

## Task 1: Data Preparation and Cleaning

### Actions Performed:

- Imported Flight Information, Passenger Information, and Ticket Information datasets into Power BI using Power Query Editor.
- Removed duplicate rows and handled missing/null values across all datasets.
- Standardized column formats (e.g., changed data types).

Below are the screenshots.

Figure 1 shows the 'flight\_information' query in Power Query Editor. The table has 5 columns: FlightID, FlightNumber, Airline, Destination, and Status. The data is filtered to show rows where duplicates were removed. The status column shows various flight statuses like 'On Time', 'Delayed', 'Cancelled', and 'On Time'.

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 FL1563	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

Figure 1 Cleaned Flight details

Figure 2 Cleaned Passenger Information

File Home Transform Add Column View Tools Help

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

Queries [4]

flight\_information  
ticket\_information  
passenger\_information  
DAX

Table.SelectRows(#"Removed Duplicates", each true)

	PassengerID	FlightID	SeatNumber
1	1	1161	38A
2	2	1157	24D
3	3	1141	30B
4	4	1046	17E
5	5	1035	29D
6	6	1134	10A
7	7	1082	10A
8	8	1115	20E
9	9	1197	34E
10	10	1047	2E
11	11	1153	43C
12	12	1194	48C
13	13	1010	47A
14	14	1056	23C
15	15	1030	18D
16	16	1109	40D
17	17	1005	25C
18	18	1119	32C
19	19	1033	27E
20	20	1118	32B
21	21	1065	19E
22	22	1146	5B
23	23	1177	28B
24	24	1011	22E
25	25	1085	6A

3 COLUMNS, 100 ROWS Column profiling based on top 1000 rows

PREVIEW DOWNLOADED ON SATURDAY

Query Settings

PROPERTIES

Name  
passenger\_information

All Properties

APPLIED STEPS

Source  
Navigation  
Promoted Headers  
Changed Type  
Removed Columns  
Removed Duplicates  
Filtered Rows

Figure 3 Cleaned Ticket information

File Home Transform Add Column View Tools Help

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

Queries [3]

flight\_information  
ticket\_information  
passenger\_information

Table.SelectRows(#"Removed Duplicates", each true)

	TicketID	FlightID	BookingStatus
1	5001	1178	Pending
2	5002	1078	Confirmed
3	5003	1117	Cancelled
4	5004	1120	Cancelled
5	5005	1137	Cancelled
6	5006	1162	Pending
7	5007	1076	Pending
8	5008	1035	Cancelled
9	5009	1031	Cancelled
10	5010	1040	Cancelled
11	5011	1064	Pending
12	5012	1150	Cancelled
13	5013	1060	Cancelled
14	5014	1064	Confirmed
15	5015	1093	Confirmed
16	5016	1072	Pending
17	5017	1011	Cancelled
18	5018	1105	Cancelled
19	5019	1014	Confirmed
20	5020	1060	Pending
21	5021	1030	Confirmed
22	5022	1035	Confirmed
23	5023	1165	Confirmed
24	5024	1005	Confirmed
25	5025	1083	Cancelled

3 COLUMNS, 50 ROWS Column profiling based on top 1000 rows

PREVIEW DOWNLOADED ON FRIDAY

Query Settings

PROPERTIES

Name  
ticket\_information

All Properties

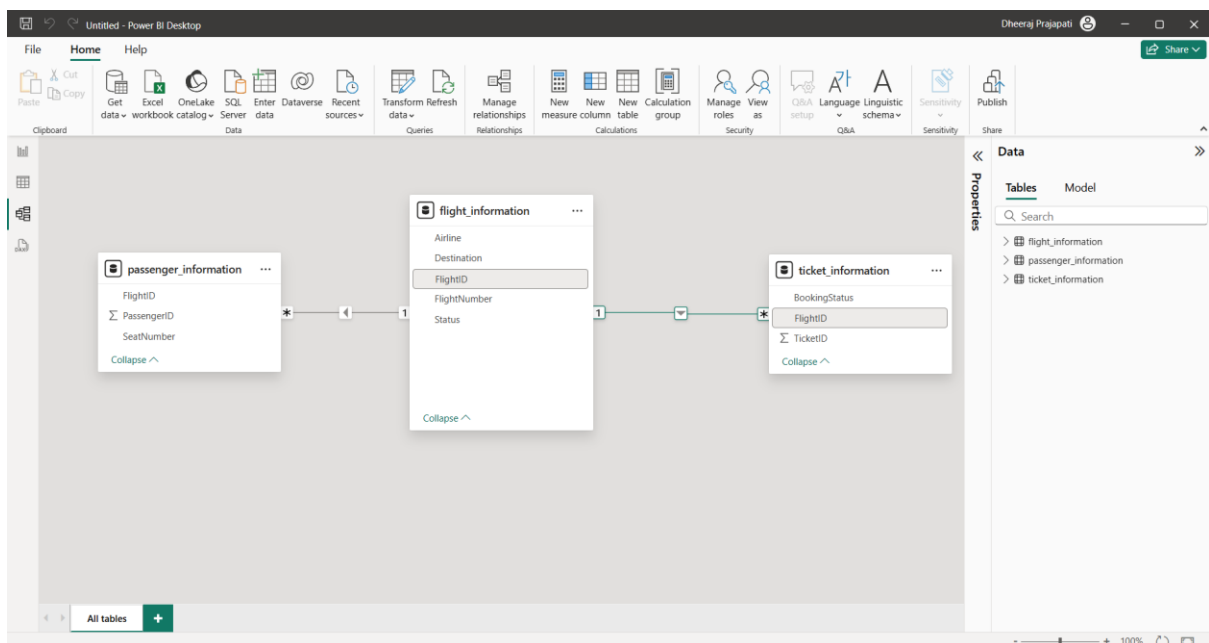
APPLIED STEPS

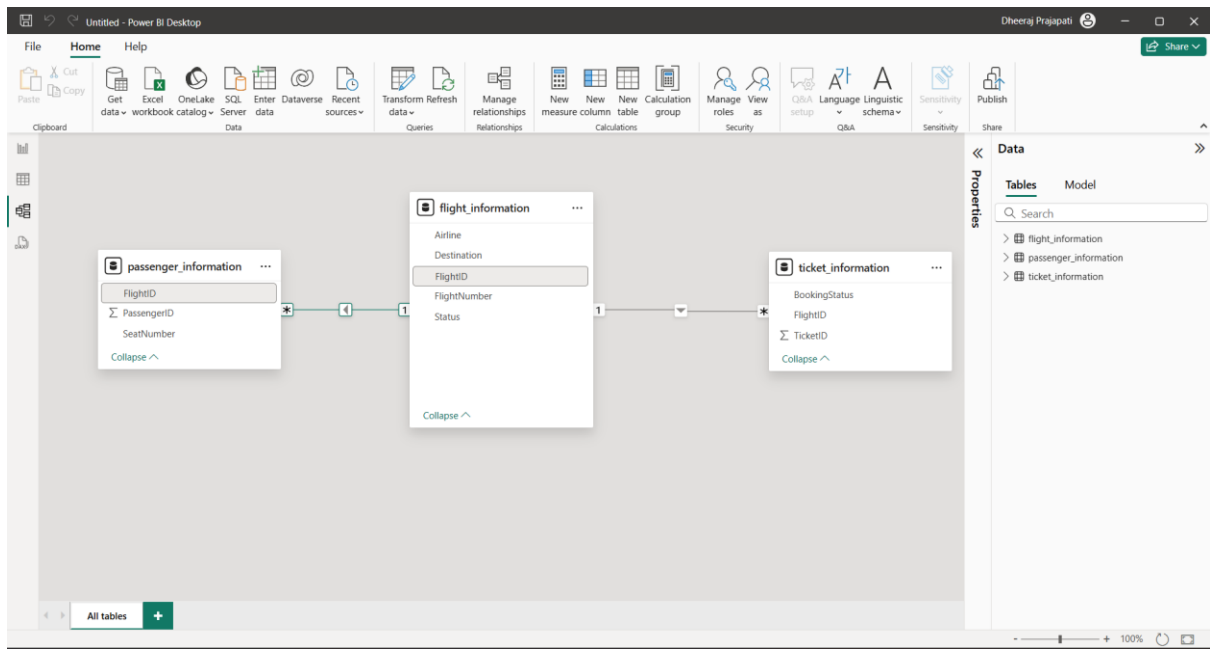
Source  
Navigation  
Promoted Headers  
Changed Type  
Removed Columns  
Removed Duplicates  
Filtered Rows

## Task 2: Data Modelling

### Actions Performed:

- Established relationships based on FlightID:
  - Flight Information ↔ Passenger Information
  - Flight Information ↔ Ticket Information
- Ensured proper cardinality (One-to-Many) and referential integrity.
- Below are the screenshots.





