                    |
| 24 | D24 FL1343   | Airline B | Chicago     | Delayed   | To Be Improved        | 1343                    |
| 25 | D25 FL1491   | Airline D | Phoenix     | On Time   | Best                  | 1491                    |
| 26 | D26 FL1413   | Airline D | Chicago     | Cancelled | To Be Improved        | 1413                    |
| 27 | D27 FL1805   | Airline D | Chicago     | On Time   | Best                  | 1805                    |
| 28 |              |           |             |           |                       |                         |

#### 4. Calculations Using DAX (10 Marks)

Tasks:

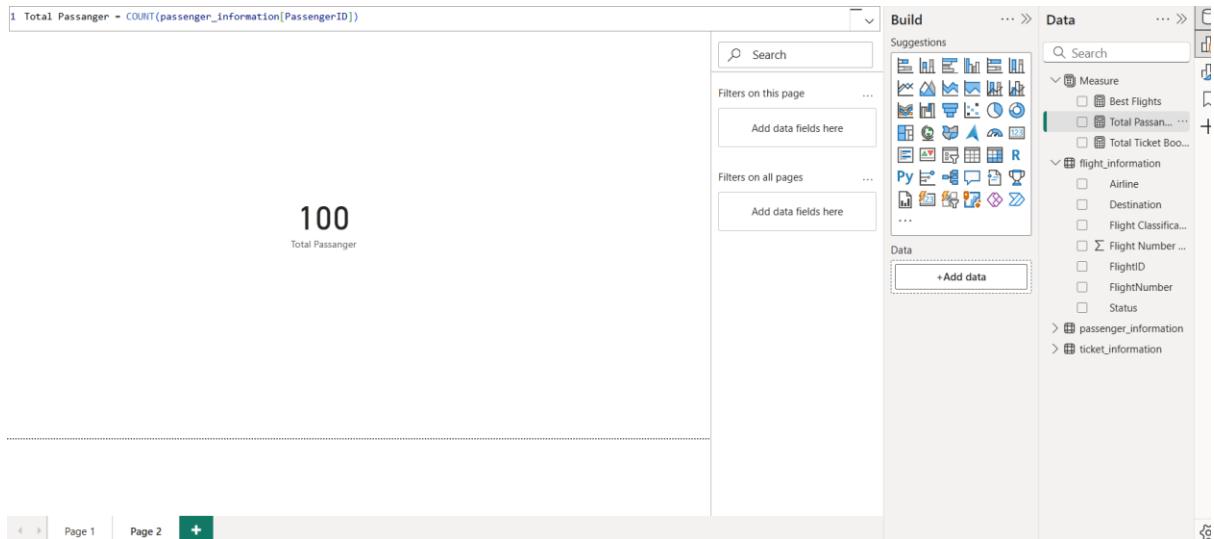
- Calculate:

- Total passengers for a specific flight.
- Total tickets booked.
- Filtered table showing "Best" flights only.

DAX Formulas:

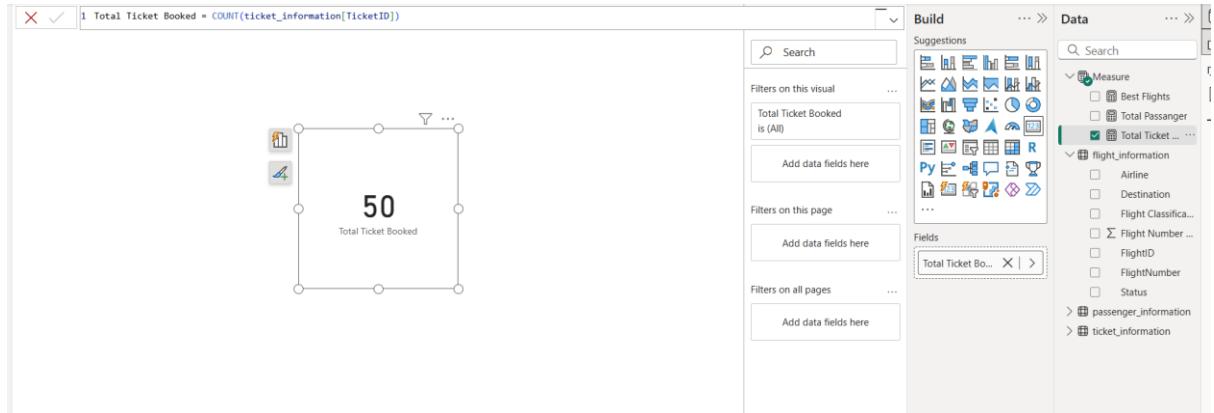
- Total passengers for a specific flight

