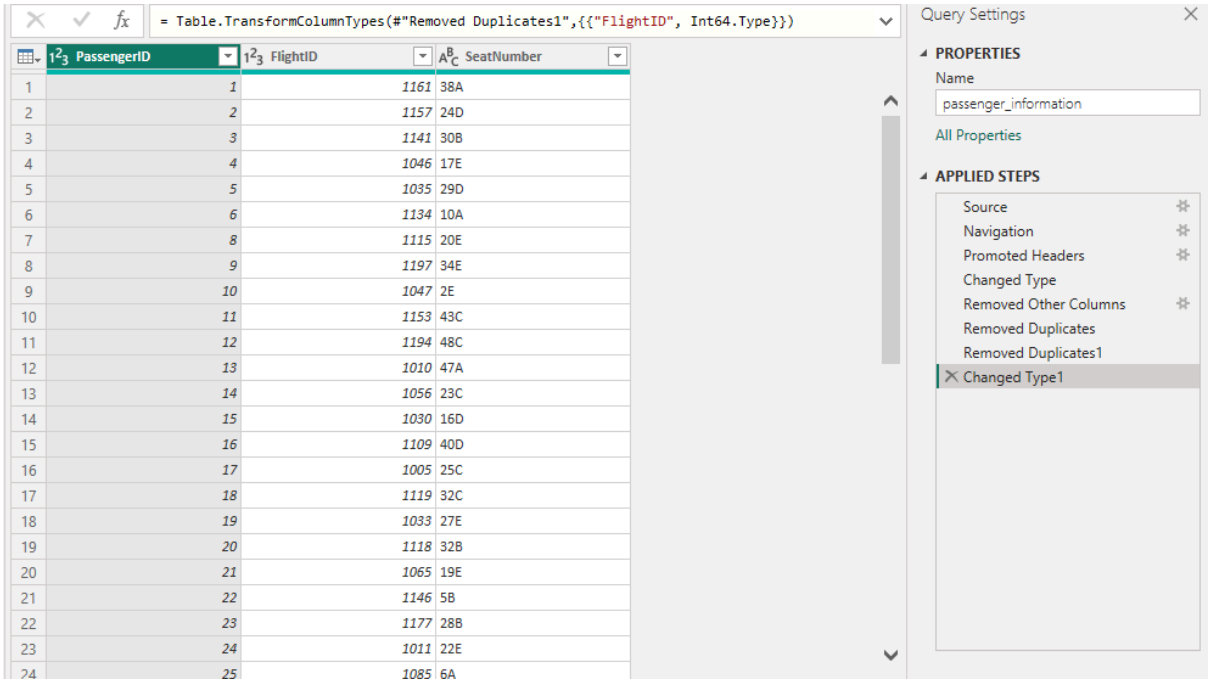
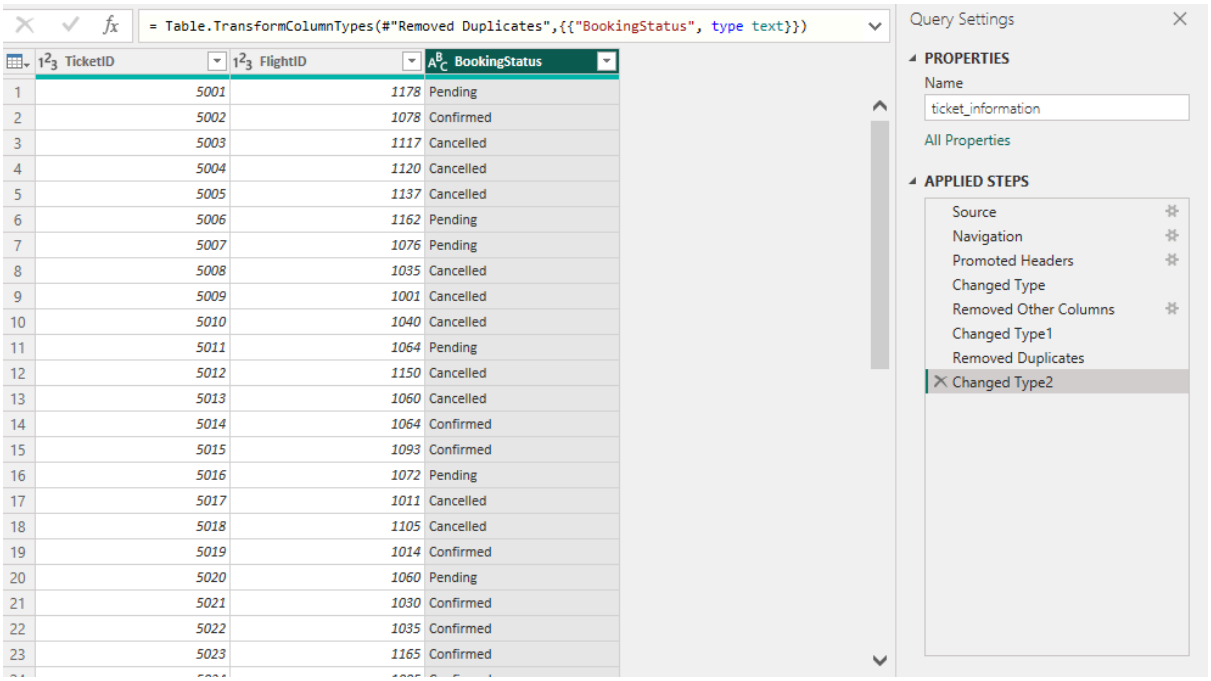