### Task 3: Enhanced Data Insights

#### Actions Performed:

- Created a new column Flight Quality using a Conditional Column:
  - "Best" if Status = "On Time", otherwise "To Be Improved"
- Used Column from Examples to extract the numeric part from Flight Number.
- Below are the screenshots.

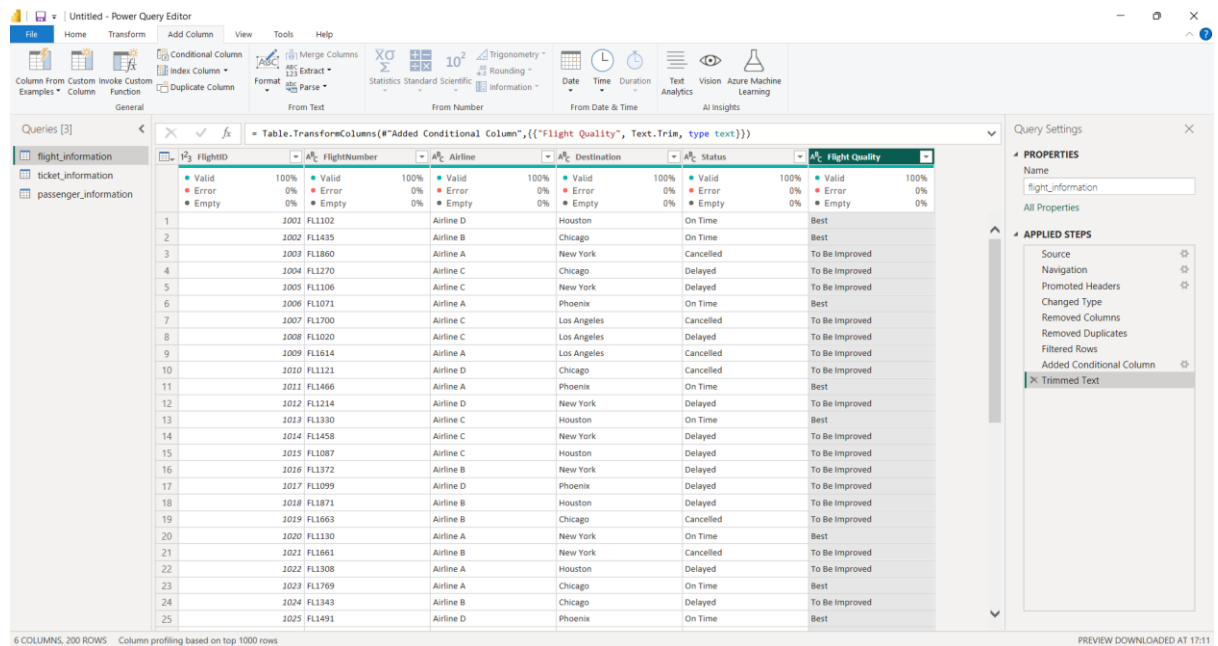


Table: TransformColumns(#"Added Conditional Column",({"Flight Quality", Text.Trim, type text}))

FlightID	FlightNumber	Airline	Destination	Status	Flight Quality
1	2001 FL1102	Airline D	Houston	On Time	Best
2	2002 FL1435	Airline B	Chicago	On Time	Best
3	2003 FL1860	Airline A	New York	Cancelled	To Be Improved
4	2004 FL1270	Airline C	Chicago	Delayed	To Be Improved
5	2005 FL1106	Airline C	New York	Delayed	To Be Improved
6	2006 FL1071	Airline A	Phoenix	On Time	Best
7	2007 FL1700	Airline C	Los Angeles	Cancelled	To Be Improved
8	2008 FL1020	Airline C	Los Angeles	Delayed	To Be Improved
9	2009 FL1614	Airline A	Los Angeles	Cancelled	To Be Improved
10	2010 FL1121	Airline D	Chicago	Cancelled	To Be Improved
11	2011 FL1466	Airline A	Phoenix	On Time	Best
12	2012 FL1214	Airline D	New York	Delayed	To Be Improved
13	2013 FL1330	Airline C	Houston	On Time	Best
14	2014 FL1458	Airline C	New York	Delayed	To Be Improved
15	2015 FL1087	Airline C	Houston	Delayed	To Be Improved
16	2016 FL1372	Airline B	New York	Delayed	To Be Improved
17	2017 FL1099	Airline D	Phoenix	Delayed	To Be Improved
18	2018 FL1871	Airline B	Houston	Delayed	To Be Improved
19	2019 FL1663	Airline B	Chicago	Cancelled	To Be Improved
20	2020 FL1130	Airline A	New York	On Time	Best
21	2021 FL1661	Airline B	New York	Cancelled	To Be Improved
22	2022 FL1308	Airline A	Houston	Delayed	To Be Improved
23	2023 FL1769	Airline A	Chicago	On Time	Best
24	2024 FL1343	Airline B	Chicago	Delayed	To Be Improved
25	2025 FL1491	Airline D	Phoenix	On Time	Best

#### Conditional Column 1

FileHomeTransformAdd ColumnViewToolsHelp

Conditional Column

Index Column

Duplicate Column

Format

Extract

Parse

Statistics

Standard Scientific

Information

Trigonometry

Rounding

Date

Time

Duration

Test Analytics

Vision

Apex Machine Learning

Column From Custom Examples

Column From Custom Function

Column From Text

Column From Number

Column From Date & Time

Column From Test Analytics

Column From Vision

Column From Apex Machine Learning

Queries [3]

flight\_information

passenger\_information

Table.RenameColumns(#"Changed Type1",({"Text After Delimiter", "Extracted Flight Number"}))

FlightNumber

Airline

Destination

Status

Flight Quality

Extracted Flight Number

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#### Columns from Example 1

#### **Task 4: Calculations Using DAX**

##### **Actions Performed:**

- Created measure to find total number of passengers based on specific flights (i.e. Airline A, Airline B, Airline C, Airline D) using slicer and displayed them by using card.
- DAX operations used  
Cancelled Bookings =  
**CALCULATE(COUNT(ticket\_information[TicketID]),ticket\_information[BookingStatus]="Cancelled")**