Total Passanger = COUNT(passenger\_information[PassengerID])



- Total tickets booked

Total Ticket Booked = COUNT(ticket\_information[TicketID])



- Filtered table showing "Best" flights only.

Best Flights = FILTER(Flight\_Information, Flight\_Information[Status] = "On Time")

The screenshot shows the Power BI Data View interface. On the left, there's a table visualization titled "Best Flights". The table has two columns: "FlightNumber" and "Best Flights". The "FlightNumber" column lists various flight numbers (e.g., FL1004, FL1014, ..., FL1313), and the "Best Flights" column contains the value 1 for all entries. A summary row at the bottom labeled "Total" shows a value of 82. To the right of the table are several filter and search boxes, and a "Build" pane containing "Suggestions" and "Filters". The "Data" pane on the far right shows the data model with tables like "flight\_information", "passenger\_information", and "ticket\_information".

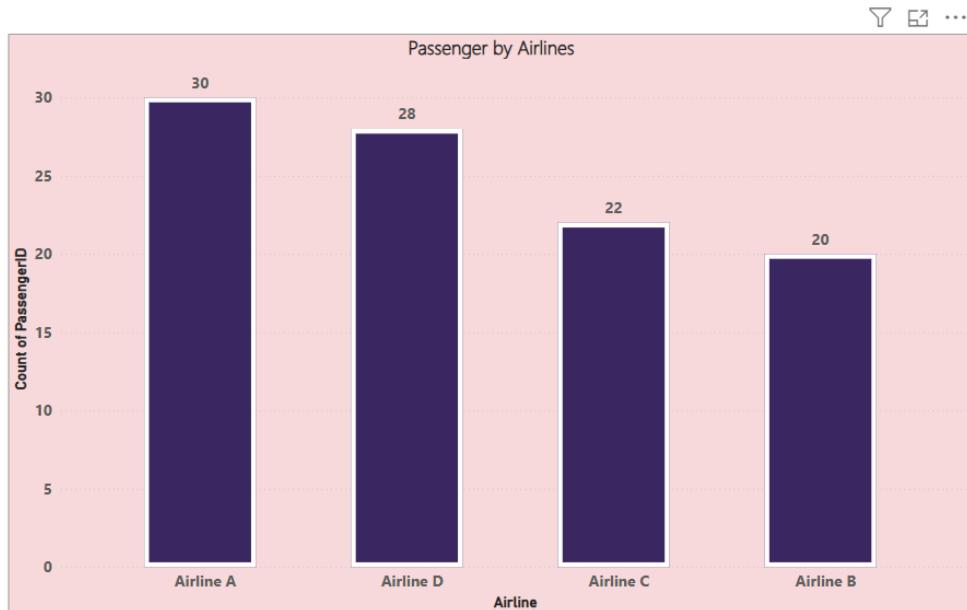
## 5. Visualization and Interactive Features

