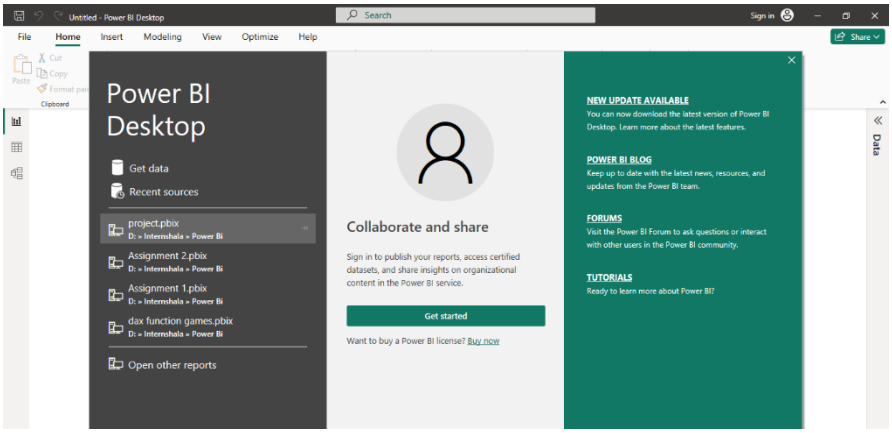
Data Visualization with Power BI
PROJECT

Task 1. Data Preparation and Cleaning

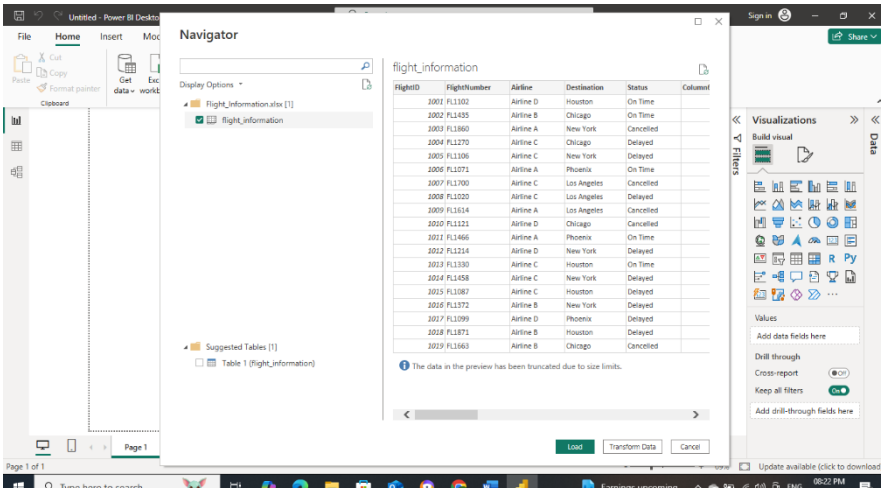
1.1 Extract and transform data in Power Query.

Steps Taken:

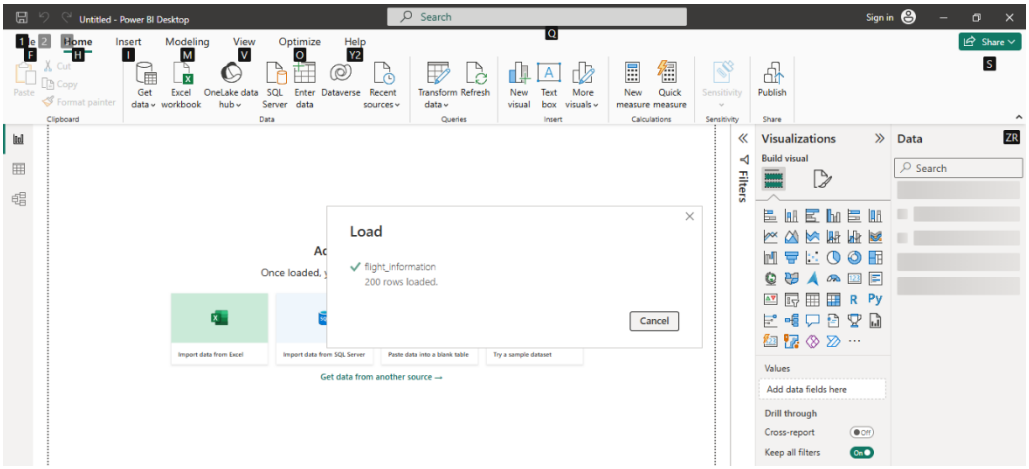
- Open Power BI desktop app.