**Cancellation Rate = DIVIDE([Cancelled Bookings],[Total Tickets Booked])**

**Total Destination = DISTINCTCOUNT(flight\_information[Destination])**

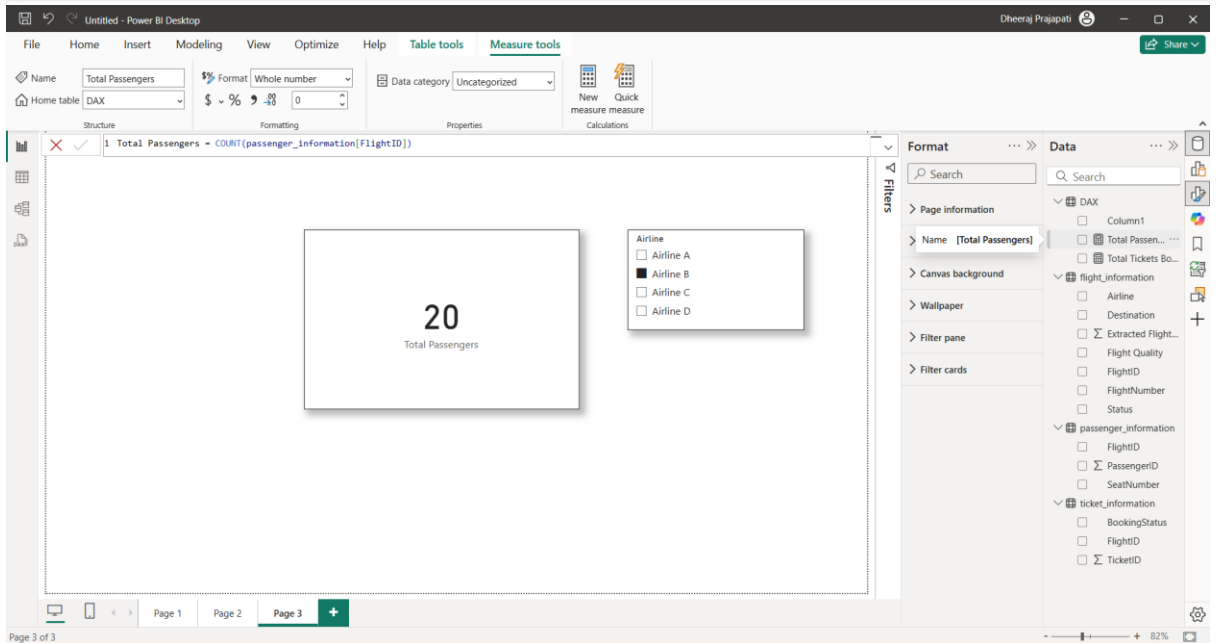
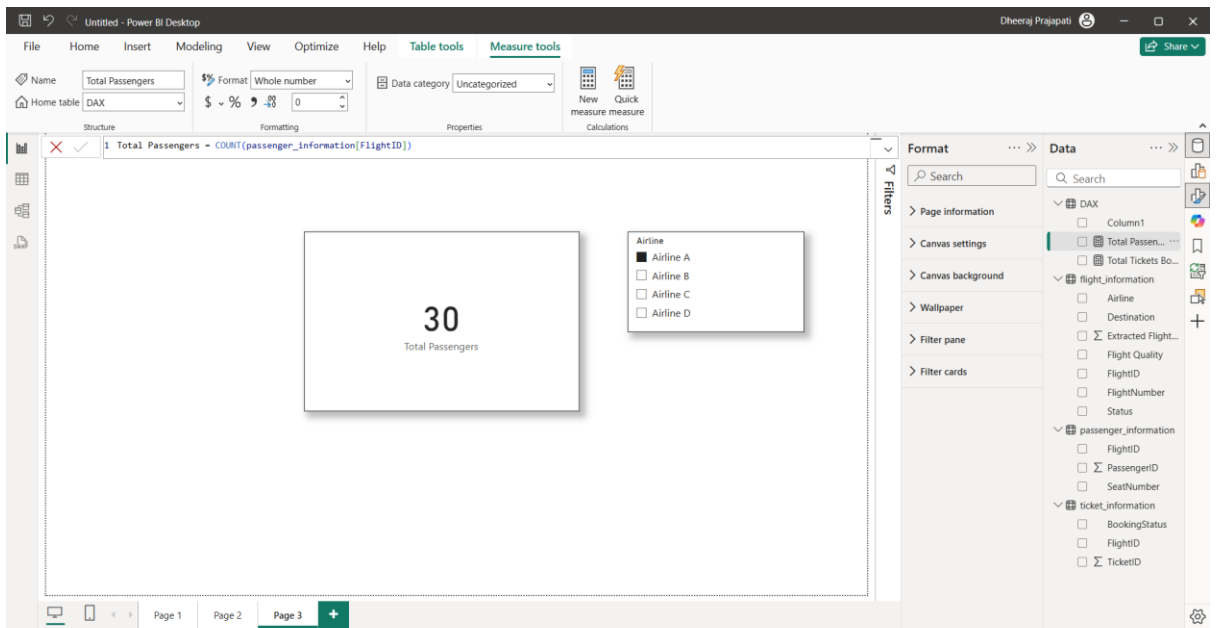
**Total Flights = COUNT(flight\_information[FlightID])**

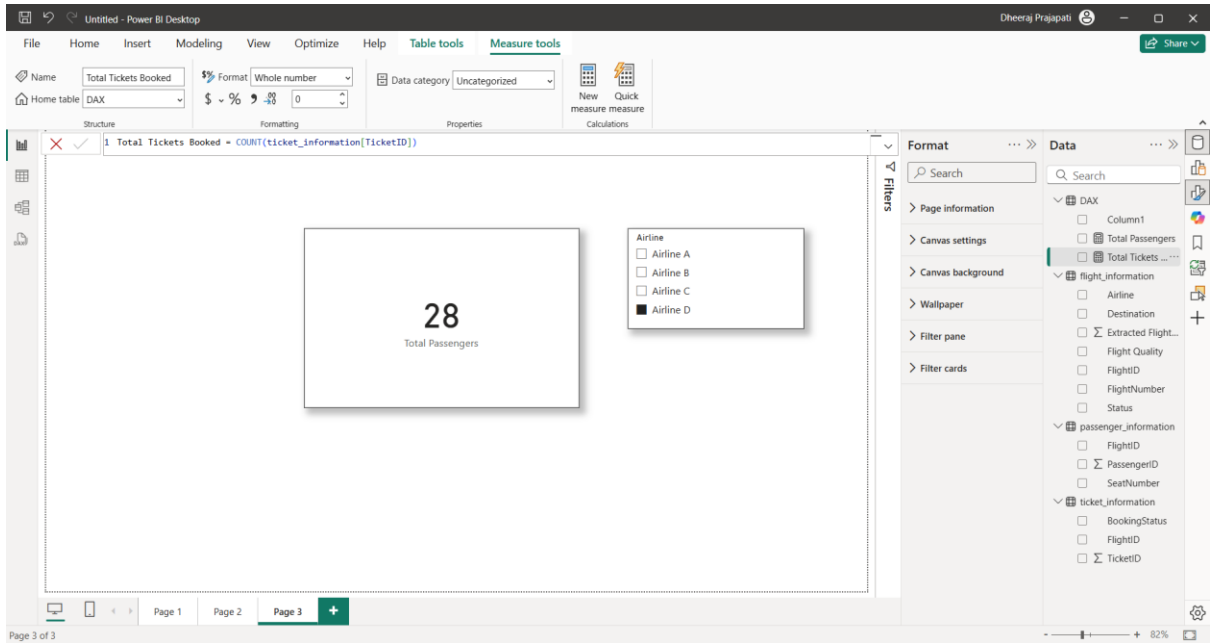
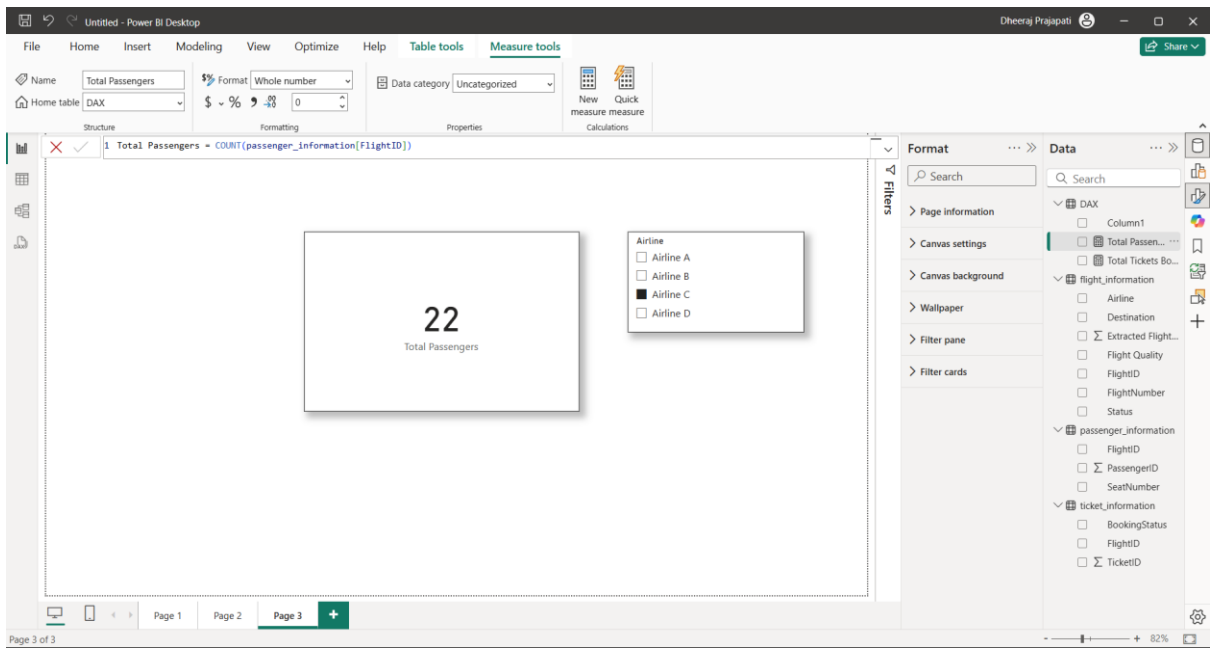
**Total Operational Airlines = DISTINCTCOUNT(flight\_information[Airline])**