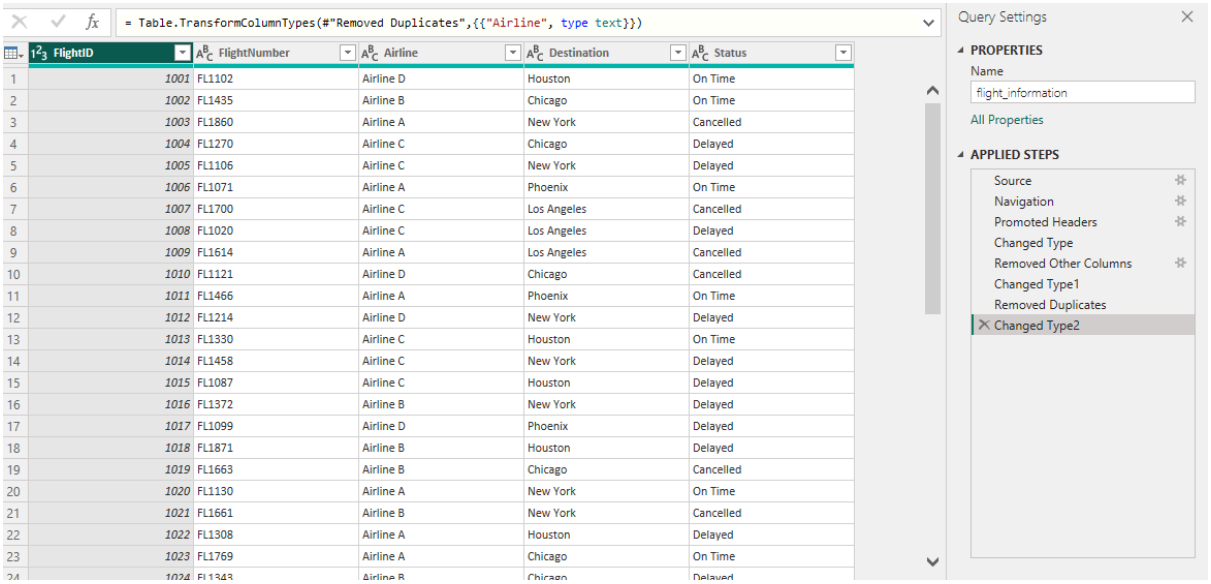
Task 1 : Data Preparation and Cleaning