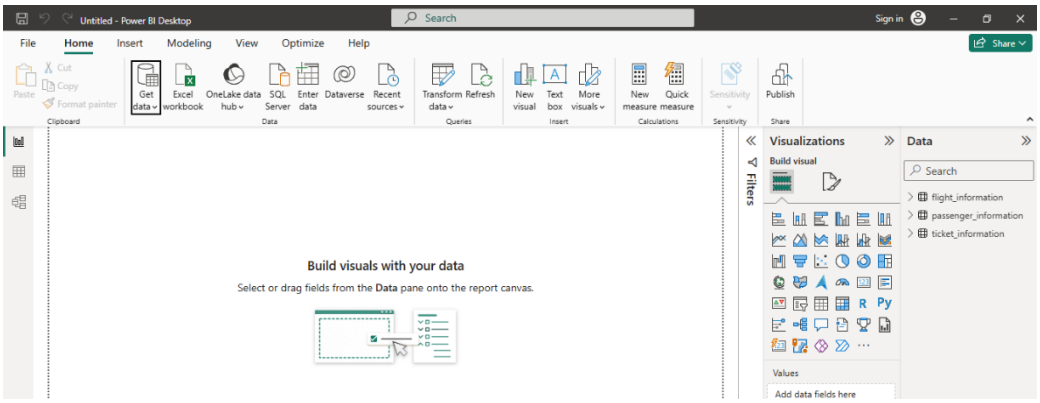
- Click on get data.
- Select excel workbook and click on connect.
- Select flight information file and click on open.
- Select the table and click on transform. Power query editor will be open.



- Click on close and apply and then apply.
- Flight information data will be loaded.



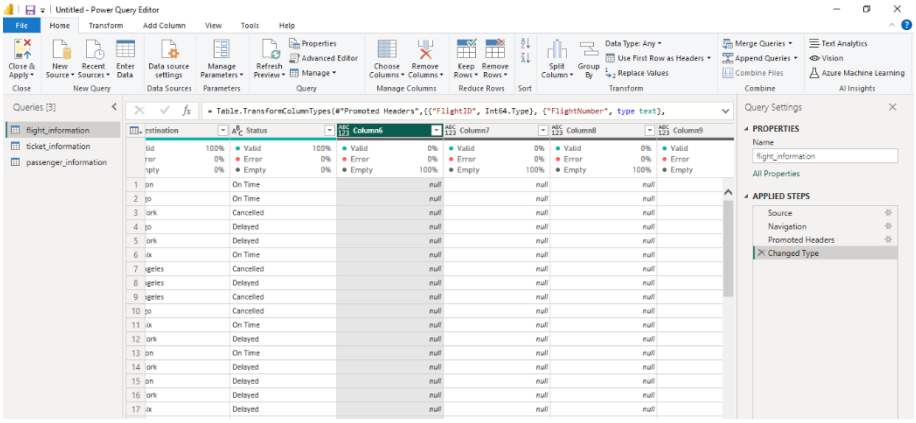
- Again, Click on get data.
- Select excel workbook and click on connect.
- Select Ticket information file and click on open.
- Select the table and click on transform. Power query editor will be open
- Click on close and apply and then apply.
- Ticket information data will be loaded.
- Again, Click on get data.
- Select excel workbook and click on connect.
- Select Passenger information file and click on open.
- Select the table and click on transform. Power query editor will be open
- Click on close and apply and then apply.
- Passenger information data will be loaded.