**Total Passengers = COUNT(passenger\_information[FlightID])**

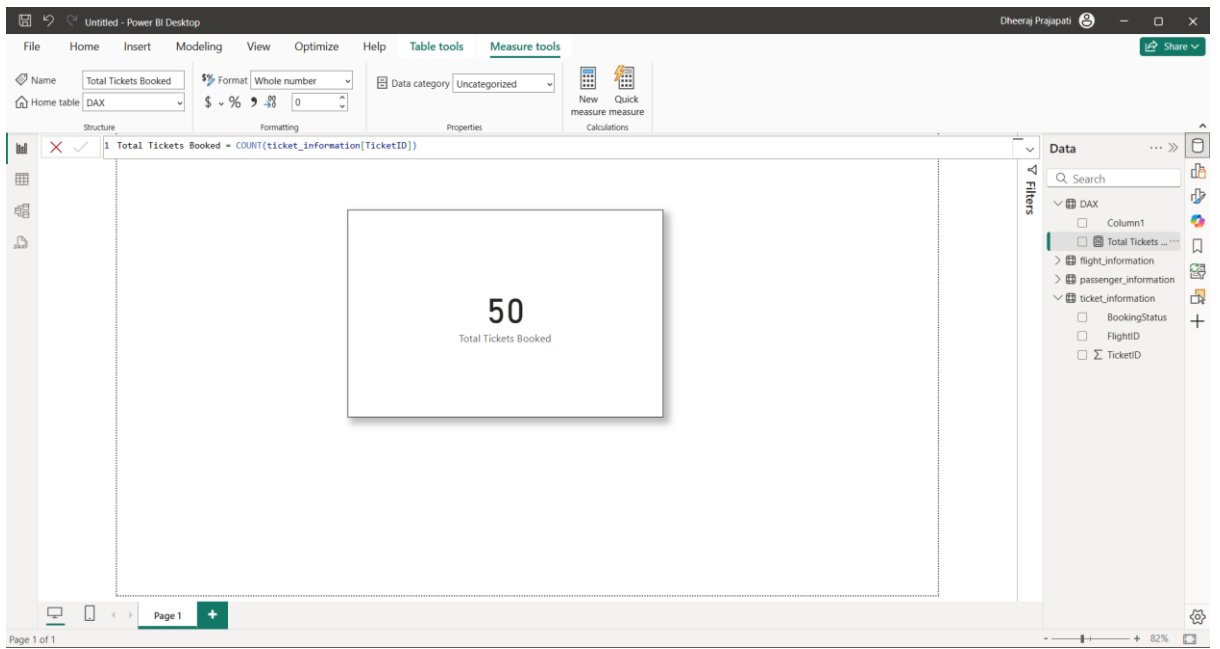
**Total Tickets Booked = COUNT(ticket\_information[TicketID])**

- Created measure to find total number of tickets booked displayed them by using card.
- Filtered the Flight Information table by selecting the “Best” from Flight Quality column.
- Below are the screenshots.









Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Close & Apply New Source Recent Enter Data Data source settings Manage Parameters Refresh Preview Advanced Editor Properties Query Choose Remove Columns Keep Rows Remove Rows Split Column Group By Replace Values Transform Merge Queries Append Queries Combine Files Combine Text Analytics Vision Azure Machine Learning AI Insights

Queries [4]

flight\_information

ticket\_information

passenger\_information

DAX

Table.SelectRows(#"Renamed Columns", each ([Flight Quality] = "Best"))

	FlightID	FlightNumber	Airline	Destination	Status	Flight Quality	Extracted FlightID
1	1001	FL1102	Airline D	Houston	On Time	Best	
2	1002	FL1435	Airline B	Chicago	On Time	Best	
3	1006	FL1071	Airline A	Phoenix	On Time	Best	
4	1011	FL1466	Airline A	Phoenix	On Time	Best	
5	1013	FL1330	Airline C	Houston	On Time	Best	
6	1020	FL1130	Airline A	New York	On Time	Best	
7	1023	FL1769	Airline A	Chicago	On Time	Best	
8	1025	FL1491	Airline D	Phoenix	On Time	Best	
9	1027	FL1805	Airline D	Chicago	On Time	Best	
10	1028	FL1385	Airline D	Chicago	On Time	Best	
11	1029	FL1191	Airline D	Los Angeles	On Time	Best	
12	1030	FL1955	Airline B	Phoenix	On Time	Best	
13	1031	FL1276	Airline B	New York	On Time	Best	
14	1033	FL1459	Airline D	New York	On Time	Best	
15	1034	FL1313	Airline B	Phoenix	On Time	Best	
16	1036	FL1252	Airline D	Phoenix	On Time	Best	
17	1039	FL1560	Airline B	Chicago	On Time	Best	
18	1043	FL1681	Airline C	Houston	On Time	Best	
19	1044	FL1475	Airline B	Phoenix	On Time	Best	
20	1046	FL1975	Airline D	Chicago	On Time	Best	
21	1048	FL1189	Airline A	New York	On Time	Best	
22	1050	FL1686	Airline C	Phoenix	On Time	Best	
23	1052	FL1562	Airline D	Phoenix	On Time	Best	
24	1053	FL1875	Airline C	Chicago	On Time	Best	
25	1055	FL1315	Airline B	Houston	On Time	Best	

