

1. Data preparation and cleaning

Data cleaning and handle missing values

The screenshot shows the Power Query Editor interface. The main area displays a table with the following columns: FlightID, FlightNumber, Airline, Destination, and Status. The table contains 28 rows of data. The status column shows various flight statuses such as 'On Time', 'Delayed', 'Cancelled', and 'On Time'. The right sidebar shows the 'Query Settings' pane with the 'APPLIED STEPS' list containing 'Source', 'Navigation', 'Promoted Headers', 'Changed Type', 'Removed Columns', and 'Removed Duplicates'. The bottom status bar indicates '5 COLUMNS, 200 ROWS' and 'Column profiling based on top 1000 rows'.

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

The screenshot shows the Power Query Editor interface. The main area displays a table with the following columns: TicketID, FlightID, and BookingStatus. The table contains 28 rows of data. The status column shows various booking statuses such as 'Pending', 'Confirmed', 'Cancelled', and 'On Time'. The right sidebar shows the 'Query Settings' pane with the 'APPLIED STEPS' list containing 'Source', 'Navigation', 'Promoted Headers', 'Changed Type', 'Removed Columns', and 'Removed Duplicates'. The bottom status bar indicates '3 COLUMNS, 50 ROWS' and 'Column profiling based on top 1000 rows'.

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	1001 Cancelled
10	5010	1040 Cancelled
11	5011	1064 Pending
12	5012	1150 Cancelled
13	5013	1080 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
26	5026	1123 Cancelled
27	5027	1078 Confirmed
28	5028	1154 Pending

Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Close & Apply New Source Recent Sources Enter Data Data source settings Manage Parameters Refresh Preview Manage Advanced Editor Choose Columns Remove Columns Keep Rows Remove Rows Split Column Group By Data Type: Any Use First Row as Headers Replace Values Merge Queries Append Queries Combine Files Azure Machine Learning

Queries [3] flight_information ticket_information passenger_information

Table.Distinct(*Removed Columns*)

	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	16D
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
26	26	1026	5A
27	27	1063	12B
28	28	1086	46B

Query Settings

PROPERTIES

Name: passenger_information

APPLIED STEPS

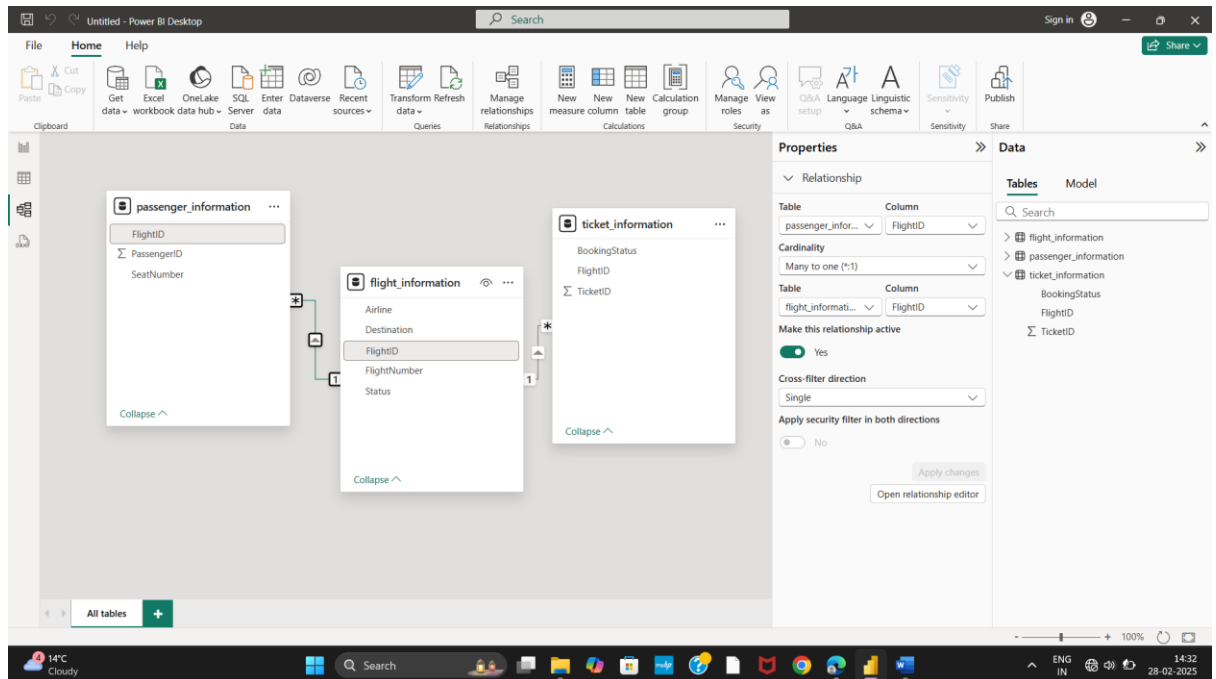
- Source
- Navigation
- Promoted Headers
- Changed Type
- Removed Columns
- Removed Duplicates

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

PREVIEW DOWNLOADED AT 13:30

- Go to power query editor
- Select all the column
- Remove rows
- Remove duplicate
- Select the columns with missing values
- Remove columns
- Choose correct type
- Text for categorical data
- Whole number for integers
- Decimal number for number with decimals
- Currency
- Date time

2. Data modeling



- Go to model view
- Select the 3 datasets
- Create the relationship between one-to-many relationship in flight id

3. Enhanced data Insights

Final project

File Home Transform Add Column View Tools Help

Column From Custom Invoke Custom Examples • Column Function Duplicate Column

General

Format • Merge Columns • Extract • Parse • From Text • From Number • From Date & Time

Statistics Standard Scientific Trigonometry • Rounding • Information • Date • Time • Duration • Text • Vision • Azure Machine Learning • AI Insights

Queries [3] X ✓ fx = Table.AddColumn(#"Removed Duplicates", "Flight category", each if [Status] = "On Time" then "Best" else "To be improved")

FlightID	FlightNumber	Airline	Destination	Status	Flight category	
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
26	2026	FL1413	Airline D	Chicago	Cancelled	To be improved
27	2027	FL1805	Airline D	Chicago	On Time	Best
28	2028	FL1385	Airline D	Chicago	On Time	Best

