

# Power BI Airline Dashboard Project Report

Name: Mohammed Danish Adnaan

Project Title: Airline Insights Dashboard using Power BI

Duration: April 2025

Tool Used: Microsoft Power BI

Video Explanation Link : <https://drive.google.com/file/d/11JnpWT04wk9fOGn59ZFB4TRd4akDAsYV/view?usp=sharing>

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## Task 1: Data Preparation and Cleaning (10 Marks)

Extracted and transformed data using Power Query:

- Imported Passenger\_Information, Ticket\_Information, and Flight\_Information
- Removed duplicates
- Handled missing values
- Formatted column headers and ensured consistent datatypes

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

- Home Tab:** Selected.
- Queries [3]:** Shows three queries: Table 1 (ticket\_informati..., Table 1 (passenger\_informati..., and Table 1 (flight\_informati...).
- Table View:** Displays a table with 3 columns and 26 rows. The columns are PassengerID, FlightID, and SeatNumber. The data includes rows like (1, 1161, 38A), (2, 1157, 24D), (3, 1141, 30B), etc.
- Applied Steps:** Shows the steps taken to process the data:
  - Source
  - Navigation
  - FilterNullAndWhitespace
  - Removed Other Columns
  - Promoted Headers
  - Changed Type
  - Removed Duplicates
- Query Settings:** Shows the current settings for the query.

**Untitled - Power Query Editor**

**Home** Transform Add Column View Tools Help

Close & Apply Close New Source Recent Sources Enter Data Data source settings Manage Parameters Refresh Preview Advanced Editor Properties Query Choose Columns Remove Columns Manage Columns Keep Rows Remove Rows Group By Split Column Reduce Rows Sort Replace Values Data Type: Whole Number Use First Row as Headers Merge Queries Append Queries Combine Files Text Analytics Vision Azure Machine Learning AI Insights

**Queries [3]**

Table 1 (ticket\_informati... Table 1 (passenger\_infor... Table 1 (flight\_informati...

FlightID FlightNumber Airline Destination Status

FlightID	FlightNumber	Airline	Destination	Status
1001	FL1102	Airline D	Houston	On Time
1002	FL1435	Airline B	Chicago	On Time
1003	FL1860	Airline A	New York	Cancelled
1004	FL1270	Airline C	Chicago	Delayed
1005	FL1106	Airline C	New York	Delayed
1006	FL1071	Airline A	Phoenix	On Time
1007	FL1700	Airline C	Los Angeles	Cancelled
1008	FL1020	Airline C	Los Angeles	Delayed
1009	FL1614	Airline A	Los Angeles	Cancelled
1010	FL1121	Airline D	Chicago	Cancelled
1011	FL1466	Airline A	Phoenix	On Time
1012	FL1214	Airline D	New York	Delayed
1013	FL1330	Airline C	Houston	On Time
1014	FL1458	Airline C	New York	Delayed
1015	FL1087	Airline C	Houston	Delayed
1016	FL1372	Airline B	New York	Delayed
1017	FL1099	Airline D	Phoenix	Delayed
1018	FL1871	Airline B	Houston	Delayed
1019	FL1663	Airline B	Chicago	Cancelled
1020	FL1130	Airline A	New York	On Time
1021	FL1661	Airline B	New York	Cancelled
1022	FL1308	Airline A	Houston	Delayed
1023	FL1769	Airline A	Chicago	On Time
1024	FL1343	Airline B	Chicago	Delayed
1025	FL1491	Airline D	Phoenix	On Time
1026	FL1413	Airline D	Chicago	Cancelled

5 COLUMNS, 200 ROWS Column profiling based on top 1000 rows PREVIEW DOWNLOADED AT 10:59 PM

**Untitled - Power Query Editor**

**Home** Transform Add Column View Tools Help

Close & Apply Close New Source Recent Sources Enter Data Data source settings Manage Parameters Refresh Preview Advanced Editor Properties Query Choose Columns Remove Columns Manage Columns Keep Rows Remove Rows Group By Split Column Reduce Rows Sort Replace Values Data Type: Whole Number Use First Row as Headers Merge Queries Append Queries Combine Files Text Analytics Vision Azure Machine Learning AI Insights

**Queries [3]**

Table 1 (ticket\_informati... Table 1 (passenger\_infor... Table 1 (flight\_informati...