7 COLUMNS, 82 ROWS Column profiling based on top 1000 rows

PREVIEW DOWNLOADED AT 17:11

Query Settings

PROPERTIES

Name: flight\_information

APPLIED STEPS

- Source
- Navigation
- Promoted Headers
- Changed Type
- Removed Columns
- Removed Duplicates
- Filtered Rows
- Added Conditional Column
- Trimmed Text
- Inserted Text After Delimiter
- Changed Type1
- Renamed Columns
- Filtered Rows1

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

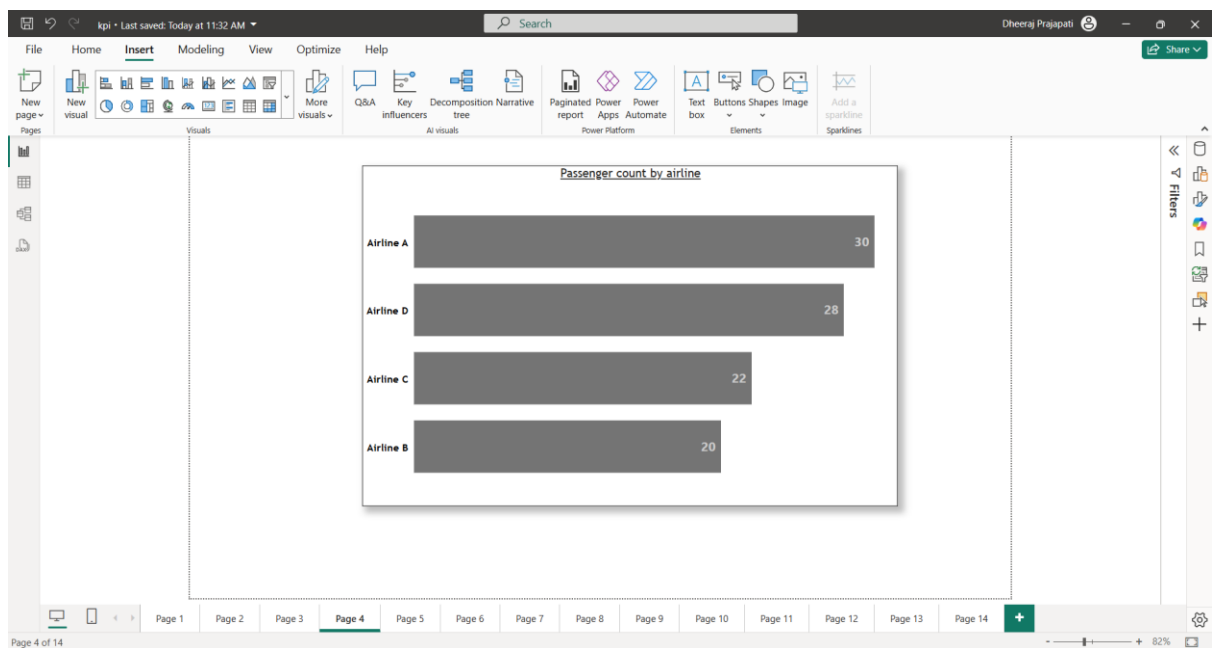
### Visuals Created:

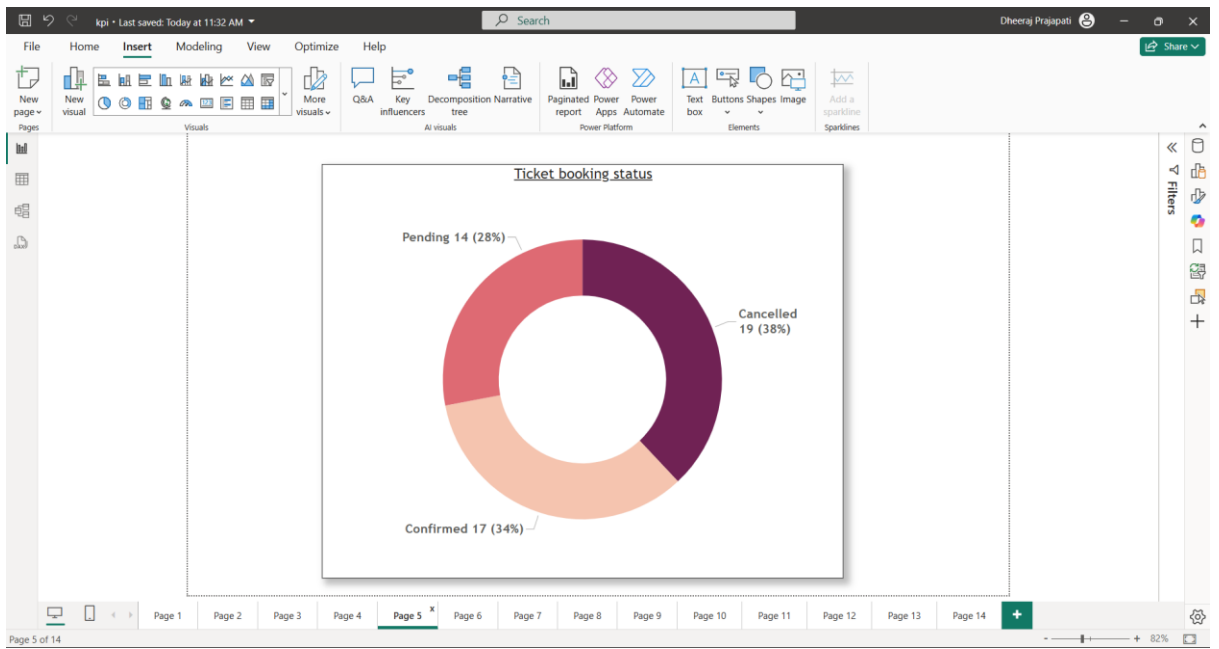
- Passenger count by airline
- Ticket booking statuses (booked, cancelled, etc.)
- Flights by airline and destination

### Interactive Features:

- Slicers for Destination and Airline
- Created Airline specific pages and used the navigation button to go there.
- Cards for quick views

Below are the screenshots of filtered interactive features and visuals.





kpi - Last saved: Today at 11:32 AM

Search

Dheeraj Prajapati

File Home Insert Modeling View Optimize Help

New page New visual Visuals More visuals Q&A Key influencers Decomposition Narrative tree Paginated report Power Apps Power Automate Text box Buttons Shapes Image Add a sparkline Sparklines

Page 6 of 14

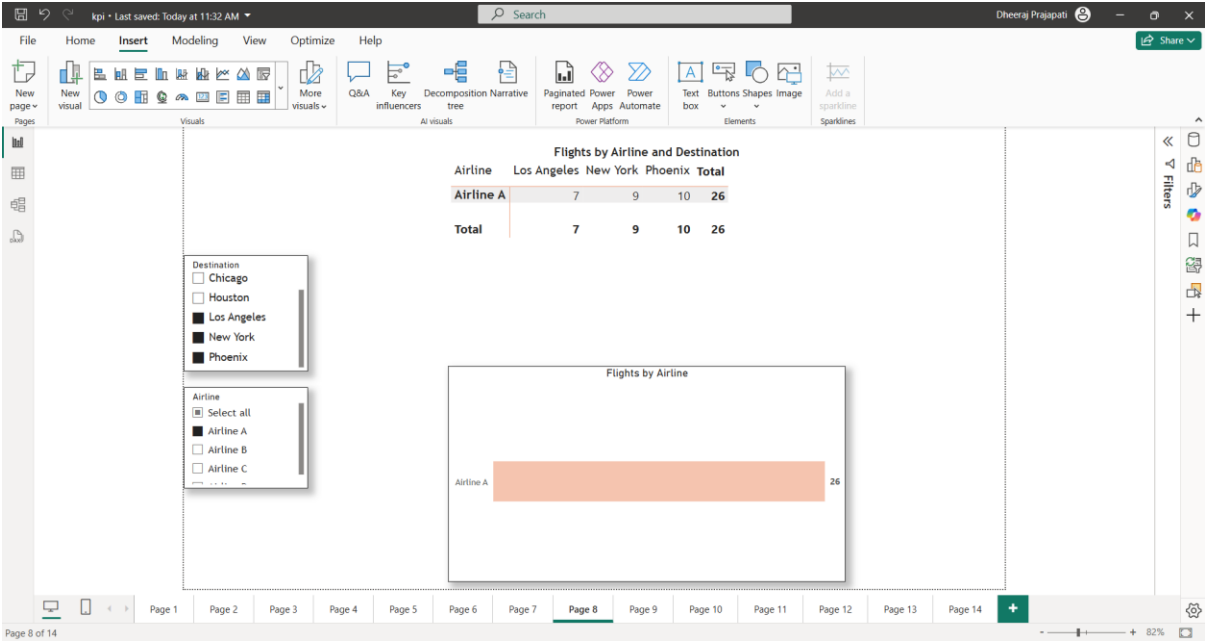
Page 1 Page 2 Page 3 Page 4 Page 5 Page 6 Page 7 Page 8 Page 9 Page 10 Page 11 Page 12 Page 13 Page 14