6 COLUMNS, 288 ROWS Column profiling based on top 1000 rows

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Query Settings

PROPERTIES

Name

flight_information

All Properties

APPLIED STEPS

Source

Navigation

Promoted Headers

Changed Type

Removed Columns

Removed Duplicates

X Added Conditional Column

Final project

File Home Transform Add Column View Tools Help

Column From Custom Invoke Custom Examples • Column Function Duplicate Column

General

Format • Merge Columns • Extract • Parse • From Text • From Number • From Date & Time

Statistics Standard Scientific Trigonometry • Rounding • Information • Date • Time • Duration • Text • Vision • Azure Machine Learning • AI Insights

Queries [3] X ✓ fx = Table.AddColumn(#"Removed Duplicates", "Flight category", each if [BookingStatus] = "Confirmed" then "Best" else "To be improved")

TicketID	FlightID	BookingStatus	Flight category
1	5001	Pending	To be improved
2	5002	Confirmed	Best
3	5003	Cancelled	To be improved
4	5004	Cancelled	To be improved
5	5005	Cancelled	To be improved
6	5006	Pending	To be improved
7	5007	Pending	To be improved
8	5008	Cancelled	To be improved
9	5009	Cancelled	To be improved
10	5010	Cancelled	To be improved
11	5011	Pending	To be improved
12	5012	Cancelled	To be improved
13	5013	Cancelled	To be improved
14	5014	Confirmed	Best
15	5015	Confirmed	Best
16	5016	Pending	To be improved
17	5017	Cancelled	To be improved
18	5018	Cancelled	To be improved
19	5019	Confirmed	Best
20	5020	Pending	To be improved
21	5021	Confirmed	Best
22	5022	Confirmed	Best
23	5023	Confirmed	Best
24	5024	Confirmed	Best
25	5025	Cancelled	To be improved
26	5026	Cancelled	To be improved
27	5027	Confirmed	Best
28	5028	Pending	To be improved

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

PREVIEW DOWNLOADED AT 13:29

Query Settings

PROPERTIES

Name

ticket_information

All Properties

APPLIED STEPS

Source

Navigation

Promoted Headers

Changed Type

Removed Columns

Removed Duplicates

X Added Conditional Column

- In power Bi desktop
- Go to transform data
- Power query editor
- Add column
- Selectconditional column

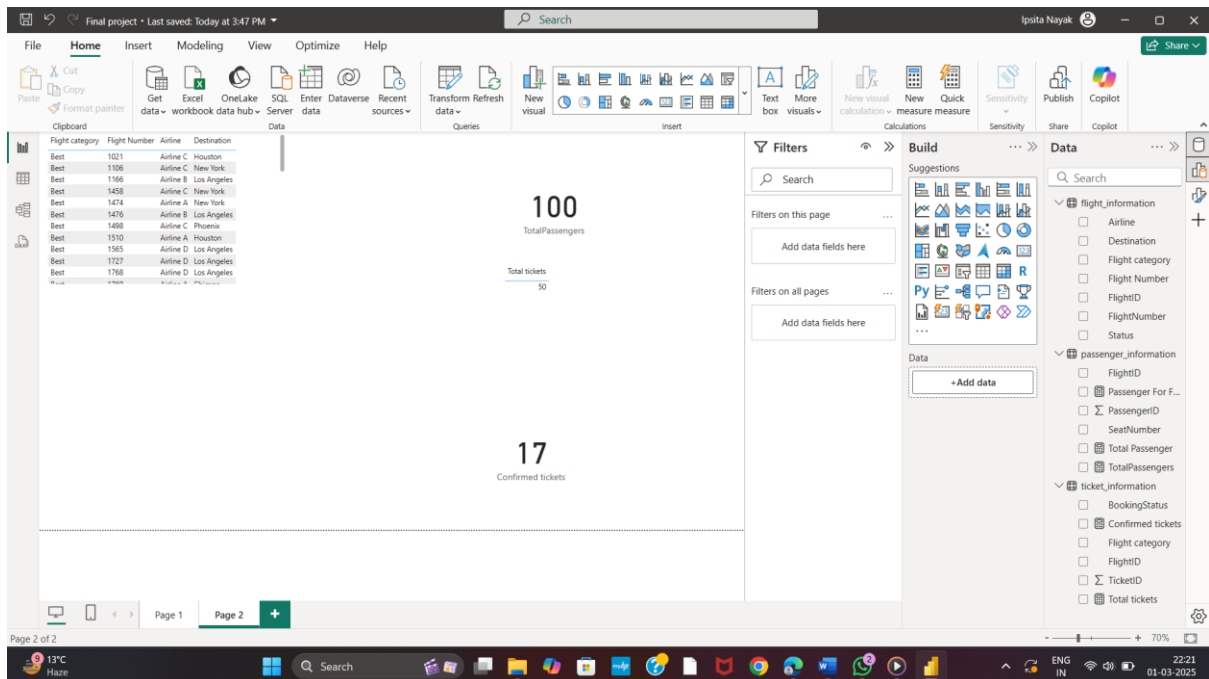
- Column name- Flight category
- Select column- Status
- Operator-equals to
- Value-on time
- Output-Best
- Else-To be mproved
- Click OK

The screenshot displays the Power Query Editor window. The 'Add Column From Examples' dialog is open, showing a table with columns: FlightID, FlightNumber, Airline, Destination, Status, and Flight Number. The 'Flight Number' column is selected, and the dialog shows the value '1102' being extracted from the first row of the 'Flight Number' column. The 'APPLIED STEPS' pane on the right shows the sequence of transformations applied to the data.