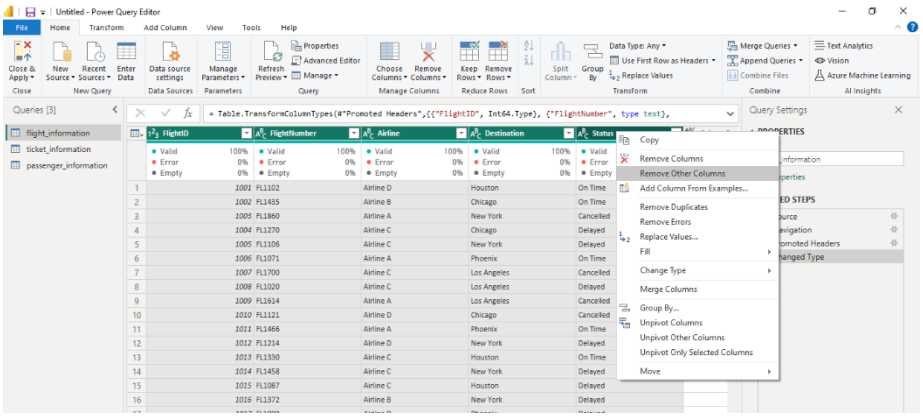
1.2 Clean data: remove duplicates, handle missing values, and format columns.

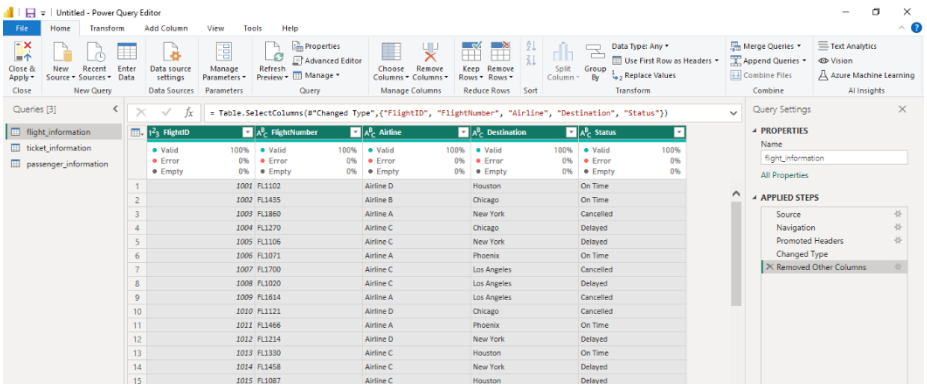
Steps Taken:

- Open Power Query Editor. (Click on transform data)
- Cleaning Flight information.
- Remove all the extra columns containing only null values.



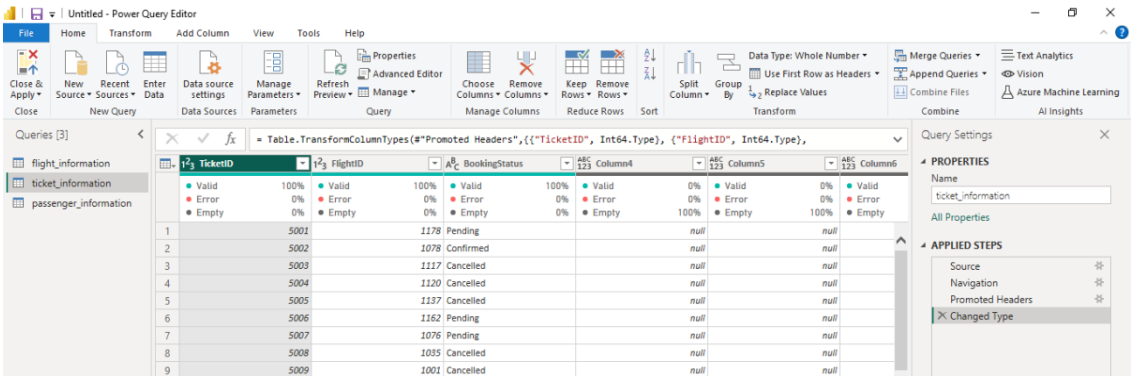
- Select all columns having necessary data right click and click on Remove other columns.