82%

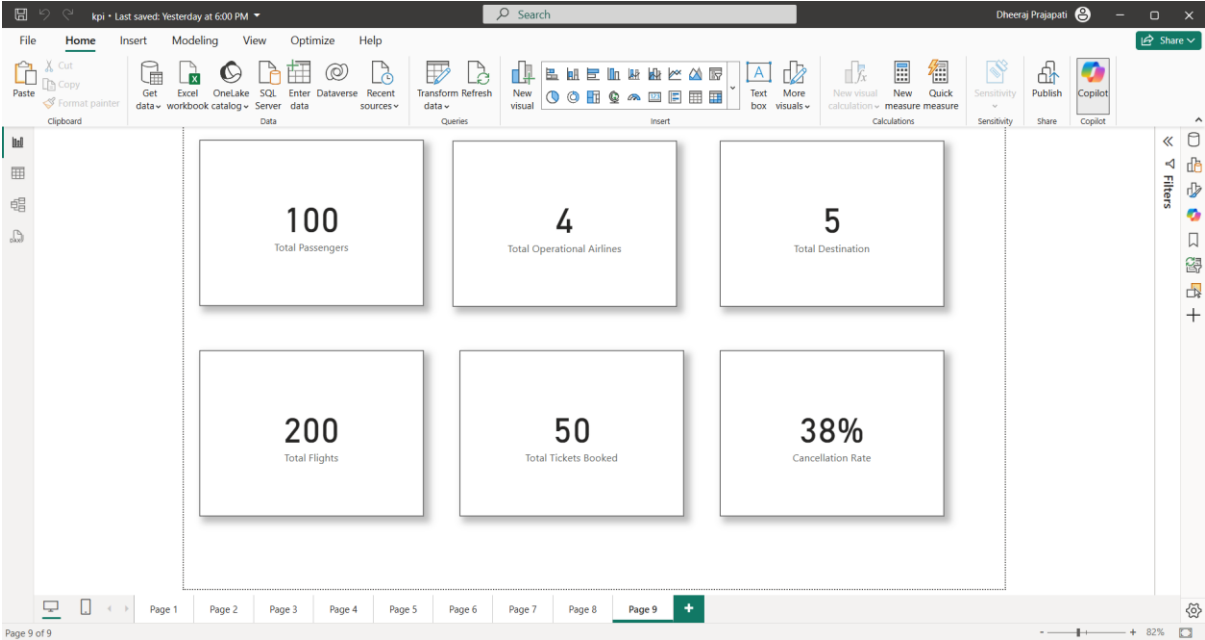
### Flights by Airline and Destination

Airline	Chicago	Houston	Los Angeles	New York	Phoenix	Total
Airline A	8	14	7	9	10	48
Airline B	5	6	9	10	11	41
Airline C	5	14	10	13	7	49
Airline D	15	9	16	8	14	62
Total	33	43	42	40	42	200

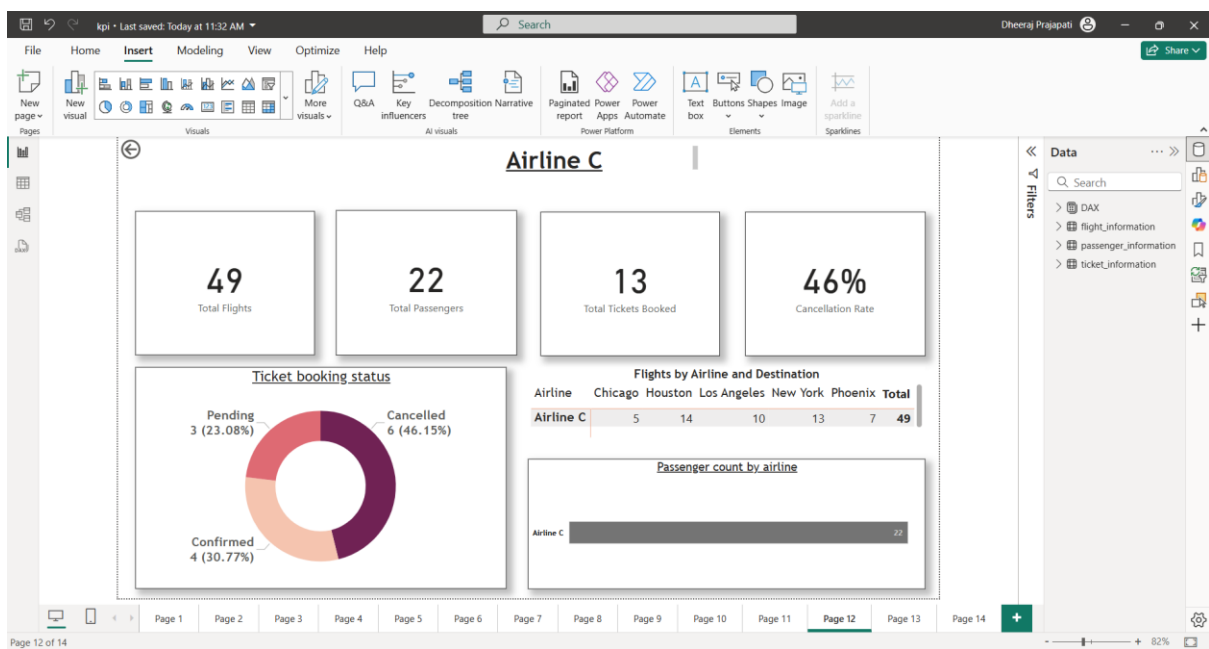
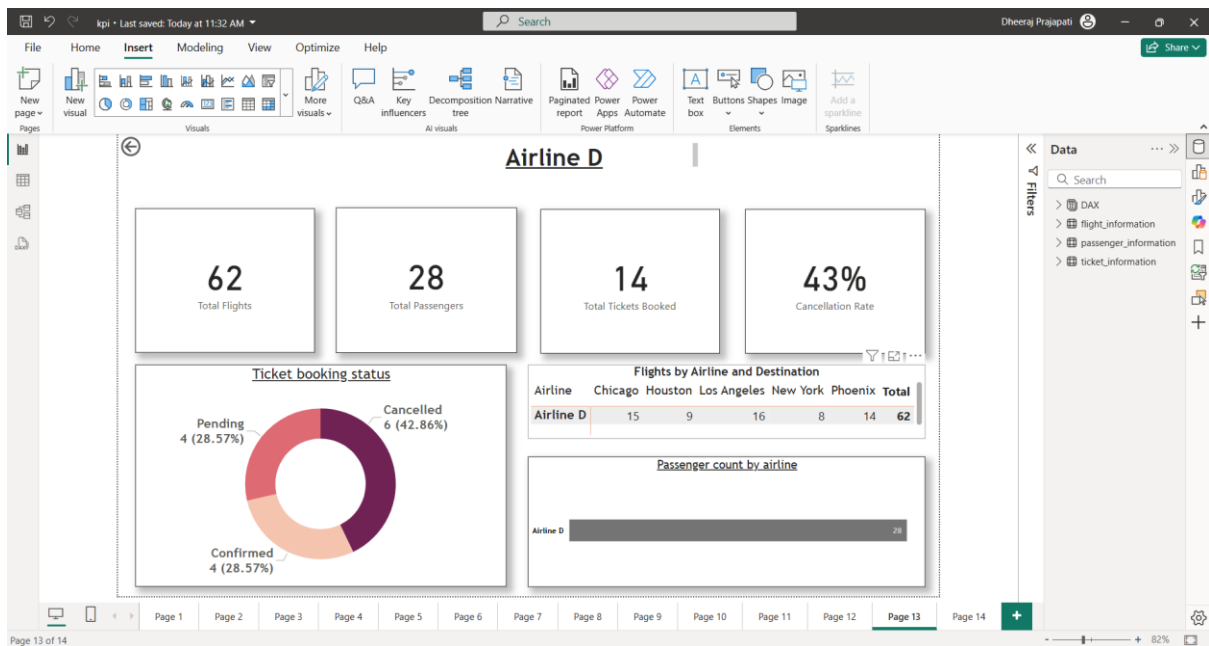
Interactive Features based screenshot; we have taken screenshot using filter.