FlightID	FlightNumber	Airline	Destination	Status	Flight Number	
1	1001	FL1102	Airline D	Houston	On Time	Best
2	1002	FL1435	Airline B	Chicago	Cancelled	To b
3	1003	FL1860	Airline A	New York	Cancelled	To b
4	1004	FL1270	Airline C	Chicago	Delayed	To b
5	1005	FL1106	Airline C	New York	Delayed	To b
6	1006	FL1071	Airline A	Phoenix	On Time	Best
7	1007	FL1700	Airline C	Los Angeles	Cancelled	To b
8	1008	FL1020	Airline C	Los Angeles	Delayed	To b
9	1009	FL1614	Airline A	Los Angeles	Cancelled	To b
10	1010	FL1121	Airline D	Chicago	Cancelled	To b
11	1011	FL1466	Airline A	Phoenix	On Time	Best
12	1012	FL1214	Airline D	New York	Delayed	To b
13	1013	FL1330	Airline C	Houston	On Time	Best
14	1014	FL1458	Airline C	New York	Delayed	To b
15	1015	FL1087	Airline C	Houston	Delayed	To b
16	1016	FL1372	Airline B	New York	Delayed	To b
17	1017	FL1099	Airline D	Phoenix	Delayed	To b
18	1018	FL1871	Airline B	Houston	Delayed	To b
19	1019	FL1663	Airline B	Chicago	Cancelled	To b
20	1020	FL1130	Airline A	New York	On Time	Best
21	1021	FL1661	Airline B	New York	Cancelled	To b
22	1022	FL1308	Airline A	Houston	Delayed	To b
23	1023	FL1769	Airline A	Chicago	On Time	Best
24	1024	FL1343	Airline B	Chicago	Delayed	To b

- Power query editor
- Add column
- Column from examples – From selection
- In flight Number FL1102 to extract 1102 and rename Flight Number
- Click OK
- Close and apply

4. Calculation using DAX



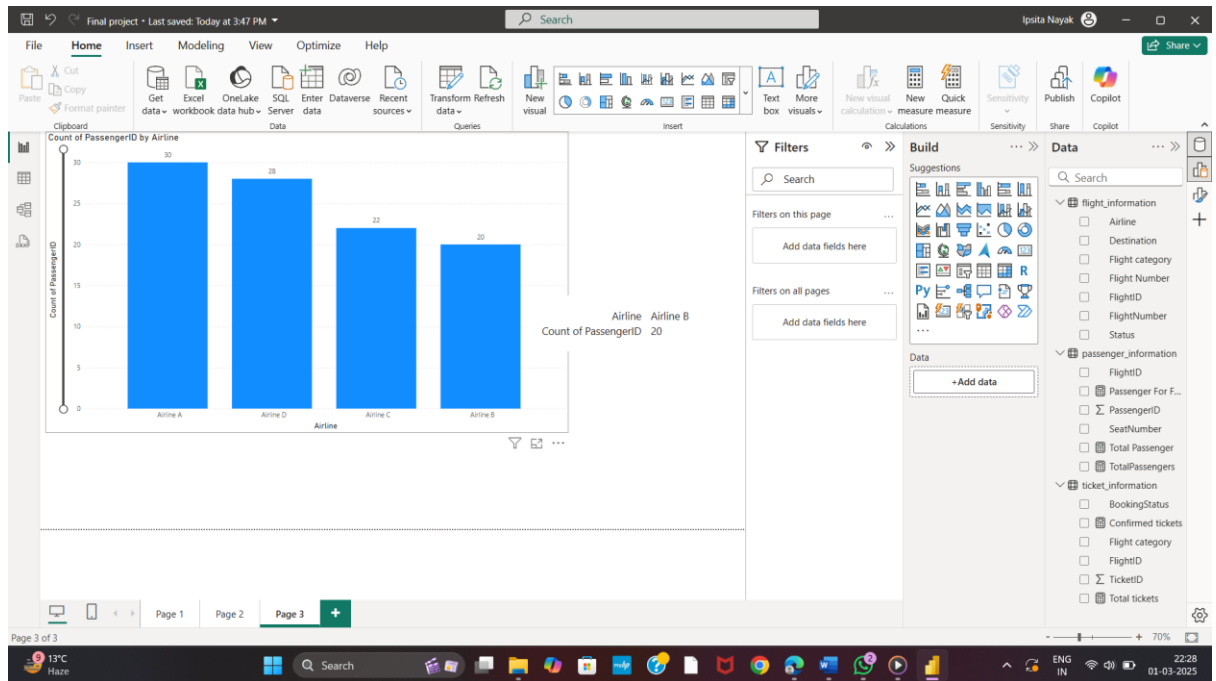
- Click Home > Transform data to ensure all necessary transformation
- Close power query editor and go to report view

Using DAX FORMULA

- Total Passengers for a specific flight
- Create a Measure table and save all the Dax calculation in the measure table
- Go to the passenger Information table -> Right click -> NEW measure and enter:
- TotalPassengers = COUNT (Passenger Information [Passenger ID])
- To filter specific flight
- Passengers for Flight = CALCULATE ([TotalPassengers], Passenger Information [Flight Id] =1396)
- Total Tickets Booked
- Go to the Ticket Information table -> Right click -> NEW measure and enter:
- Total Tickets = COUNT (Ticket Information [Ticket Id])
- To count only confirmed tickets
- Confirmed Tickets = CALCULATE ([Total Tickets], Tickets Information [Booking Status] = "Confirmed")
- Best Flights = FILTER (Flight Information, Flight Information [Flight Category] = "Best")
- Go to the report view
- Total Passengers = Add a Card Visual [Total Passengers]
- Total Tickets = Add a Card Visual [Total Tickets]
- Confirmed Tickets = Add a Card Visual [Confirmed Tickets]