- Load Data into Power Query
- Remove Duplicates
- Format Columns
    - Ensure correct data types (FlightID as Whole Number, BookingStatus as Text, FlightDate as Date, etc)



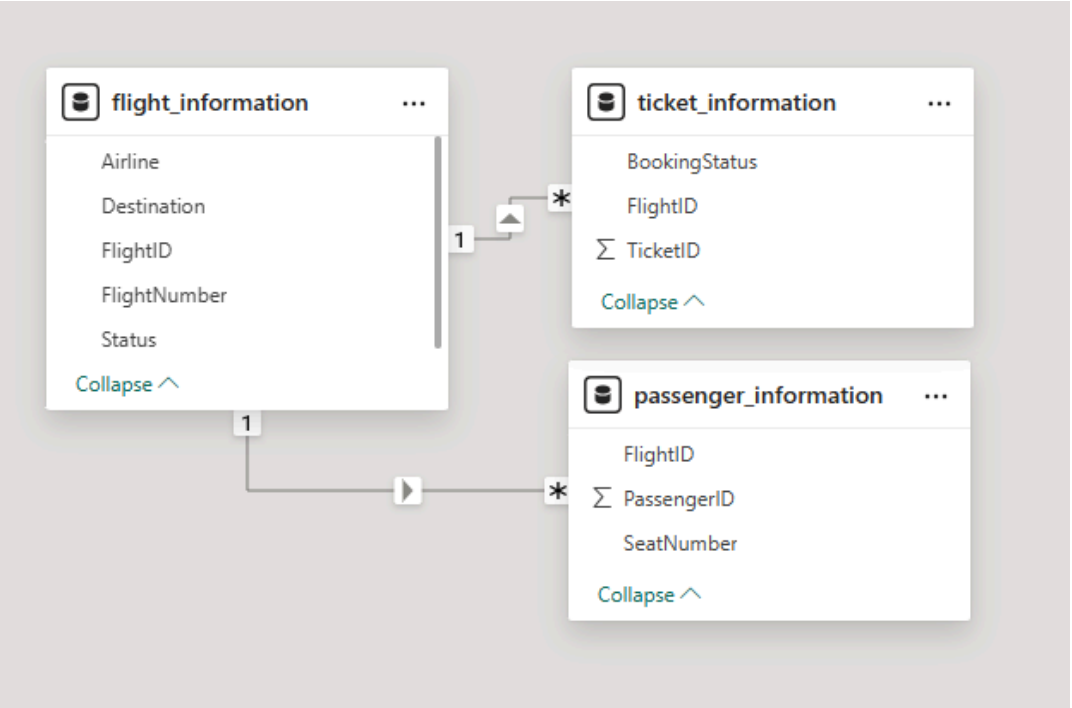




	FlightID	FlightNumber	Airline	Destination	Status
1	1001	FL1102	Airline D	Houston	On Time
2	1002	FL1435	Airline B	Chicago	On Time
3	1003	FL1860	Airline A	New York	Cancelled
4	1004	FL1270	Airline C	Chicago	Delayed
5	1005	FL1106	Airline C	New York	Delayed
6	1006	FL1071	Airline A	Phoenix	On Time
7	1007	FL1700	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