**Tasks:** Create visuals for:

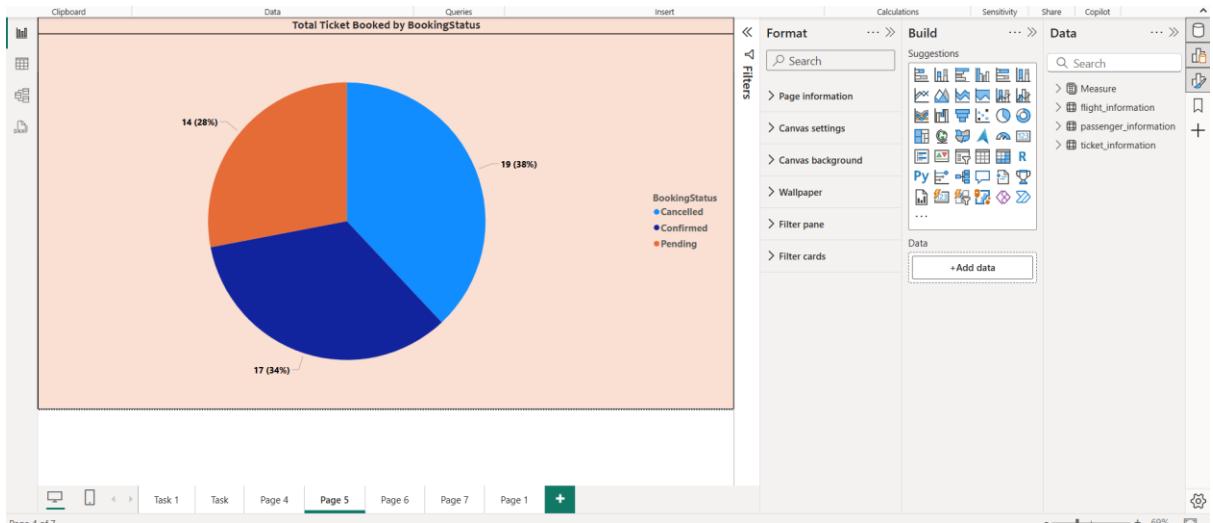
- Passenger count by airline.
- Ticket booking statuses.
- Flights by airline and destination.

**Steps:**

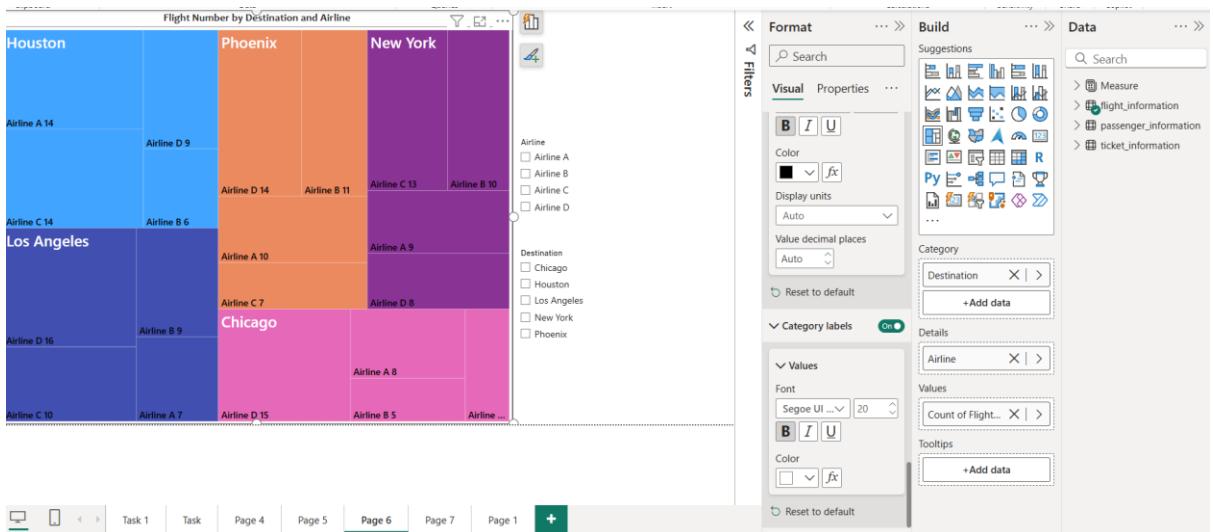
1. Bar Chart for "Passenger count by Airline" (Axis: Airline, Values: Total Passengers).