TicketID FlightID BookingStatus

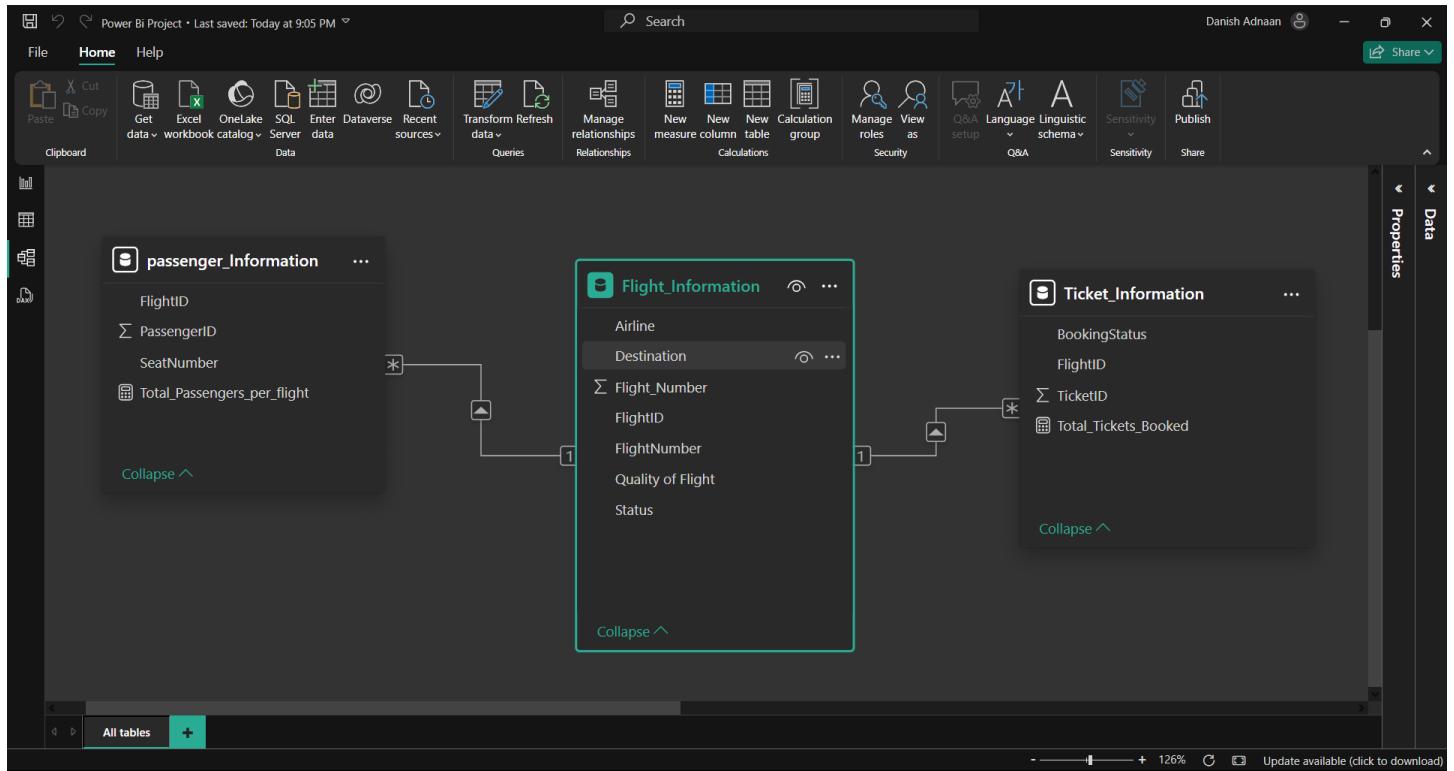
TicketID	FlightID	BookingStatus
5001	1178	Pending
5002	1078	Confirmed
5003	1117	Cancelled
5004	1120	Cancelled
5005	1137	Cancelled
5006	1162	Pending
5007	1076	Pending
5008	1035	Cancelled
5009	1001	Cancelled
5010	1040	Cancelled
5011	1064	Pending
5012	1150	Cancelled
5013	1060	Cancelled
5014	1064	Confirmed
5015	1093	Confirmed
5016	1072	Pending
5017	1011	Cancelled
5018	1105	Cancelled
5019	1014	Confirmed
5020	1060	Pending
5021	1030	Confirmed
5022	1035	Confirmed
5023	1165	Confirmed
5024	1005	Confirmed
5025	1083	Cancelled
5026	1123	Cancelled

3 COLUMNS, 50 ROWS Column profiling based on top 1000 rows PREVIEW DOWNLOADED AT 11:00 PM

ENG IN 11:08 PM 20-04-2025

## Task 2: Data Modeling (10 Marks)

Created relationships among the three datasets using 'FlightID' as the key. Ensured appropriate cardinality (one-to-many) and verified directional filters.



## Task 3: Enhanced Data Insights (10 Marks)

- Added a conditional column to classify flights as 'Best' or 'To Be Improved' based on flight status.
- Used 'Column from Examples' feature in Power Query to extract flight number from FlightNumber.