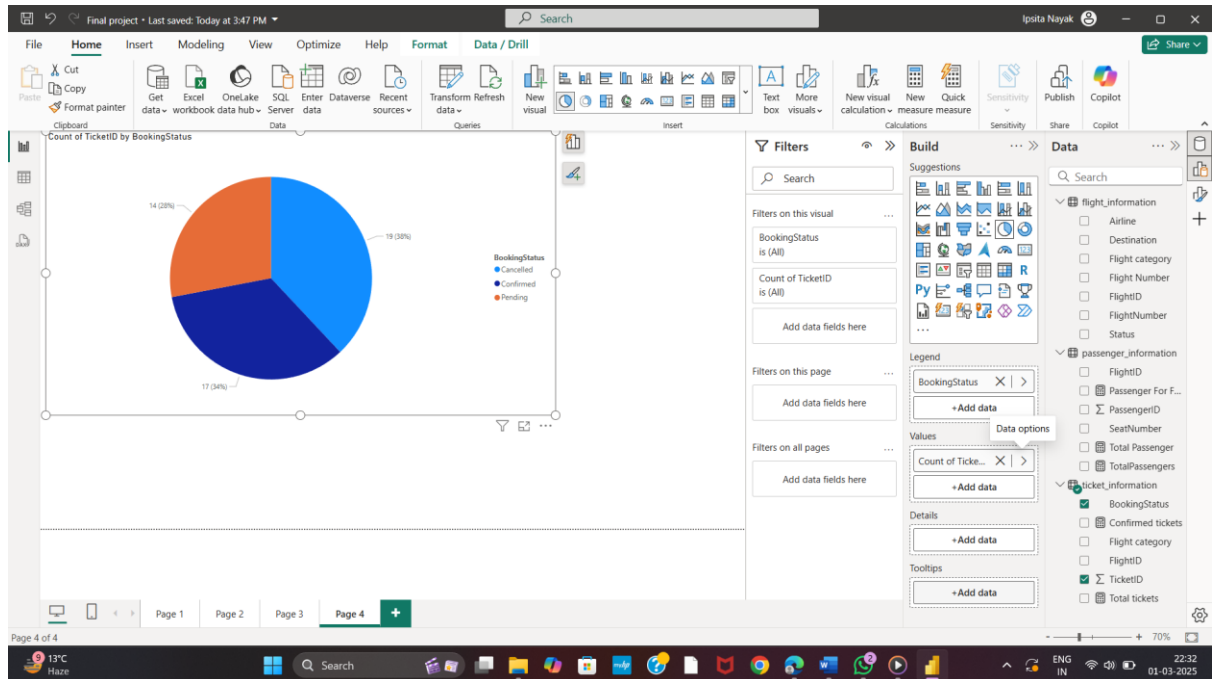
5. Visualization and Interactive Feature

(a) Passenger Count By Airline



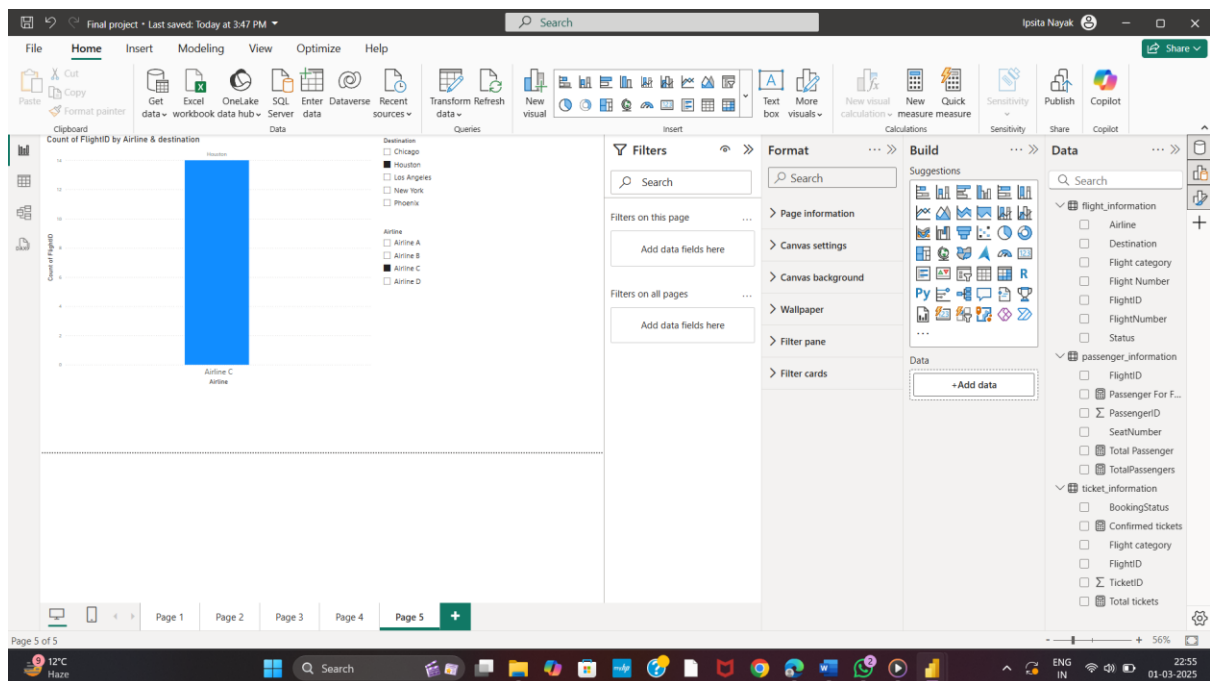
- Select a column chart from visualization
- X - axis -> Airline (from flight information table)
- Y – axis-> Count of passenger Id (from passenger information table).
- We add a data label for better visibility

(b) Ticket Booking Status



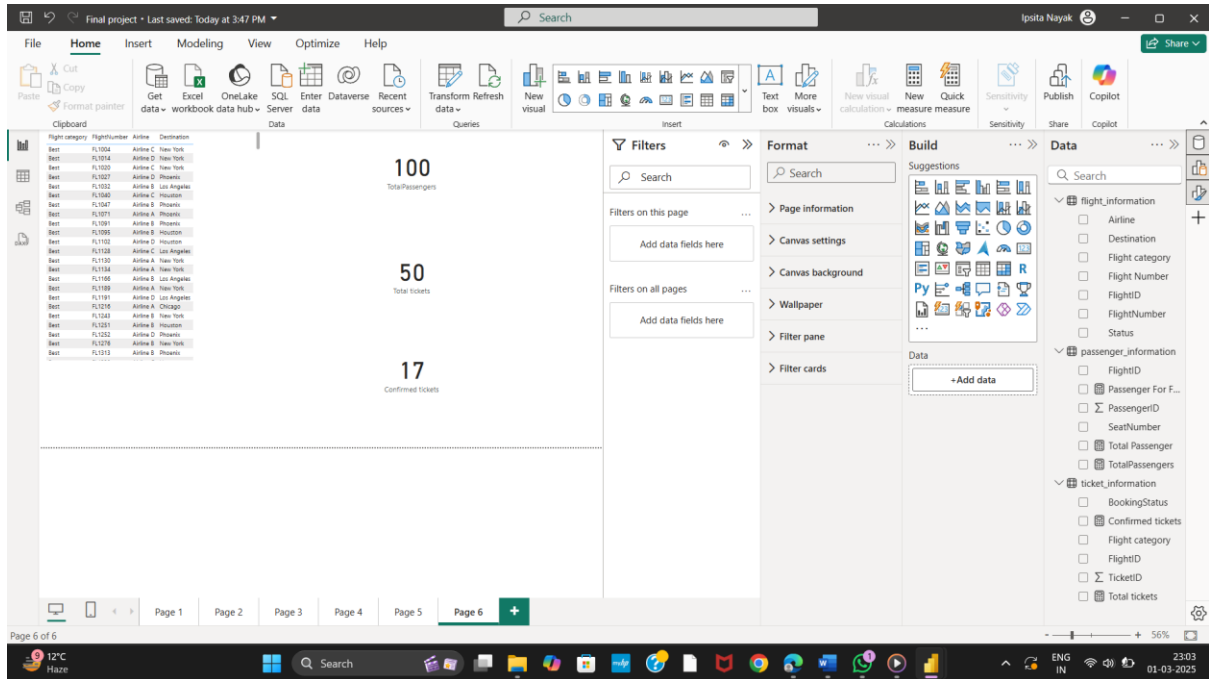
- Select a pie chart
- Legend -> Booking Status (from ticket information)
- Values -> Count of Ticket Id