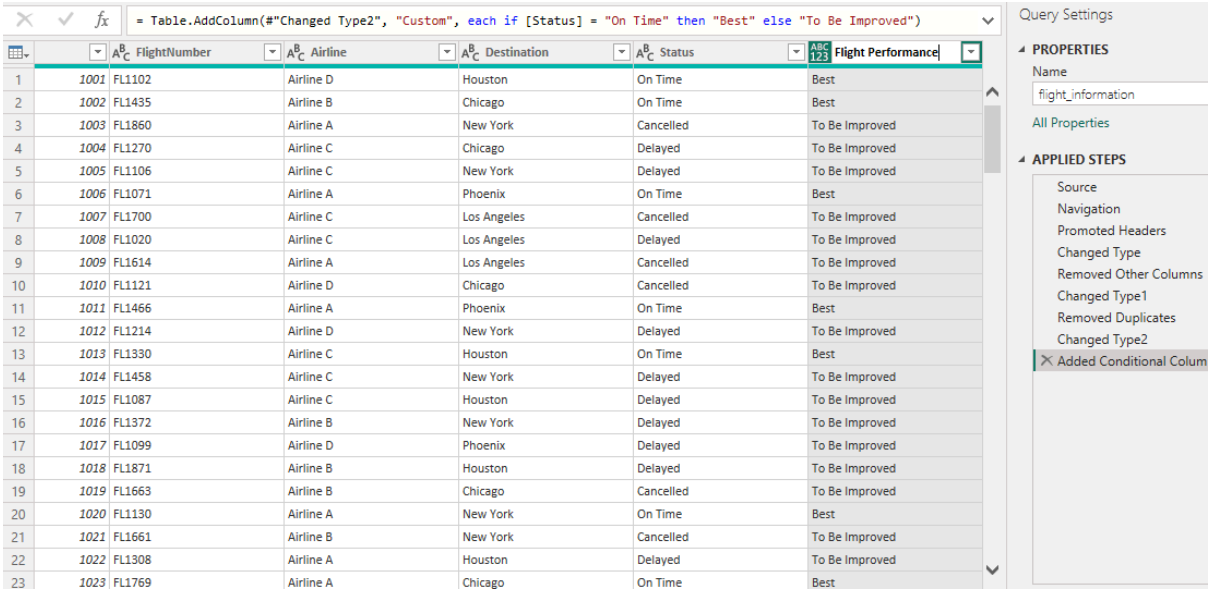
Task 2 : Data Modeling

- Open the Model View
- Establish Relationships:
  - Connect FlightID in Flight_Information to:
    - FlightID in Passenger_Information
    - FlightID in Ticket_Information
  - Set Cardinality based on data:
    - Flight_Information (1) ↔ (Many) Passenger_Information (One-to-Many)
    - Flight_Information (1) ↔ (Many) Ticket_Information (One-to-Many)



Task 3 : Enhanced Data Insights

- **Conditional column**
    - Power Query Editor → Select Flight_Information table.
    - Add Column → Conditional Column.
    - Name the column Flight Performance.
    - Set conditions based on Status:
        - If Status = "On Time" or Status = "Early", then "Best"
        - Else, "To Be Improved"



```
= Table.AddColumn(#"Changed Type2", "Custom", each if [Status] = "On Time" then "Best" else "To Be Improved")
```

	FlightNumber	Airline	Destination	Status	Flight Performance
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

Query Settings

PROPERTIES

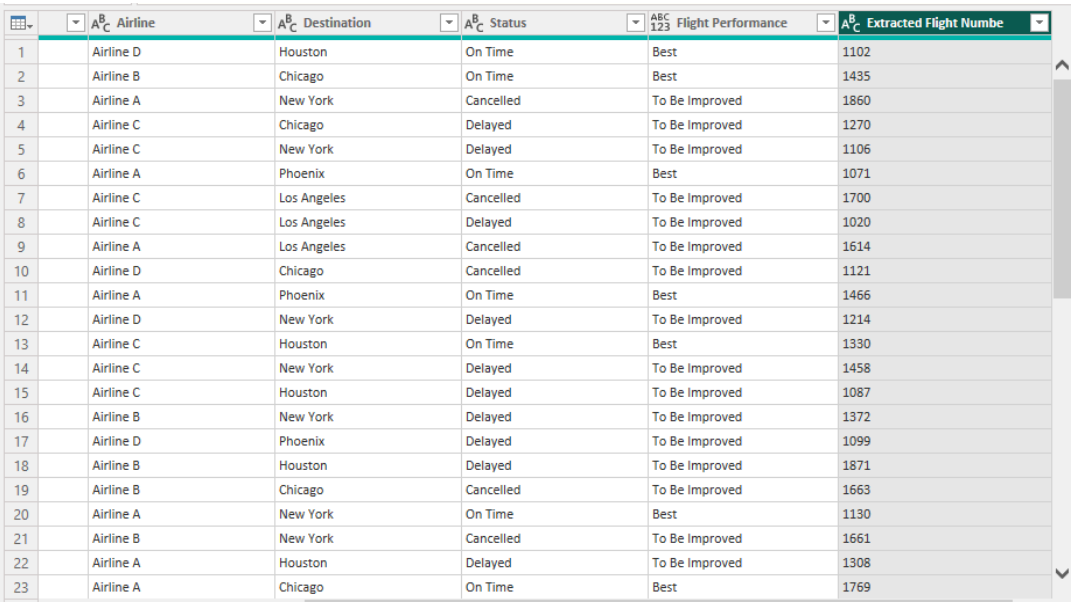
Name: flight_information

All Properties

APPLIED STEPS

Source
Navigation
Promoted Headers
Changed Type
Removed Other Columns
Changed Type1
Removed Duplicates
Changed Type2
Added Conditional Colum

- **Columnfrom Examples**
    - Select the FlightNumber column.
    - Add Column → Column from Examples → Choose From Selection.
    - In the new column, manually type the correct flight number for a few rows
    - Rename the column to Extracted Flight Number.