Untitled - Power Query Editor

Home Transform Add Column View Tools Help

Column From Examples Column Custom Invoke Custom Function Conditional Column Index Column Merge Columns Format All Extract Parse General Statistics Standard Scientific Trigonometry Date Time Duration From Number From Date & Time Text Analytics Vision Azure Machine Learning AI Insights

Use examples to create a new column in this table. (Ctrl+E)

From Selection fx = Table.AddColumn(#"Added Conditional Column", "Flight\_Number", each Text.AfterDelimiter([FlightNumber], "L"), type text)

	FlightNumber	Airline	Destination	Status	Quality of Flight	Flight_Number
1	1001 FL1102	Airline D	Houston	On Time	Best	1102
2	1002 FL1435	Airline B	Chicago	On Time	Best	1435
3	1003 FL1860	Airline A	New York	Cancelled	To Be Improved	1860
4	1004 FL1270	Airline C	Chicago	Delayed	To Be Improved	1270
5	1005 FL1106	Airline C	New York	Delayed	To Be Improved	1106
6	1006 FL1071	Airline A	Phoenix	On Time	Best	1071
7	1007 FL1700	Airline C	Los Angeles	Cancelled	To Be Improved	1700
8	1008 FL1020	Airline C	Los Angeles	Delayed	To Be Improved	1020
9	1009 FL1614	Airline A	Los Angeles	Cancelled	To Be Improved	1614
10	1010 FL1121	Airline D	Chicago	Cancelled	To Be Improved	1121
11	1011 FL1466	Airline A	Phoenix	On Time	Best	1466
12	1012 FL1214	Airline D	New York	Delayed	To Be Improved	1214
13	1013 FL1330	Airline C	Houston	On Time	Best	1330
14	1014 FL1458	Airline C	New York	Delayed	To Be Improved	1458
15	1015 FL1087	Airline C	Houston	Delayed	To Be Improved	1087
16	1016 FL1372	Airline B	New York	Delayed	To Be Improved	1372
17	1017 FL1099	Airline D	Phoenix	Delayed	To Be Improved	1099
18	1018 FL1871	Airline B	Houston	Delayed	To Be Improved	1871
19	1019 FL1663	Airline B	Chicago	Cancelled	To Be Improved	1663
20	1020 FL1130	Airline A	New York	On Time	Best	1130
21	1021 FL1661	Airline B	New York	Cancelled	To Be Improved	1661
22	1022 FL1308	Airline A	Houston	Delayed	To Be Improved	1308
23	1023 FL1769	Airline A	Chicago	On Time	Best	1769
24	1024 FL1143	Airline B	Chicago	Delayed	To Be Improved	1143
25	1025 FL1491	Airline D	Phoenix	On Time	Best	1491
26	1026 FL1413	Airline D	Chicago	Cancelled	To Be Improved	1413

7 COLUMNS, 200 ROWS Column profiling based on top 1000 rows

Preview Downloaded on Sunday

Untitled - Power Query Editor

Home Transform Add Column View Tools Help

Column From Examples Column Custom Invoke Custom Function Conditional Column Index Column Merge Columns Format All Extract Parse General Statistics Standard Scientific Trigonometry Date Time Duration From Number From Date & Time Text Analytics Vision Azure Machine Learning AI Insights

Queries [3]

Ticket\_Information passenger\_Information Flight\_Information

fx = Table.AddColumn(#"Removed Duplicates", "Quality of Flight", each if [Status] = "On Time" then "Best" else "To Be Improved")

	FlightID	FlightNumber	Airline	Destination	Status	Quality of Flight
1	1001	FL1102	Airline D	Houston	On Time	best
2	1002	FL1435	Airline B	Chicago	On Time	best
3	1003	FL1860	Airline A	New York	Cancelled	To Be Improved
4	1004	FL1270	Airline C	Chicago	Delayed	To Be Improved
5	1005	FL1106	Airline C	New York	Delayed	To Be Improved
6	1006	FL1071	Airline A	Phoenix	On Time	best
7	1007	FL1700	Airline C	Los Angeles	Cancelled	To Be Improved
8	1008	FL1020	Airline C	Los Angeles	Delayed	To Be Improved
9	1009	FL1614	Airline A	Los Angeles	Cancelled	To Be Improved
10	1010	FL1121	Airline D	Chicago	Cancelled	To Be Improved
11	1011	FL1466	Airline A	Phoenix	On Time	best
12	1012	FL1214	Airline D	New York	Delayed	To Be Improved
13	1013	FL1330	Airline C	Houston	On Time	best
14	1014	FL1458	Airline C	New York	Delayed	To Be Improved
15	1015	FL1087	Airline C	Houston	Delayed	To Be Improved
16	1016	FL1372	Airline B	New York	Delayed	To Be Improved
17	1017	FL1099	Airline D	Phoenix	Delayed	To Be Improved
18	1018	FL1871	Airline B	Houston	Delayed	To Be Improved
19	1019	FL1663	Airline B	Chicago	Cancelled	To Be Improved
20	1020	FL1130	Airline A	New York	On Time	best
21	1021	FL1661	Airline B	New York	Cancelled	To Be Improved
22	1022	FL1308	Airline A	Houston	Delayed	To Be Improved
23	1023	FL1769	Airline A	Chicago	On Time	best
24	1024	FL1143	Airline B	Chicago	Delayed	To Be Improved
25	1025	FL1491	Airline D	Phoenix	On Time	best
26	1026	FL1413	Airline D	Chicago	Cancelled	To Be Improved