(c) Flights by Airline and Destination



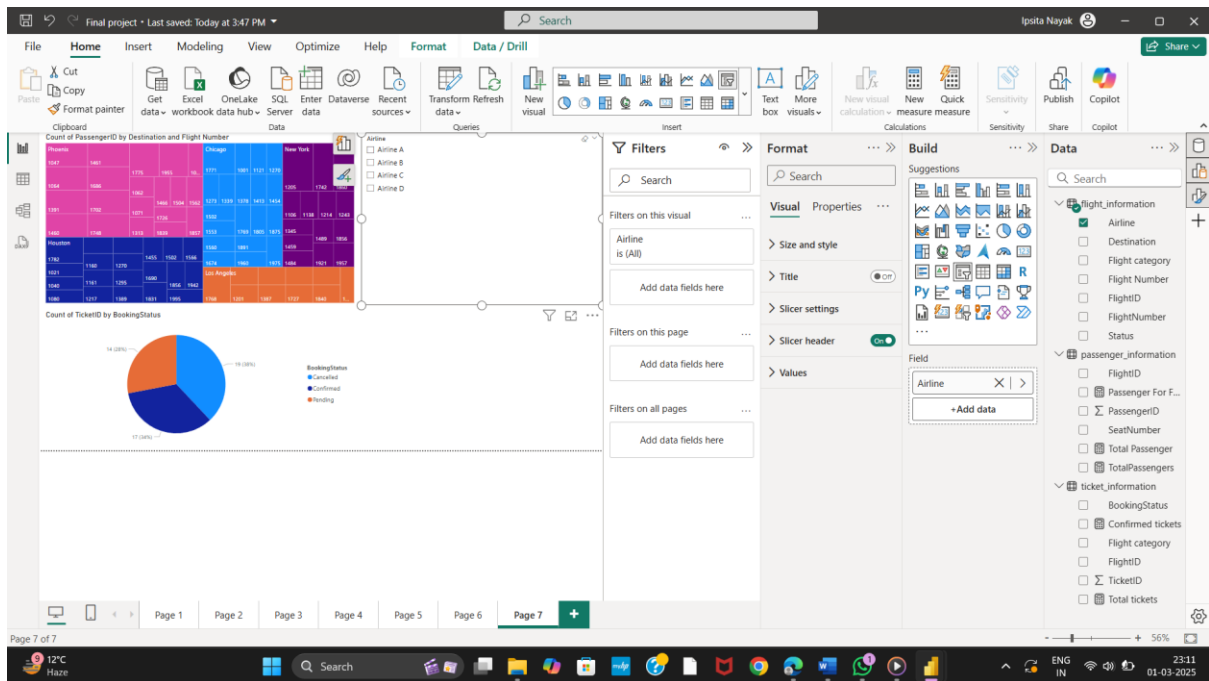
- Select the column chart from Visualization pane.
- X - Axis -> Airline (from flight information).
- Y - Axis -> Count of Flight Id
- Legend -> Destination
- we also add a slicer for better visibility
- This will show how many flights each airline operates for different destinations