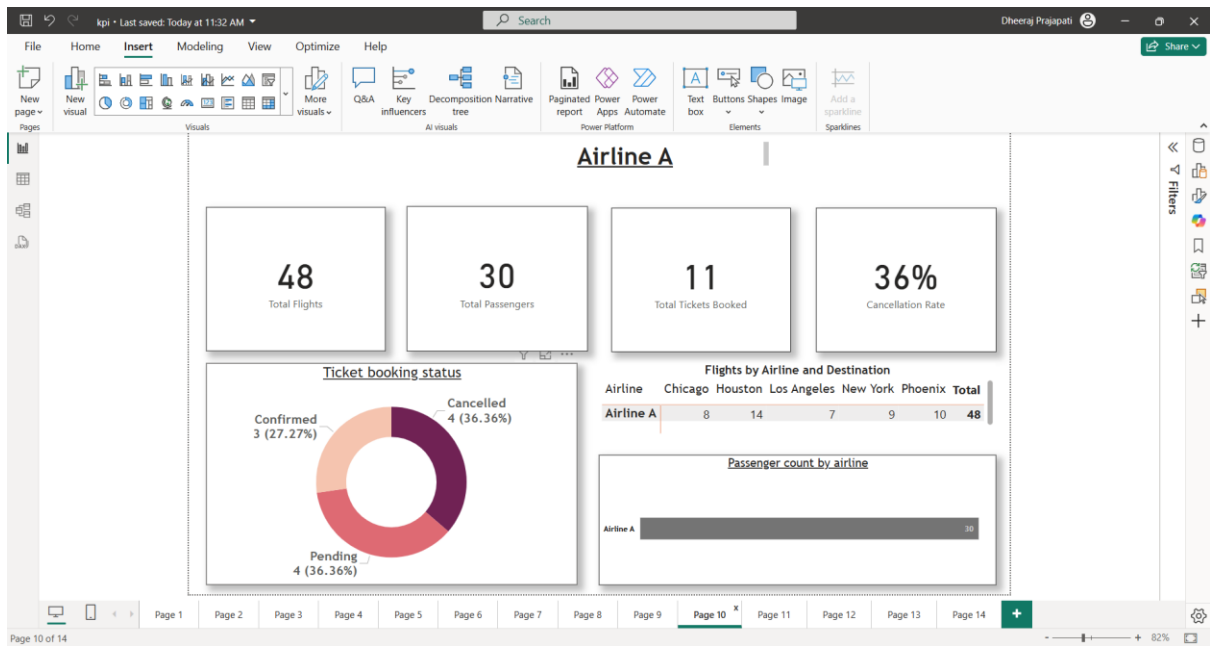
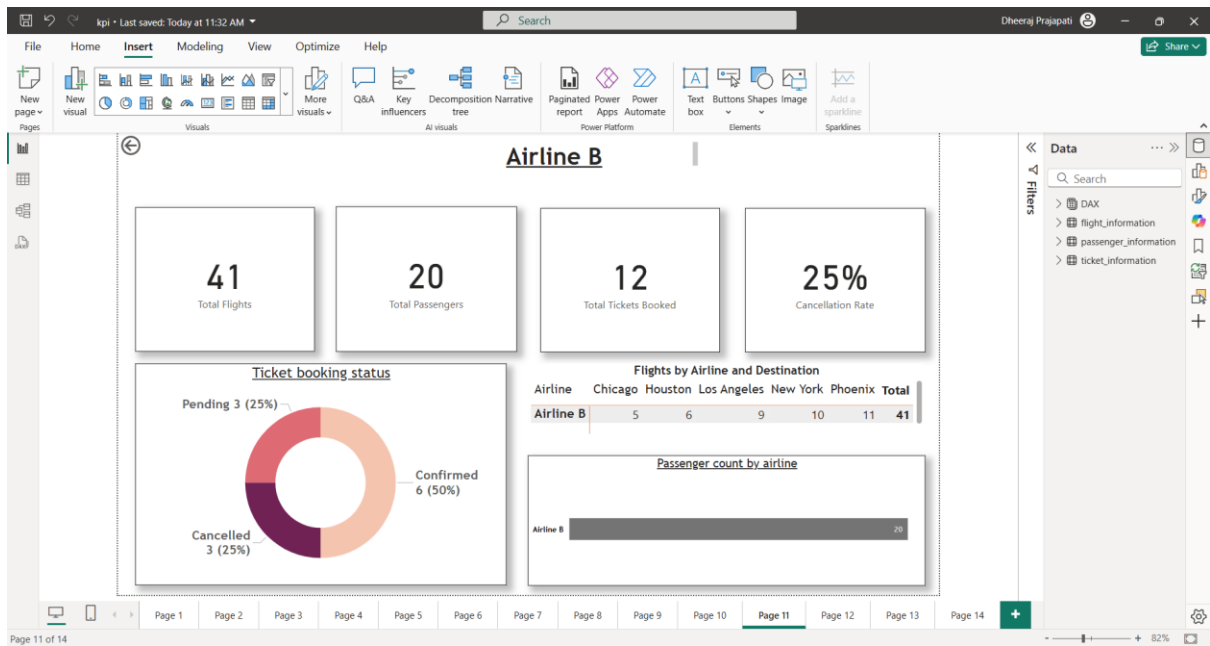


Cards for quick views.