6 COLUMNS, 200 ROWS Column profiling based on top 1000 rows

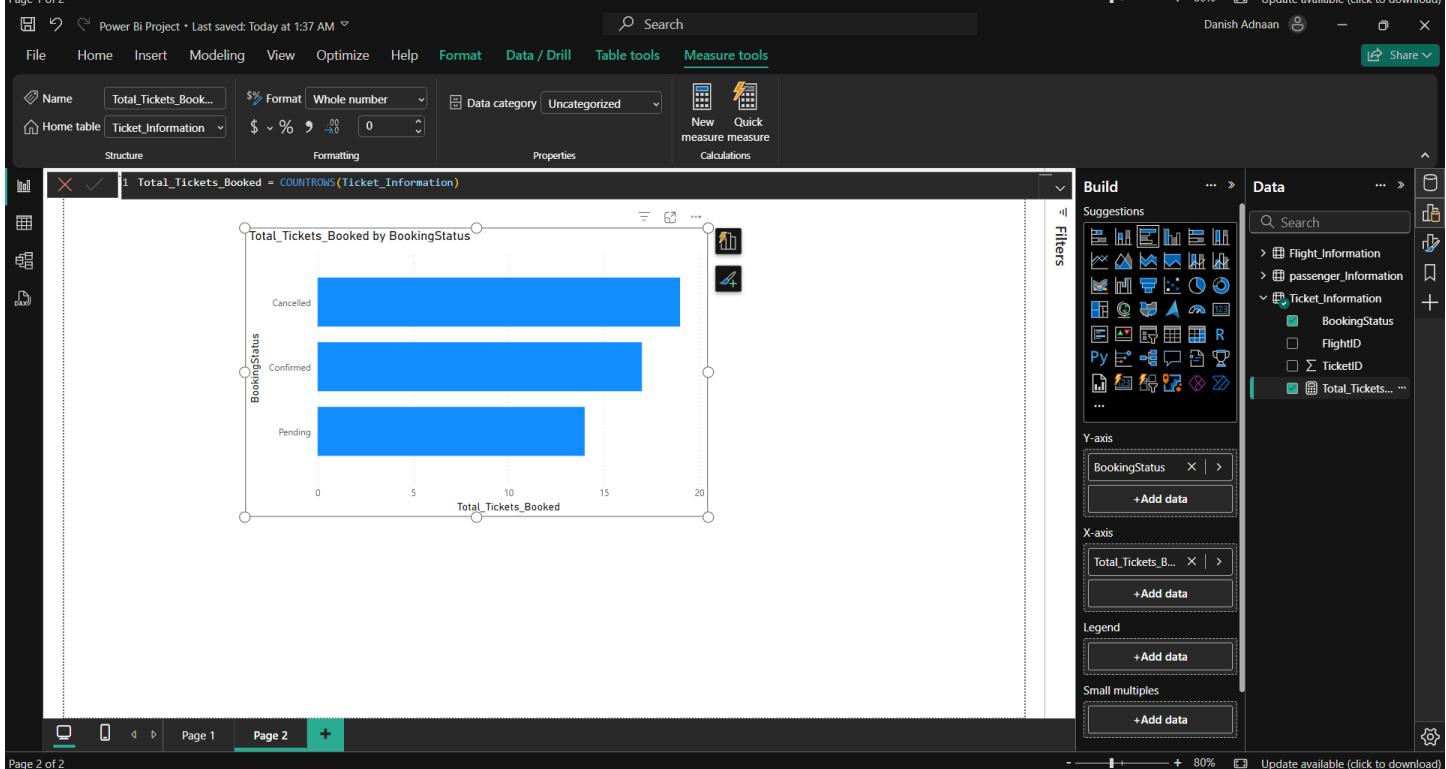
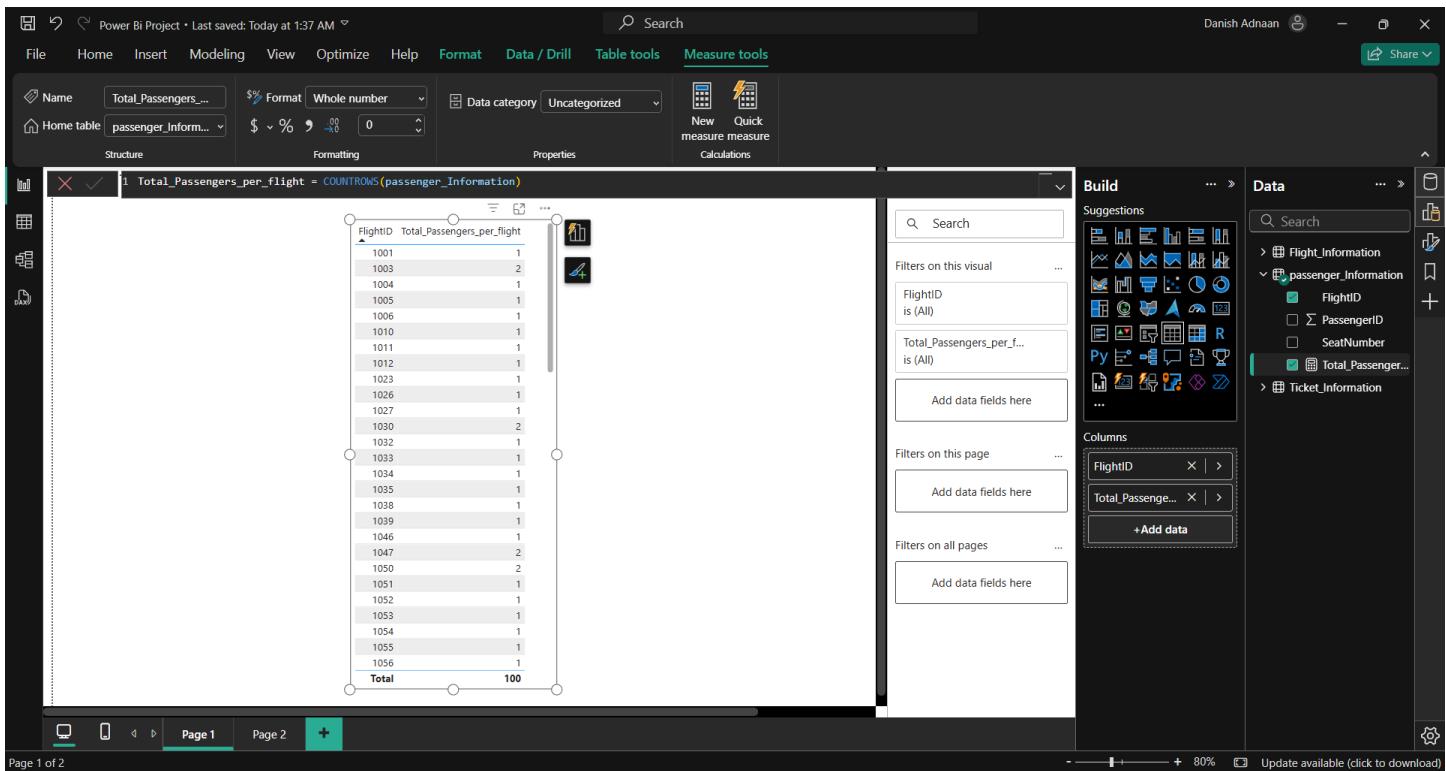
Preview Downloaded on Sunday