2. Pie Chart for "Ticket Booking Status".



### 3. TreeMap for "Flights by Airline and Destination".



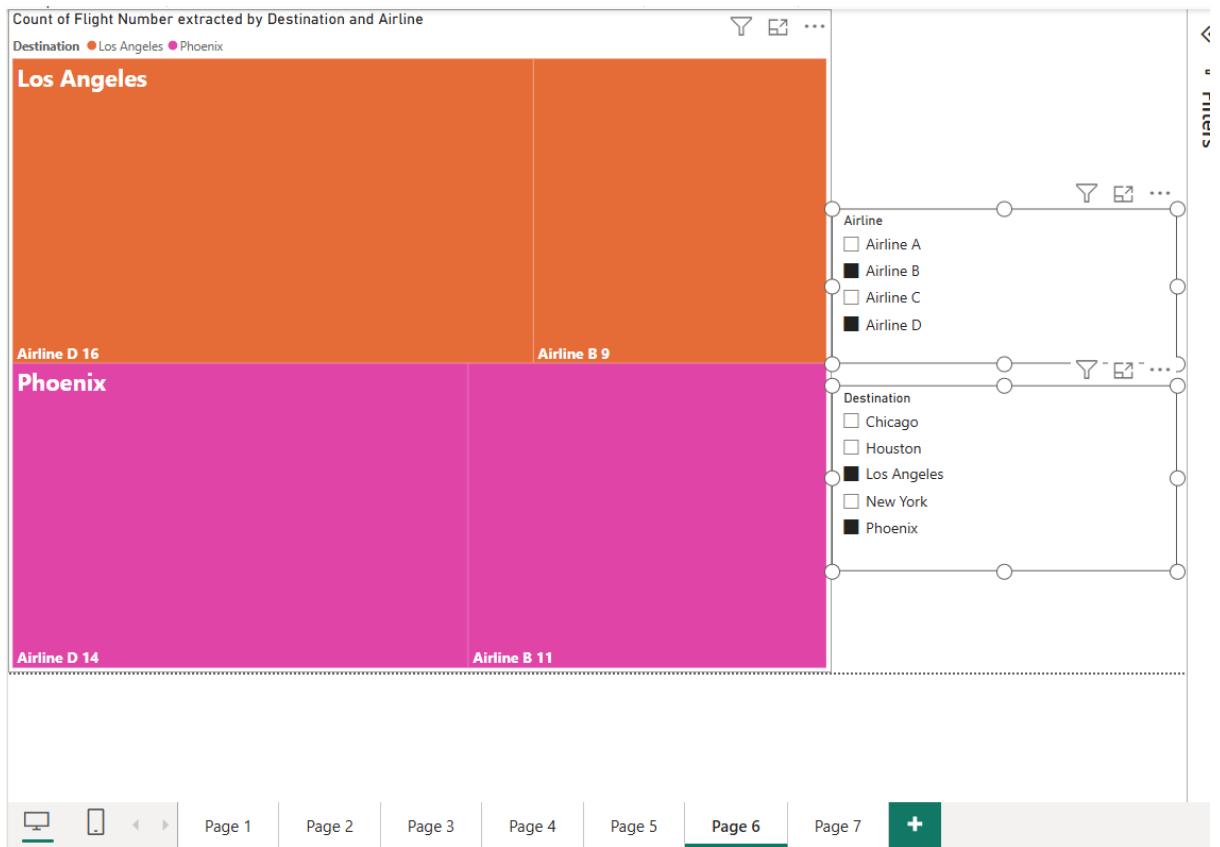
- Add interactive features for:

- Destination and Airline.
- Quick views.
- Airline-specific pages.

#### 1. Destination and Airline Filters

##### Steps:

1. Insert a Slicer from the Visualizations pane.
2. Set the Field:
  - For Destination Filter : Select Flight\_Information[Destination].
  - For Airline Filter : Select Flight\_Information[Airline].