## Airline specific interactive features based on filter and button.





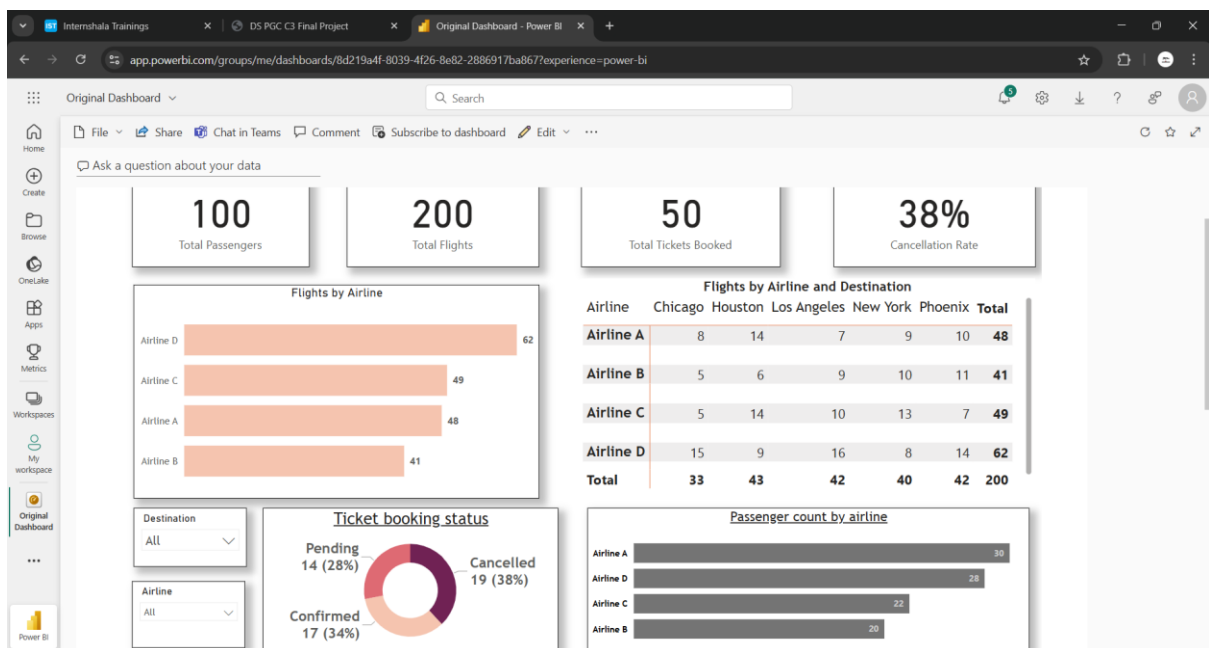
## Task 6: Final Dashboard and Power BI Service

### Actions Performed:

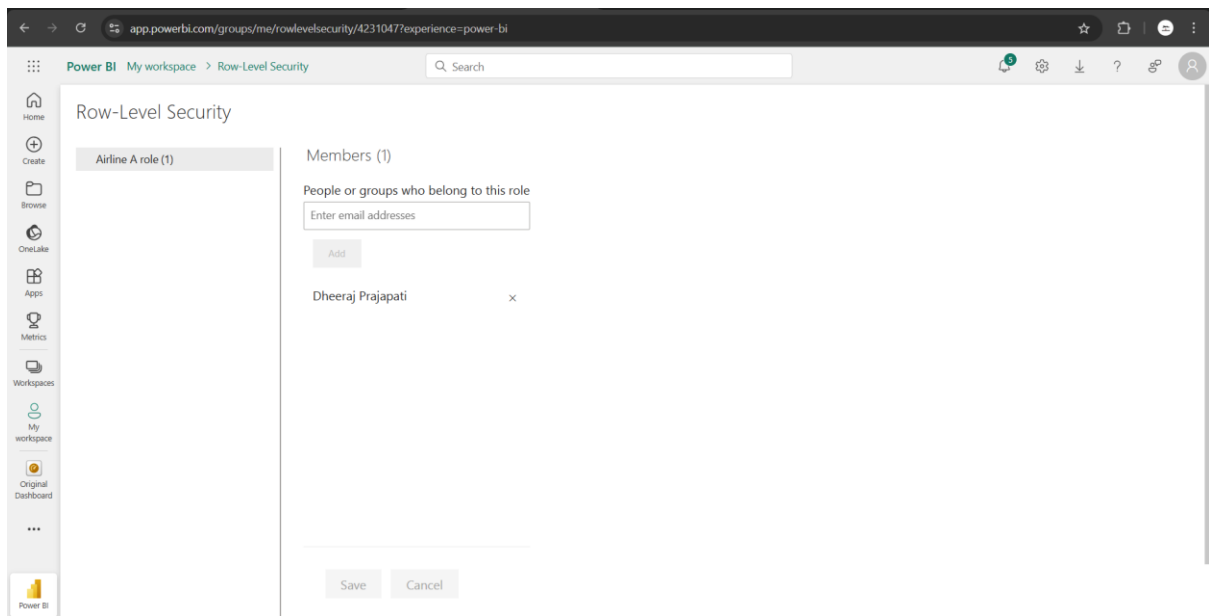
- Designed a final dashboard summarizing key KPIs and visuals.
- Configured Row-Level Security (RLS) for Airline A.
- Set up scheduled data refresh for 5 PM daily on Power BI Service.

Below are the screenshots.

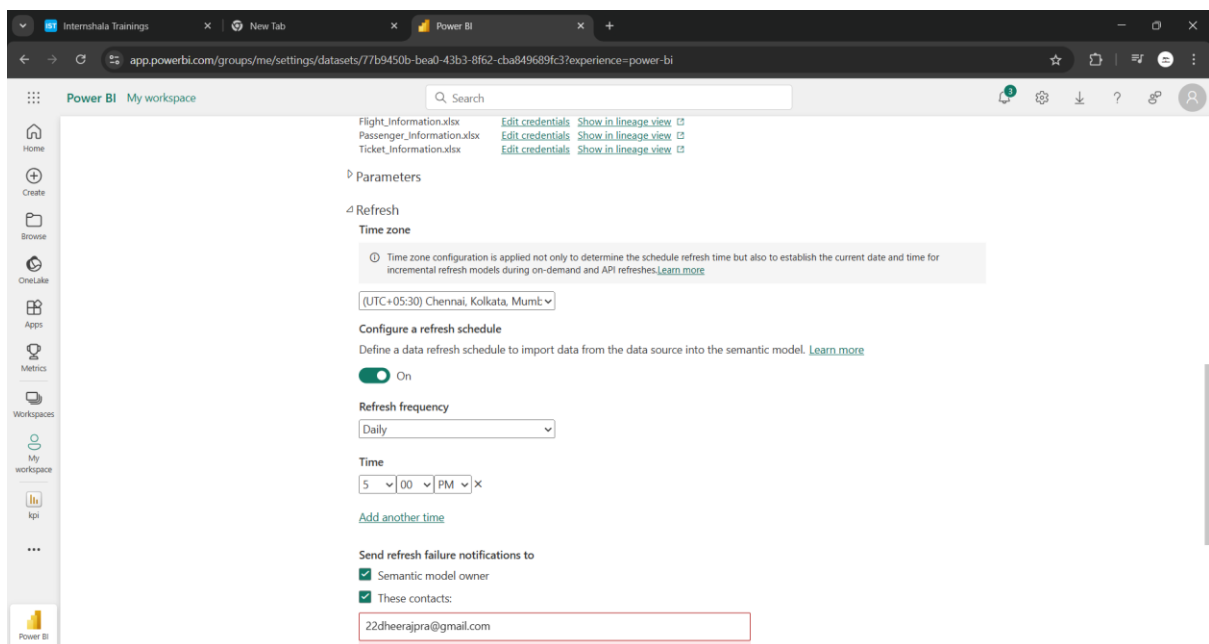
### Published dashboard



## Configured Row-Level Security (RLS) for Airline A



## Set up scheduled data refresh for 5 PM daily on Power BI Service



## Video link-

[https://drive.google.com/file/d/1xoW8Z\\_gHBe2Oqf1mCeQ6moaUhmlyUuXE/view?usp=sharing](https://drive.google.com/file/d/1xoW8Z_gHBe2Oqf1mCeQ6moaUhmlyUuXE/view?usp=sharing)



**Note: While inserting screenshots, I have tried best to give better picture quality by removing image compression and applying high fidelity, this is best my computer could do. If you want power bi file just let me know I will share that quickly Hope you will understand.**