👉 Upload screenshot of the transformed data.

## Task 4: Calculations Using DAX (10 Marks)

- Calculated total passengers for a specific flight.
- Measured total tickets booked.
- Created a filtered table showing only 'Best' flights.

1. Total\_Passengers\_per\_flight = COUNTROWS(passenger\_Information)
2. Total\_Tickets\_Booked = COUNTROWS(Ticket\_Information)
3. Best\_Flights\_Only = FILTER ('Flight\_Information', 'Flight\_Information'[Quality of Flight] = "Best")



The screenshot shows the Power BI Desktop interface with a table visualization titled "Best\_Flights\_Only". The table has columns: Destination, Airline, Quality of Flight, and FlightID. The data is as follows:

Destination	Airline	Quality of Flight	FlightID
Houston	Airline D	Best	1001
Chicago	Airline B	Best	1002
Phoenix	Airline A	Best	1006
Phoenix	Airline A	Best	1011
Houston	Airline C	Best	1013
New York	Airline A	Best	1020
Chicago	Airline A	Best	1023

The DAX query in the Query Editor is:

```

1. Best_Flights_Only =
2. FILTER (
3.     'Flight_Information',
4.     'Flight_Information'[Quality of Flight] = "Best"
5. )

```

The Power BI Data view pane on the right lists various tables and columns used in the model.