## 2. Quick Views

### Steps:

1. Insert **Card Visuals** to display key metrics:
  - Total Passengers : Use the DAX formula: `Total_Passengers`.
  - Total Tickets Booked : Use the DAX formula: `Total_Tickets_Booked`.
  - Number of Flights : Use `COUNT(Flight_Information[FlightID])`.



### 3. Airline-Specific Pages

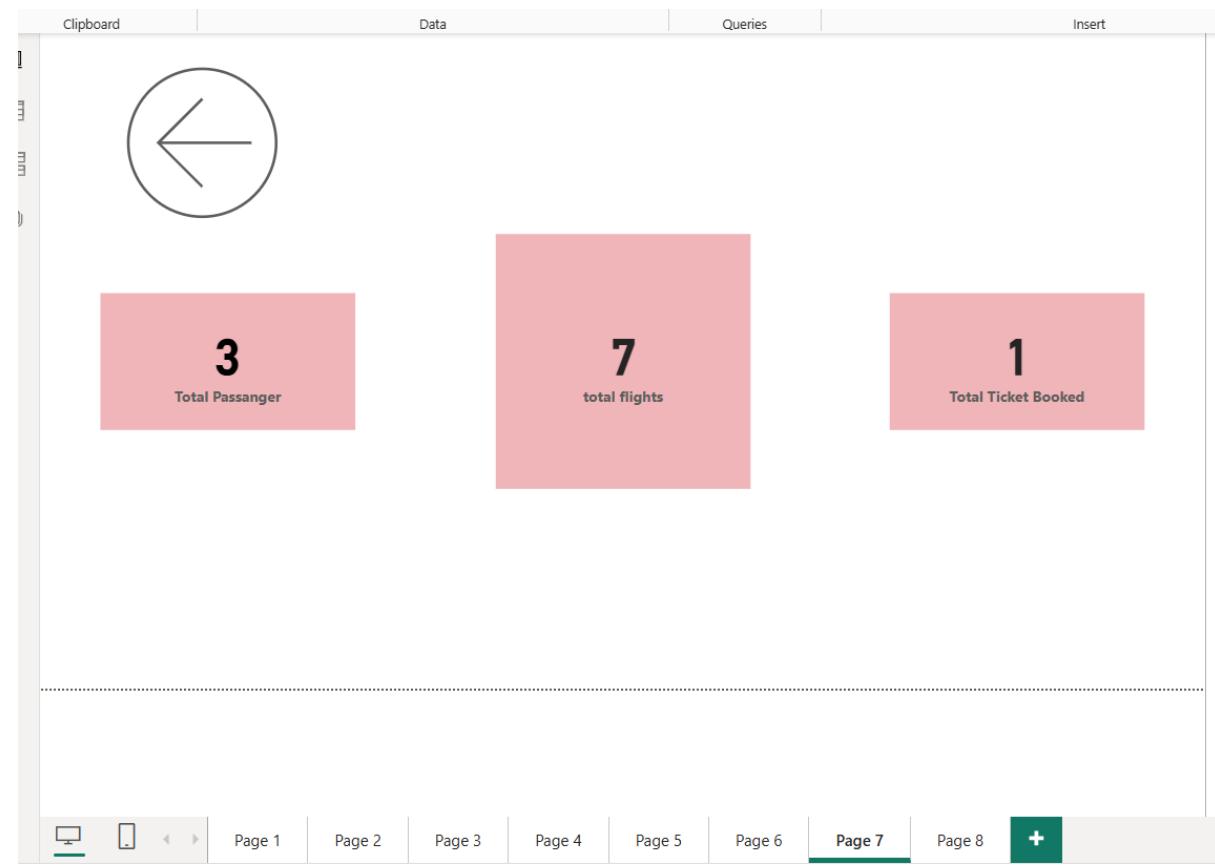
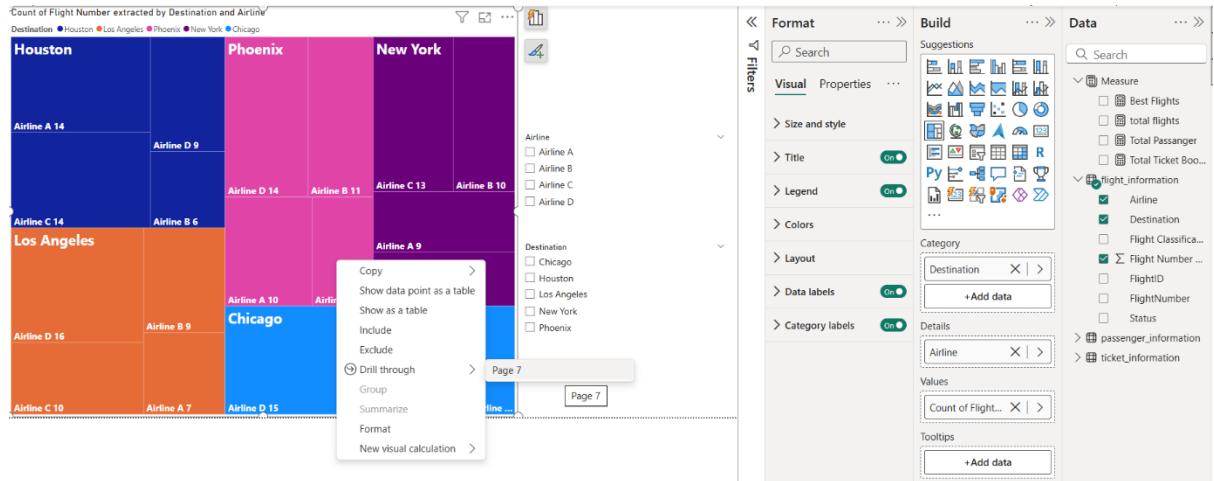
**Steps:**