	Airline	Destination	Status	Flight Performance	Extracted Flight Numbe
1	Airline D	Houston	On Time	Best	1102
2	Airline B	Chicago	On Time	Best	1435
3	Airline A	New York	Cancelled	To Be Improved	1860
4	Airline C	Chicago	Delayed	To Be Improved	1270
5	Airline C	New York	Delayed	To Be Improved	1106
6	Airline A	Phoenix	On Time	Best	1071
7	Airline C	Los Angeles	Cancelled	To Be Improved	1700
8	Airline C	Los Angeles	Delayed	To Be Improved	1020
9	Airline A	Los Angeles	Cancelled	To Be Improved	1614
10	Airline D	Chicago	Cancelled	To Be Improved	1121
11	Airline A	Phoenix	On Time	Best	1466
12	Airline D	New York	Delayed	To Be Improved	1214
13	Airline C	Houston	On Time	Best	1330
14	Airline C	New York	Delayed	To Be Improved	1458
15	Airline C	Houston	Delayed	To Be Improved	1087
16	Airline B	New York	Delayed	To Be Improved	1372
17	Airline D	Phoenix	Delayed	To Be Improved	1099
18	Airline B	Houston	Delayed	To Be Improved	1871
19	Airline B	Chicago	Cancelled	To Be Improved	1663
20	Airline A	New York	On Time	Best	1130
21	Airline B	New York	Cancelled	To Be Improved	1661
22	Airline A	Houston	Delayed	To Be Improved	1308
23	Airline A	Chicago	On Time	Best	1769

Task 4 : Calculations Using DAX

- **Total passengers for a specific flight**
    - Create a Measure in the Passenger_Information table
    - TotalPassengersForFlight =

      CALCULATE(

        COUNT(Passenger_Information[PassengerID]),

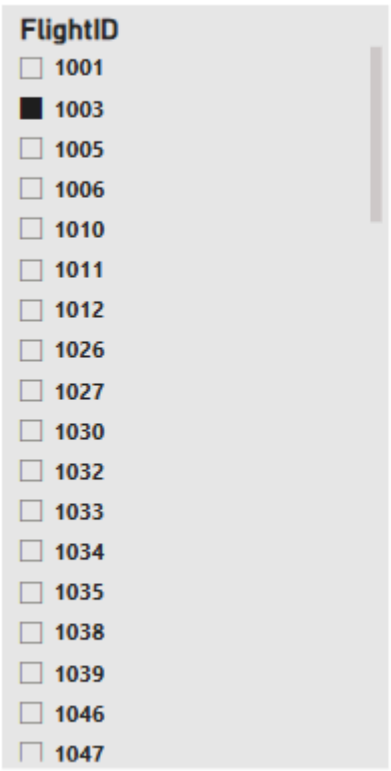
        FILTER(

          Passenger_Information,

          Passenger_Information[FlightID] IN VALUES(Flight_Information[FlightID])

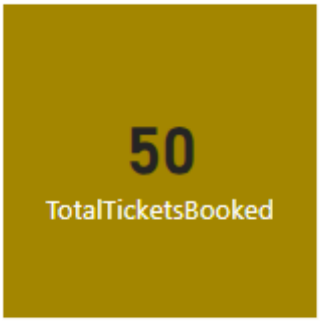
)

)
    - Slicer for Flight Selection Place
    - Card Visual to display TotalPassengersForFlight



- **Total tickets booked**
    - Create a Measure in the Ticket_Information table

- TotalTicketsBooked = COUNT(Ticket_Information[TicketID])
- Card Visual to display Total tickets booked