(d) Quick View



- Create a card visual
- Total confirmed tickets
- Best flights count

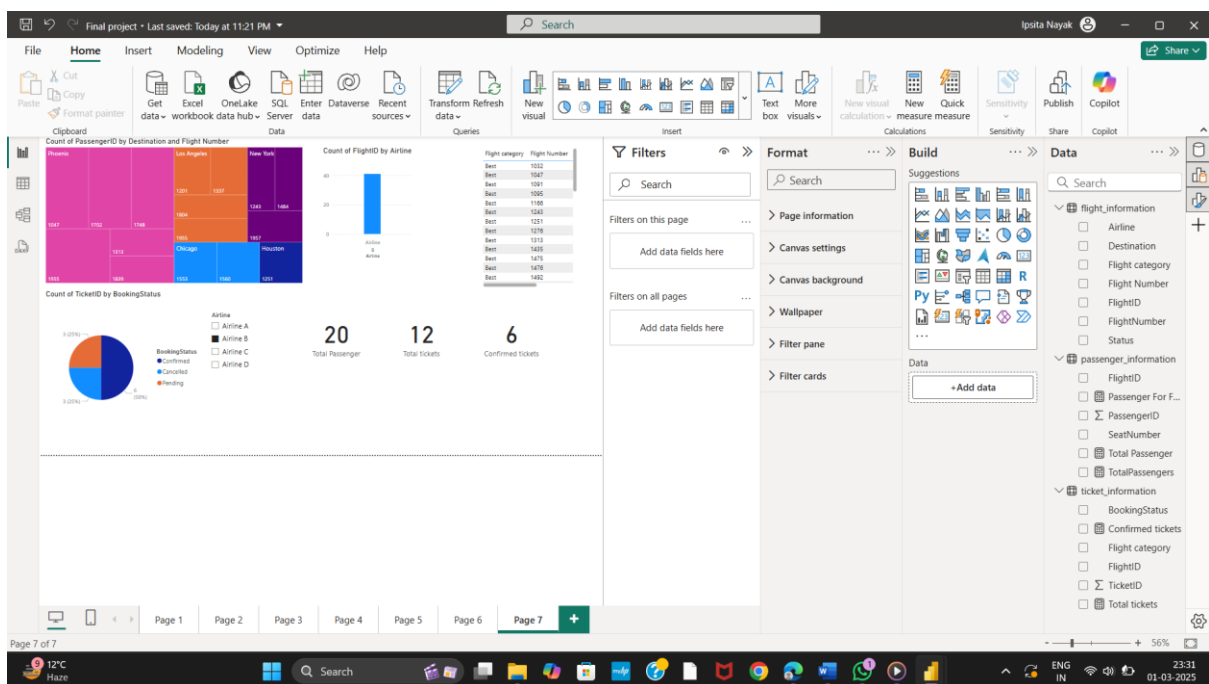
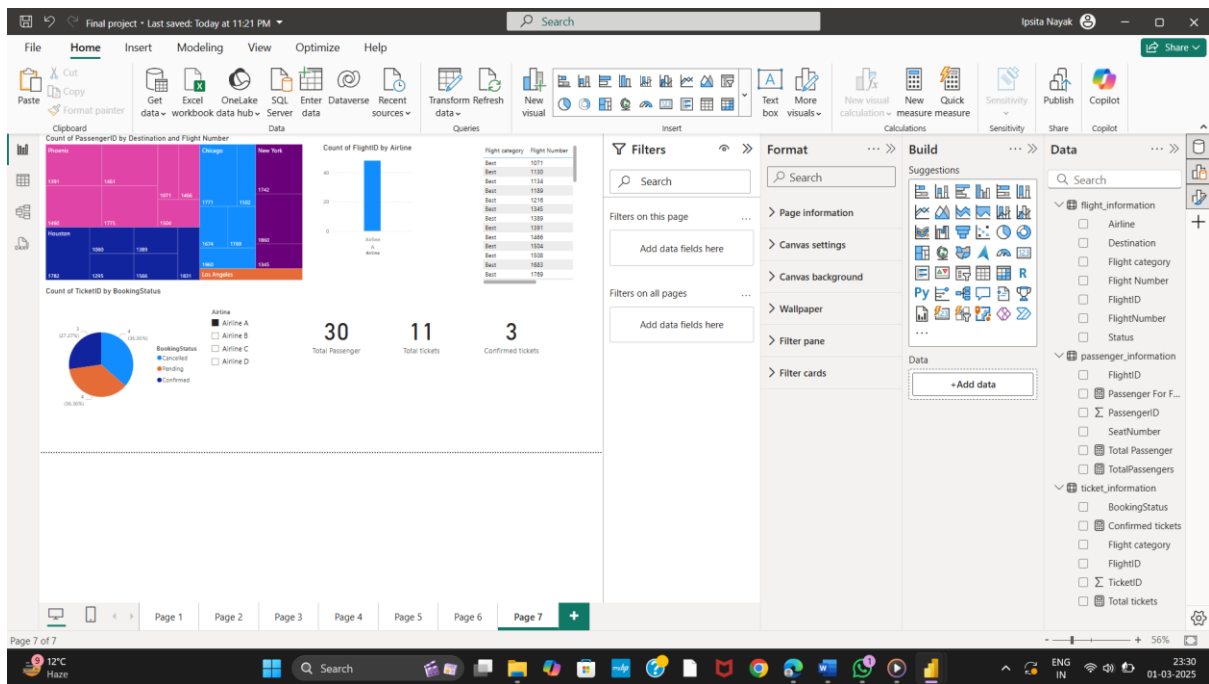
(c) AIRLINE – SPECIFIC PAGES