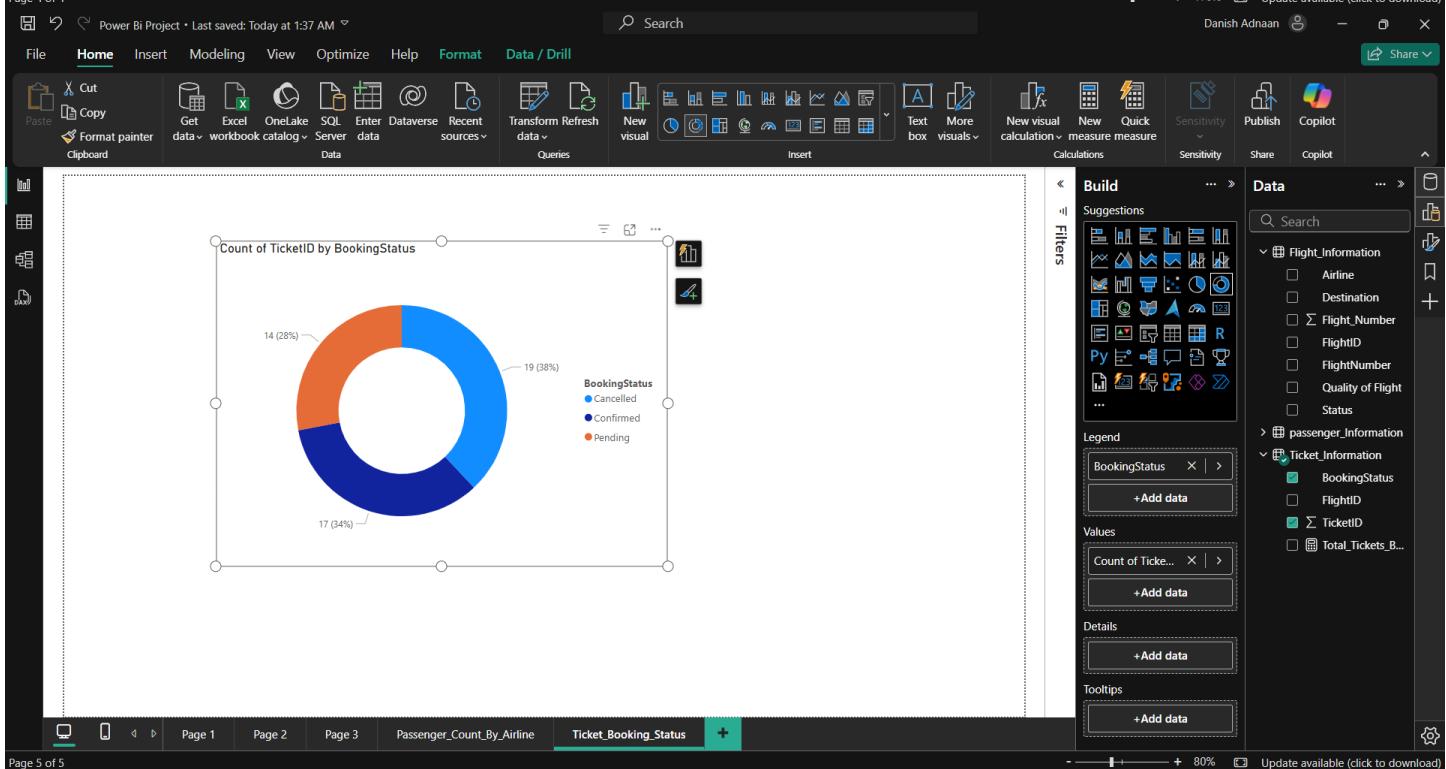
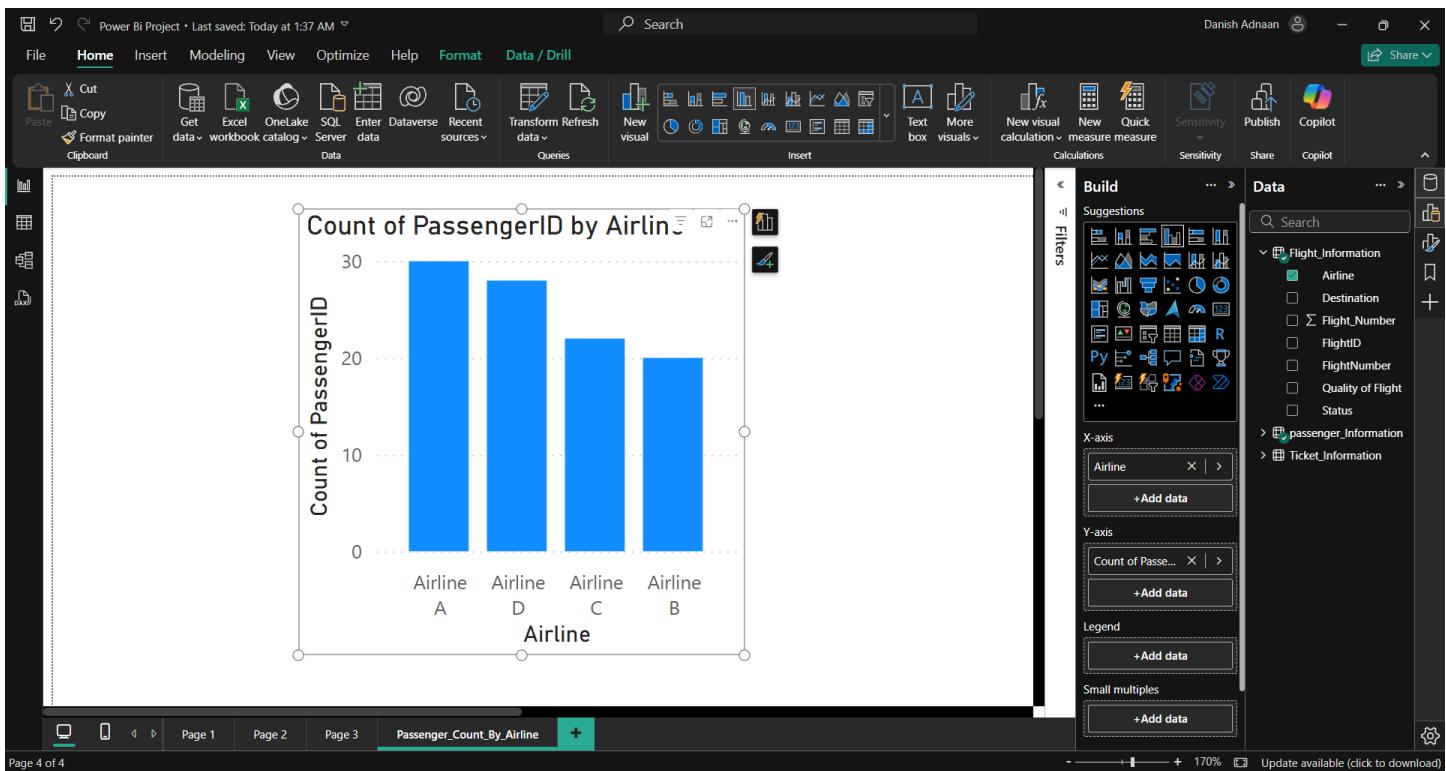
## Task 5: Visualization and Interactive Features (20 Marks)