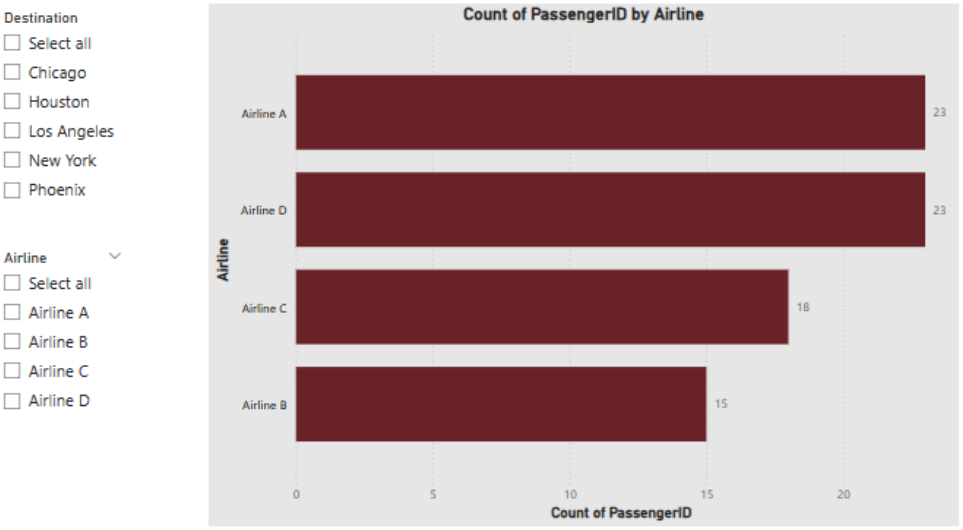


- **Filtered table showing "Best" flights only**
  - Add Table Visual to the report.
  - Drag necessary fields from Flight_Information (Airline, Destination, FlightID, FlightNumber, Status).
  - In the Filters Pane, find Flight Performance.
  - Set a Filter Condition: Flight Performance = "Best".

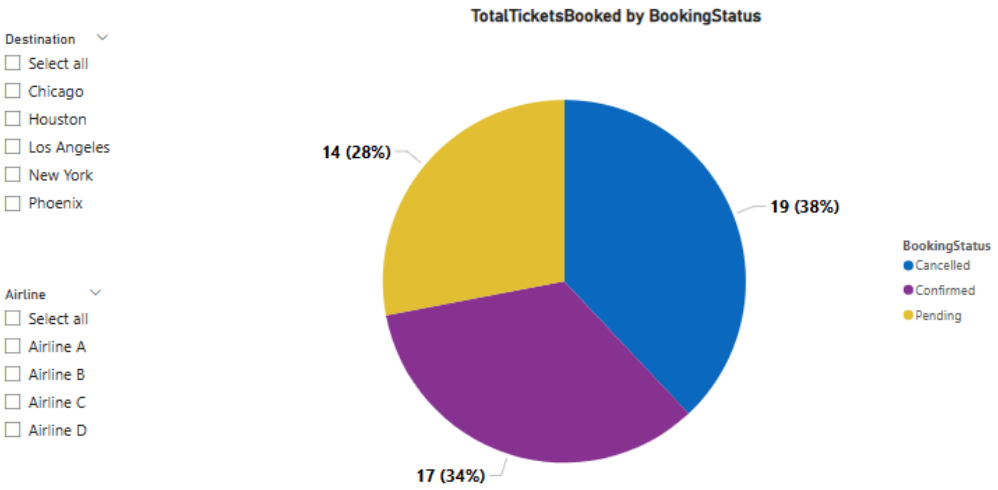
Airline	Destination	FlightID	FlightNumber	Status
Airline A	Chicago	1023	FL1769	On Time
Airline A	Chicago	1124	FL1216	On Time
Airline A	Houston	1092	FL1389	On Time
Airline A	Houston	1168	FL1683	On Time
Airline A	Los Angeles	1171	FL1986	On Time
Airline A	New York	1020	FL1130	On Time
Airline A	New York	1048	FL1189	On Time
Airline A	New York	1072	FL1345	On Time
Airline A	New York	1081	FL1508	On Time
Airline A	New York	1155	FL1134	On Time
Airline A	Phoenix	1006	FL1071	On Time
Airline A	Phoenix	1011	FL1466	On Time
Airline A	Phoenix	1057	FL1504	On Time
Airline A	Phoenix	1082	FL1775	On Time
Airline A	Phoenix	1145	FL1391	On Time
Airline B	Chicago	1002	FL1435	On Time
Airline B	Chicago	1039	FL1560	On Time
Airline B	Houston	1113	FL1251	On Time
Airline B	Houston	1117	FL1719	On Time
Airline B	Houston	1200	FL1095	On Time
Airline B	Los Angeles	1064	FL1166	On Time
Airline B	Los Angeles	1071	FL1776	On Time
Airline B	Los Angeles	1097	FL1476	On Time
Airline B	Los Angeles	1160	FL1032	On Time
Airline B	Los Angeles	1166	FL1804	On Time