#### 1. Create the Main Page (Treemap)

- **Insert a Treemap visual**
  - Category: Destinations
  - Values: Airline ,Total Passengers
- This Treemap will be the starting point for Drill Through.
- **Set up Drill Through Filter**
  - In the Visualizations pane, locate Drill Through settings.
  - Drag Airline field into the Drill Through filter well
- Insert Card Visuals to display:
  - Total Passengers
  - Total Ticket Booking
  - Total On-Time Flights

#### 4. Enable Drill Through

- Go back to the main Treemap page
- Click on any airline : Right-click - Select Drill Through - Airline Details
- The new page will now show filtered data for that airline.



#### 6. Final Dashboard and Power BI Service

Tasks:

- Design a comprehensive dashboard with key visuals and insights.

- Configure Row-Level Security (RLS) for Airline A data and assign it to a user.

- Set up a schedule refresh at 5 PM daily.

### 1. Create Dashboard:

- Add key visuals from previous steps.
- Arrange components neatly.
- Use cards for total counts.



### 2. Configure RLS:

- Go to Manage Roles: Filter Flight Information where Airline = 'Airline A'.
- Assign the role to a user.

The screenshot shows the 'Row-Level Security' settings for a dataset named 'Untitled (1)'. On the left, there's a sidebar with icons for Home, Create, Browse, OneLake, Workspaces, and a list of datasets. The main area is titled 'Members (1)' and contains a single entry: 'Ashish jangid'. Below the list are 'Save' and 'Cancel' buttons.

### 3. Schedule Refresh:

- Open Power BI Service - Dataset - Schedule Refresh.
- Set time to 5 PM daily.

The screenshot shows the 'Schedule Refresh' configuration for a dataset. It includes fields for 'Time zone' (set to '(UTC) Coordinated Universal Time'), 'Configure a refresh schedule' (set to 'On'), 'Refresh frequency' (set to 'Daily'), and 'Time' (set to '5 [00] PM'). There are also sections for 'Send refresh failure notifications to' (with 'Semantic model owner' checked) and 'These contacts' (with an input field for email addresses). At the bottom are 'Apply' and 'Discard' buttons.