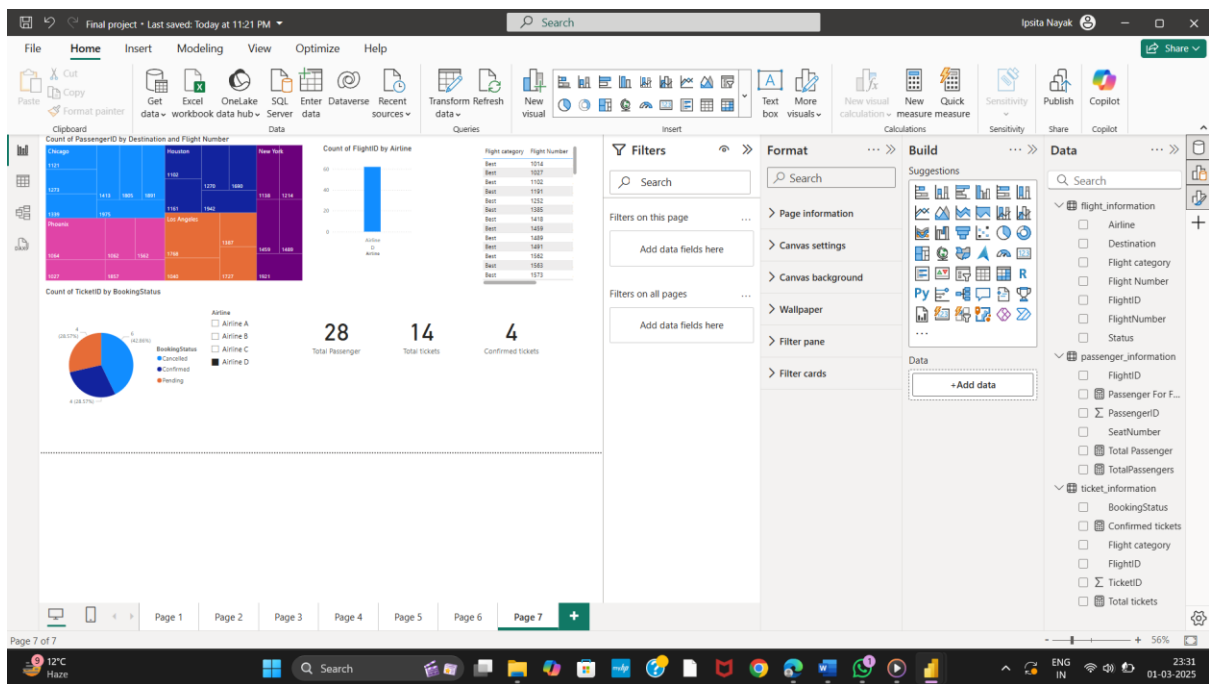
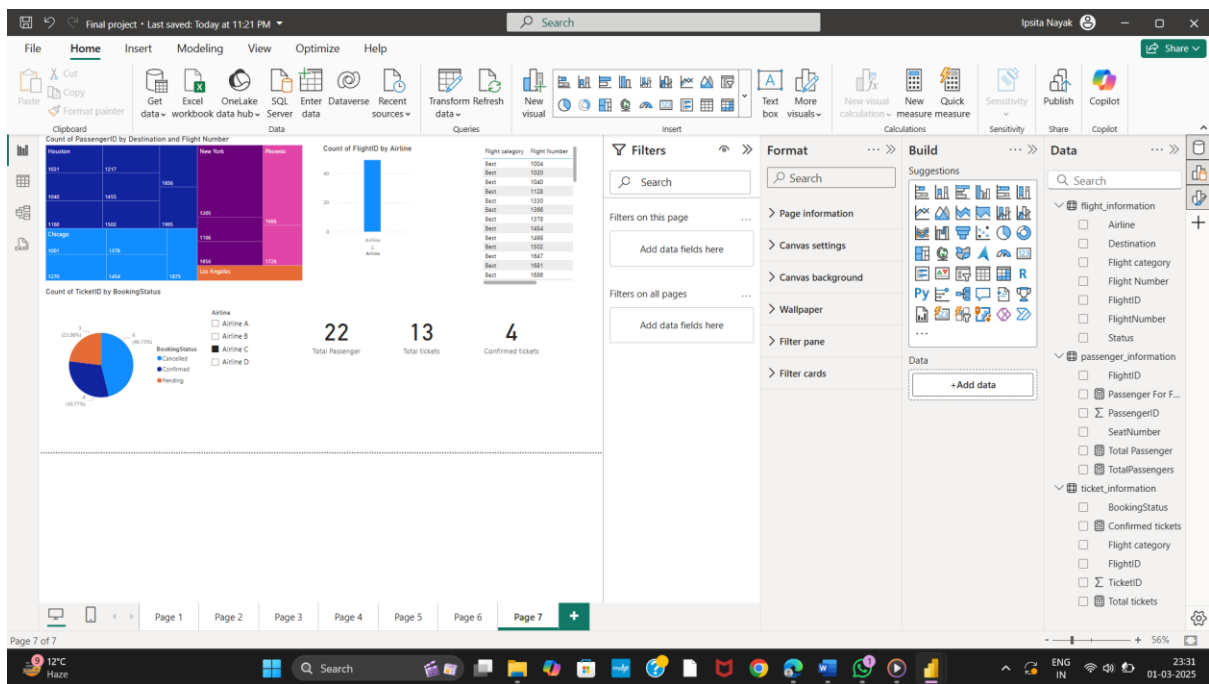


- Create a new page for each airline
- Add a Button on the main page labeled View Airline Details.

6. Final Dashboard and Power BI Service.

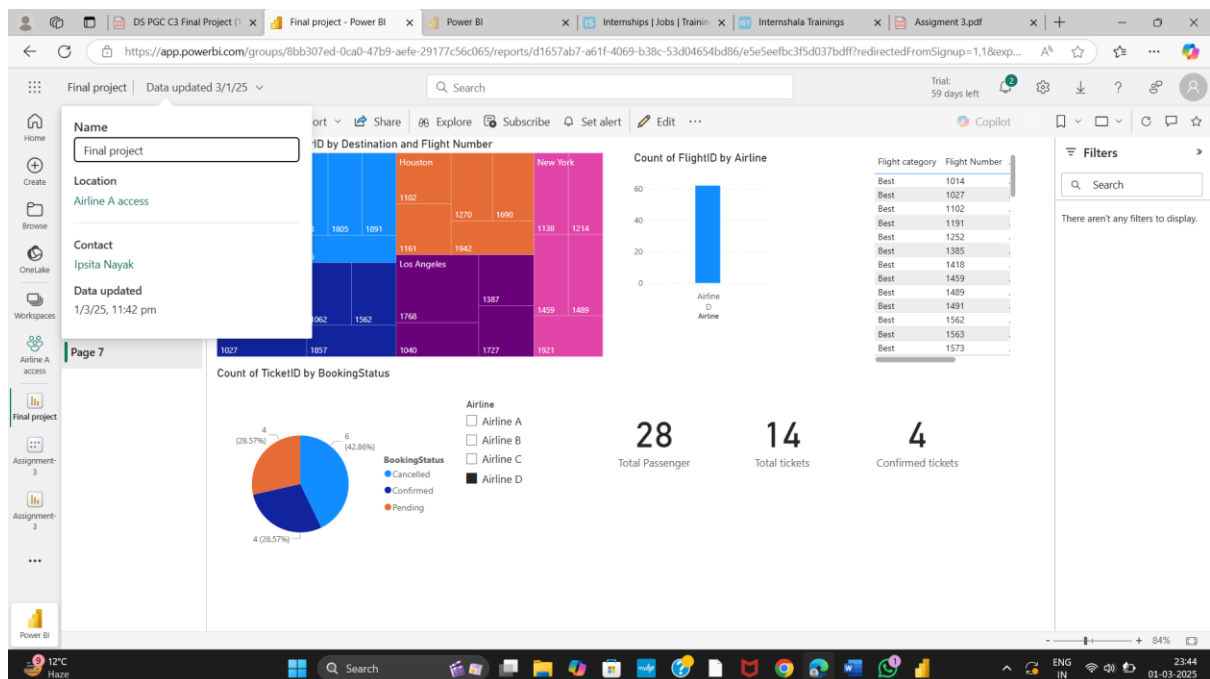
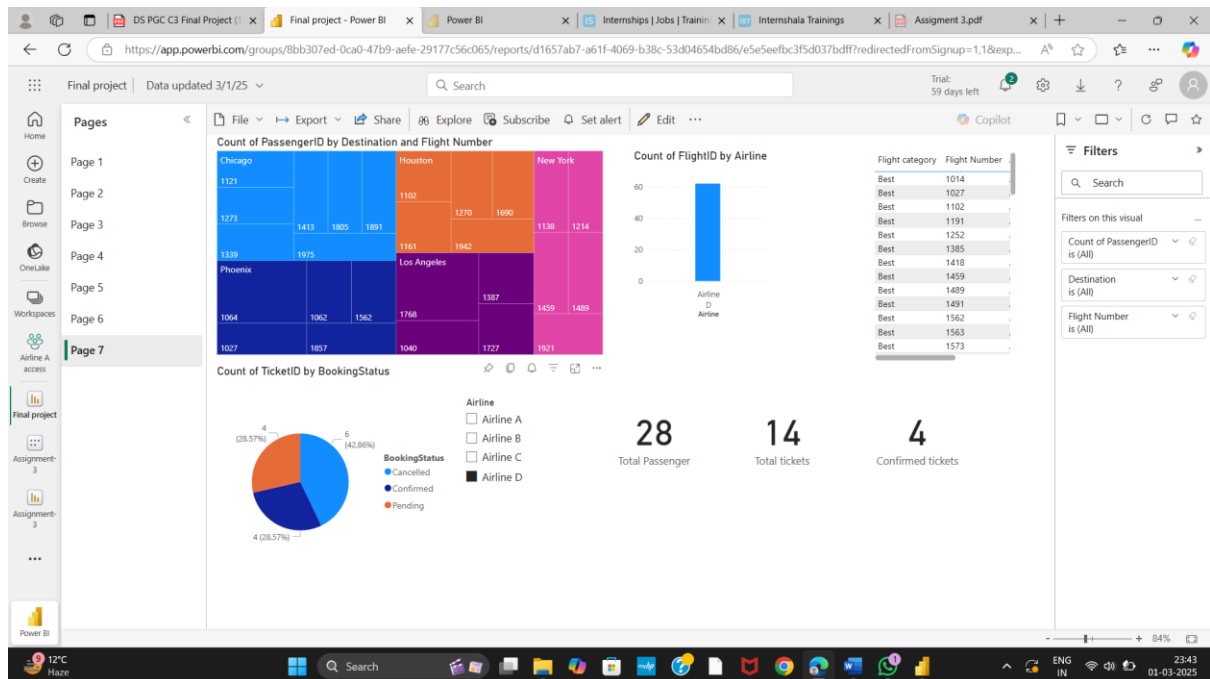
(a). DESIGN A COMPREHENSIVE DASHBOARD