Task 4 : Visualization and Interactive Features

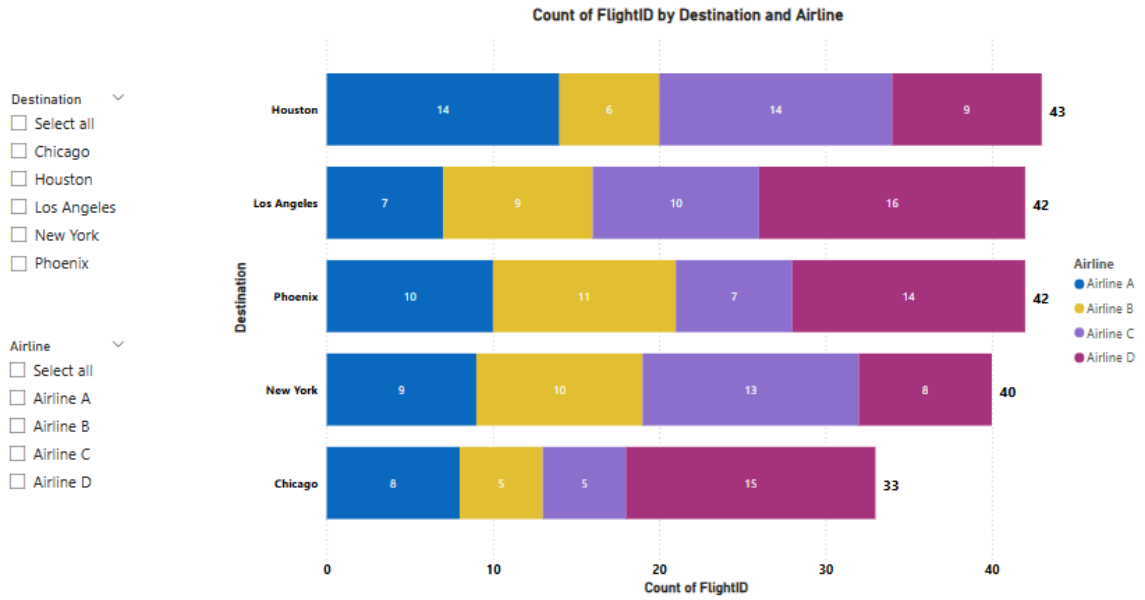
- **Passenger count by airline**
    - Add a Bar Chart.
    - Drag Airline (Flight_Information Table) to the X-Axis.
    - Drag TotalPassengers (DAX measure) to the Y-Axis.



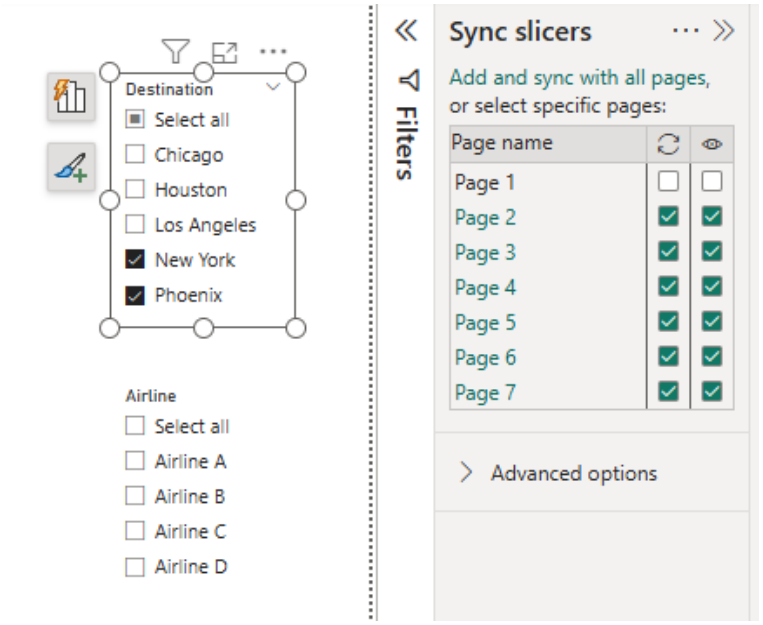
- **Ticket booking statuses**
    - Add a Pie Chart.
    - BookingStatus (Ticket_Information Table) to the Legend.
    - TotalTicketsBooked (DAX measure) to Values.