Created visuals:

- Passenger count by airline (Bar chart)
- Ticket booking statuses (Donut chart)
- Flights by airline and destination (Table or Matrix view)

Added interactive features:

- Destination and Airline dropdown slicers
- Quickview page
- Airline-specific pages with drill-through navigation



Power BI Project • Last saved: Today at 1:37 AM

File Home Insert Modeling View Optimize Help Format Data / Drill

Cut Copy Paste Format painter Clipboard Get data Get data Excel OneLake SQL Server Enter Dataverse Recent sources Transform Refresh data New visual Insert Text box More visuals New visual calculation New measure measure Calculations Sensitivity Share Publish Copilot

**FlightID Destination Airline**

FlightID	Destination	Airline
1003	New York	Airline A
1006	Phoenix	Airline A
1009	Los Angeles	Airline A
1011	Phoenix	Airline A
1020	New York	Airline A
1022	Houston	Airline A
1023	Chicago	Airline A
1037	Chicago	Airline A
1040	New York	Airline A
1041	New York	Airline A
1042	Houston	Airline A
1045	Phoenix	Airline A
1047	Houston	Airline A
1048	New York	Airline A
1054	Houston	Airline A
1056	Houston	Airline A
1057	Phoenix	Airline A
1068	Chicago	Airline A
1070	Los Angeles	Airline A
1072	New York	Airline A
1080	Los Angeles	Airline A
1081	New York	Airline A

**Filters**

Format Visual Properties

- Filters on this visual
  - Airline is (All)
  - Destination is (All)
  - FlightID is (All)
- Add data fields here

Filters on this page

Filters on all pages

Format Visual Properties

Build Suggestions

Calculated Columns

Columns

- FlightID
- Destination
- Airline

Data Search

- Flight\_Information
  - Airline
  - Destination
  - Flight\_Number
  - FlightID
  - FlightNumber
  - Quality of Flight
  - Status
- passenger\_Information
  - FlightID
  - PassengerID
  - SeatNumber
  - Total\_Passenger...
- Ticket\_Information
  - BookingStatus
  - FlightID
  - TicketID
  - Total\_Tickets\_B...

Page 6 of 6

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**Destination Count of FlightID**

Destination	Count of FlightID
Chicago	33
Houston	43
Los Angeles	42
New York	40
Phoenix	42

**Filters**

Format Visual Properties

- Filters on this visual
  - Destination
  - Airline
- Add data fields here

Format Visual Properties

Build Suggestions

Calculated Columns

Columns

- Destination
- Airline

Data Search

- Flight\_Information
  - Airline
  - Destination
  - Flight\_Number
  - FlightID
  - FlightNumber
  - Quality of Flight
  - Status
- passenger\_Information
  - FlightID
  - PassengerID
  - SeatNumber
  - Total\_Passenger...
- Ticket\_Information
  - BookingStatus
  - FlightID
  - TicketID
  - Total\_Tickets\_B...

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**Quick Analysis View**

PassengerID	Airline	BookingStatus
30	Airline A	Cancelled
30	Airline A	Confirmed
30	Airline A	Pending
28	Airline D	Cancelled
28	Airline D	Confirmed
28	Airline D	Pending
22	Airline C	Cancelled
22	Airline C	Confirmed
22	Airline C	Pending
20	Airline B	Cancelled
20	Airline B	Confirmed
20	Airline B	Pending
Count of PassengerID	Airline	BookingStatus

**Quick Analysis View**

Airline	Cancelled	Confirmed	Pending
Airline A	30	30	30
Airline D	28	28	28
Airline C	22	22	22
Airline B	20	20	20

**Filters**

Search: Flight\_Information

- Airline is (All)
- BookingStatus is (All)
- Count of PassengerID is (All)

Add data fields here

**Data**

Search: Flight\_Information

- Airline
- Destination
- Flight\_Number
- FlightID
- FlightNumber
- Quality of Flight
- Status
- passenger\_Information
- FlightID
- PassengerID
- SeatNumber
- Total\_Passenger...
- Ticket\_Information
- BookingStatus
- FlightID
- TicketID
- Total\_Tickets\_B...