- Create a new report page
- open power BI Desktop and add a new page for a dashboard
- Add key visuals and insights.

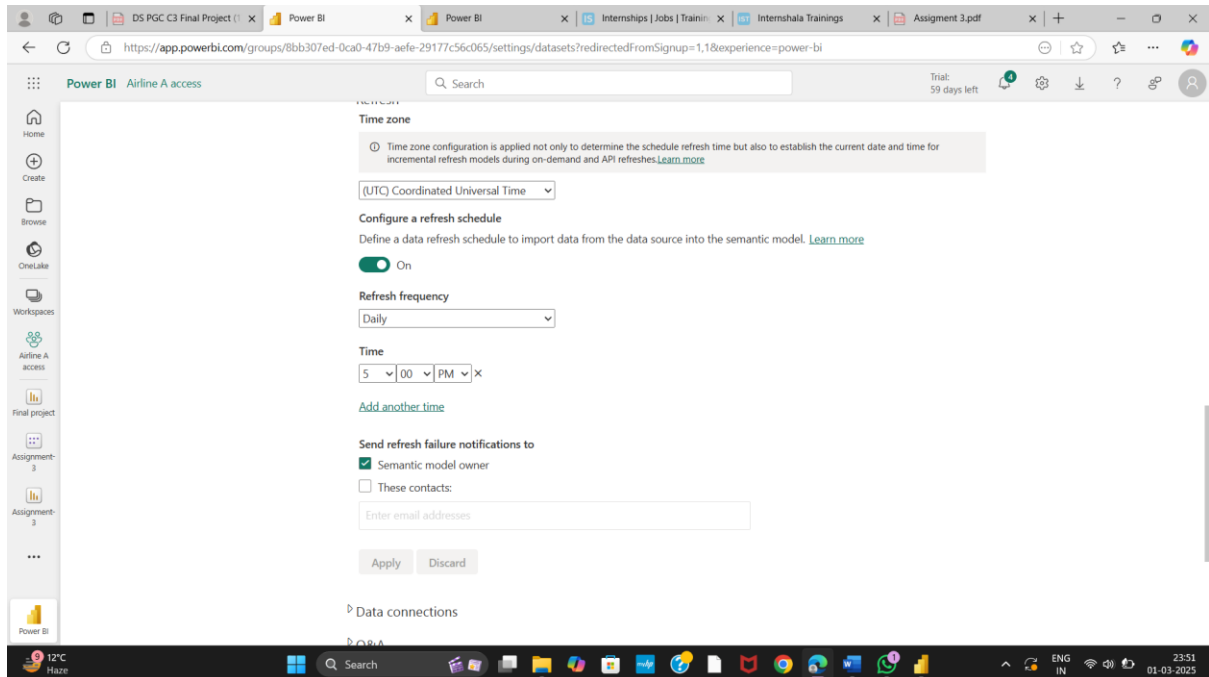
(b). CONFIGURE ROW-LEVEL SECURITY(RLS) FOR AIRLINE



- Open power bi desktop and go to the model view.
- Click on manage roles and under modeling tab.
- Click create new role and name it "Airline A access"
- Apply a filter:
- [Airline] = "Airline A"

- Click save.
- Assign a role to a specific user in power bi service
- publish the report to the power bi service
- Go to Workspace -> Dataset -> Security.
- Add the User to the “Airline A access” role.

(c). SET UP A SCHEDULED REFRESH AT 5PM DAILY



- Publish the power bi report to the power bi service.
- Go to the power bi service and navigate to Settings -> Dataset
- Click on Scheduled Refresh and enable it.
- set the refresh time to 5:00 pm
- Ensure data source credentials are updated for automatic refresh
- Click Apply to save the settings.

Video Submission

<https://drive.google.com/file/d/1LR4EArt5X45te2rLnIcyrzjzIO-koU1h/view?usp=sharing>