- **Flights by airline and destination**
    - Add a Stacked Bar Chart.
    - Airline to the X-Axis.
    - Destination to the Y-Axis.
    - FlightsID to Values.

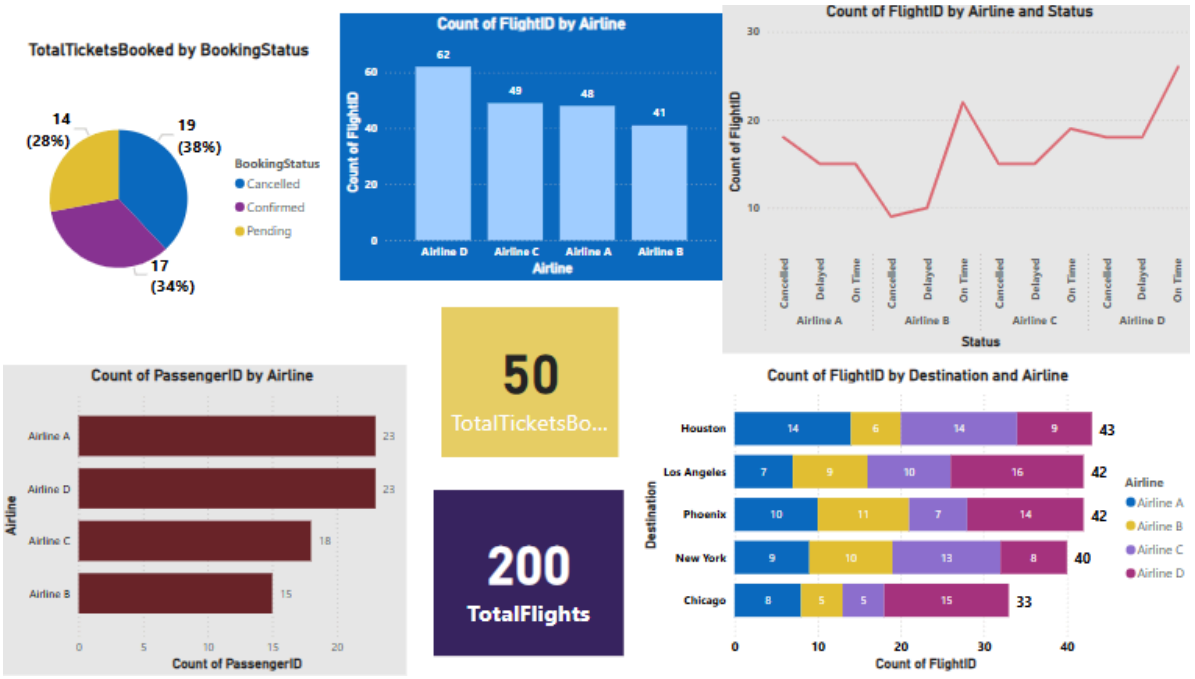


- **Add Interactive features for:**
- **Destination and Airline**
    - Slicers for Destination and Airline (from Flight_Information)



Task 6 : Final Dashboard and Power BI Service

- **Comprehensive dashboard with key visuals and insights**



- **Configure Row-Level Security (RLS) for Airline A data and assign it to a user**
  - Model View → Manage Roles → Create New Role and name it "Airline A Access" → Select the Flight_Information table and enter DAX filter.
  - [Airline] = "Airline A"

- Setup Scheduled refresh at 5 PM daily
  - Power BI Service → **Workspace** → Find your **Dataset** in the workspace → **More options** → **Settings**
  - **Dataset Settings** page → **Scheduled Refresh** → **Expand** to open refresh settings → **Keep data updated** (if not enabled) → **Refresh Frequency** → select **Daily** → Click **Add another time** and set it to **5:00 PM**.