Page 8 of 8

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File Home Insert Modeling View Optimize Help

Cut Copy Paste Format painter Clipboard Get data Excel OneLake SQL Server Enter Dataverse Recent sources Data Transform Refresh New visual Insert Text box More visuals New visual calculation New measure measure Calculations Sensitivity Share Publish Copilot

**Quick\_views**

25 Count of PassengerID

46 Count of FlightID

12 Total\_Tickets\_Booked

**Best** Quality of Flight

FL1080 FlightNumber

**Format**

Search: Page Information

**Build**

Suggestions

Page Information

Canvas settings

Canvas background

Wallpaper

Filter pane

Filter cards

Add data

**Data**

Search: Flight\_Information

- Airline
- Destination
- Flight\_Number
- FlightID
- FlightNumber
- Quality of Flight
- Status
- passenger\_Information
- FlightID
- PassengerID
- SeatNumber
- Total\_Passenger...
- Ticket\_Information
- BookingStatus
- FlightID
- TicketID
- Total\_Tickets\_B...

## Task 6: Final Dashboard and Power BI Service (20 Marks)

- Designed a comprehensive dashboard showing KPIs, charts, and filters.
- Configured Row-Level Security (RLS) for Airline A and assigned to a user role.
- Scheduled a refresh at 5 PM daily (credentials configured in Power BI Service).

Power BI Project • Last saved: Today at 8:01 PM

File Home Insert Modeling View Optimize Help

Cut Copy Get data workbook catalog OneLake SQL Server Enter Data Transform Refresh New visual Text box More visuals Calculations Sensitivity Share Copilot

Paste Format painter Clipboard Data Sources Queries Insert Text box More visuals Calculations Sensitivity Share Copilot

**AIRLINE INSIGHTS DASHBOARD**

Count of PassengerID  
Count of TicketID by BookingStatus  
BookingStatus: Cancelled (14, 28%), Confirmed (19, 38%), Pending (17, 34%)  
Count of PassengerID by Airline  
Airline A: 30, Airline D: 28, Airline C: 22, Airline B: 20  
Total\_Tickets\_Booked: 50  
Flight Status: Cancelled, Delayed, On Time  
FlightID: 82 (Best), 118 (To be Improved)  
FlightNumber: FL1001, 1016, 1018, 1019, 1021, 1024, 1030, 1031, 1034, 1039, 1044, 1051, 1055, 1059, 1064  
Airline: Airline A, Airline B, Airline C, Airline D  
Quality of Flight: Best

Page 10 of 10      + 70%      Update available (click to download)

## Manage security roles

Create new security roles and use filters to define row-level data restrictions.

✓ Successfully applied role changes.

### Roles

+ New

grid **Airline A Manager** ...

### Select tables

- grid Best\_Flights\_O... ...
- grid Flight\_Informa... ...
- grid passenger\_Inf... ...
- grid Ticket\_Informa... ...

### Filter data

```
1 [Airline] = "Airline A"
```

✓ X Switch to default editor

info Filter the data that this role can see by entering a DAX filter expression that returns a True/False value. For example: [Entity ID] = "Value"

Save

Close

The screenshot shows the 'Row-Level Security' settings for the 'Internshala Project'. On the left, a sidebar lists various Power BI features like Home, Create, Browse, OneLake catalog, Apps, Metrics, Workspaces, Internshala Project, and Power BI Project. The 'Power BI Project' section is currently selected. The main area displays a role named 'Airline A Manager (1)' with one member listed: 'Danish Adnaan'. There is a search bar at the top labeled 'Search' and buttons for 'Save' and 'Cancel' at the bottom.

The screenshot shows the 'Settings' page for the 'Internshala Project'. The left sidebar is identical to the previous screenshot. The main area is titled 'Parameters' and includes sections for 'Refresh' (Time zone set to '(UTC+05:30) Chennai, Kolkata, Mumbai'), 'Configure a refresh schedule' (refresh frequency set to 'Daily' at '5 PM'), and 'Send refresh failure notifications to' (checkboxes for 'Semantic model owner' and 'These contacts:' are checked). A success message box is visible in the top right corner stating 'Power Bi Project refresh schedule updated' with the note 'Your updates to the Power Bi Project refresh schedule changes have been applied'. Buttons for 'Apply' and 'Discard' are at the bottom.

## Final Notes

This report covers the entire Power BI development process from data cleaning, modeling, insights generation, DAX, visual creation, and Power BI Service deployment.

\*\*\*THANK YOU\*\*\*