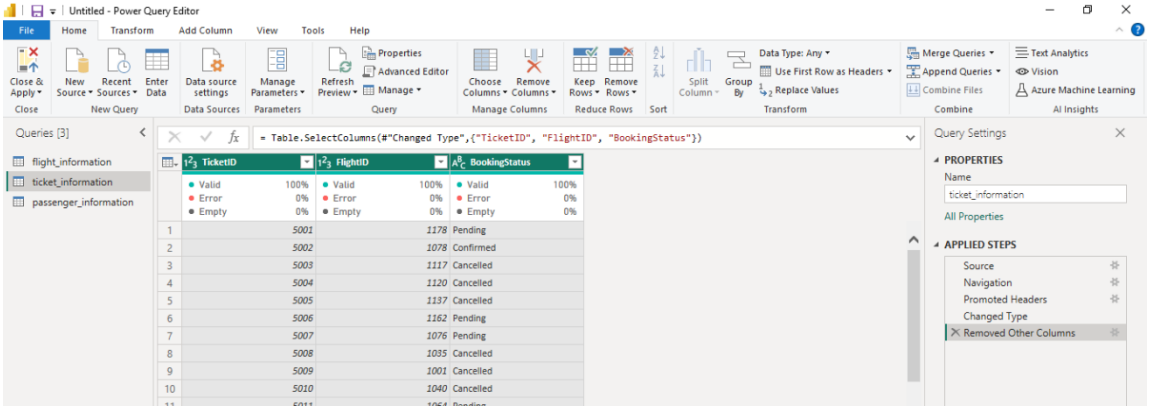


- Now Remove duplicates.
- Select flight information data.
- At home tab click on remove rows and then click on remove duplicates.
- There is no missing values in this table.

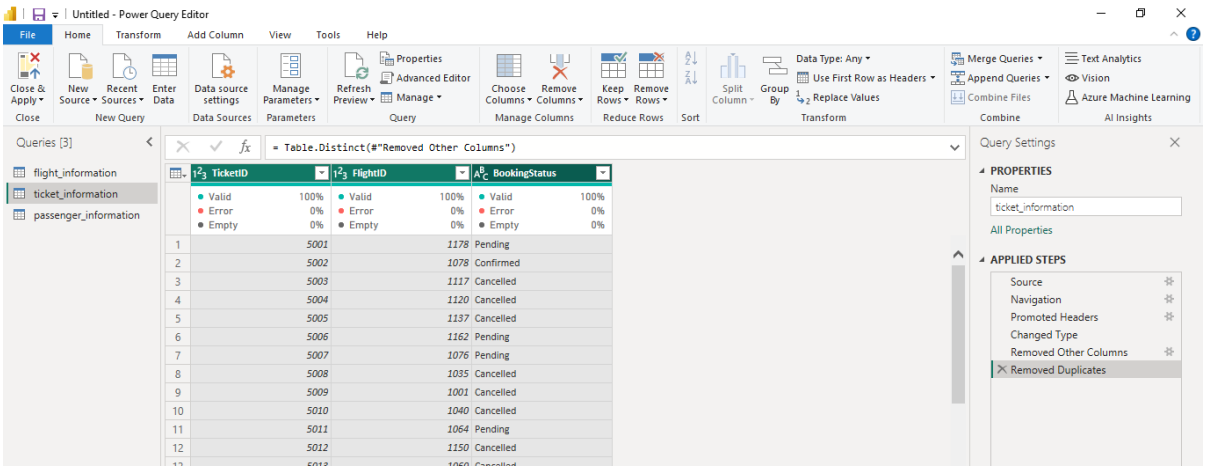
- Now, checking for the datatypes.
- All datatypes are also correct as flightID has whole number, flightnumber as Text, airline, destination and status are also text.
- Now go to ticket information table.



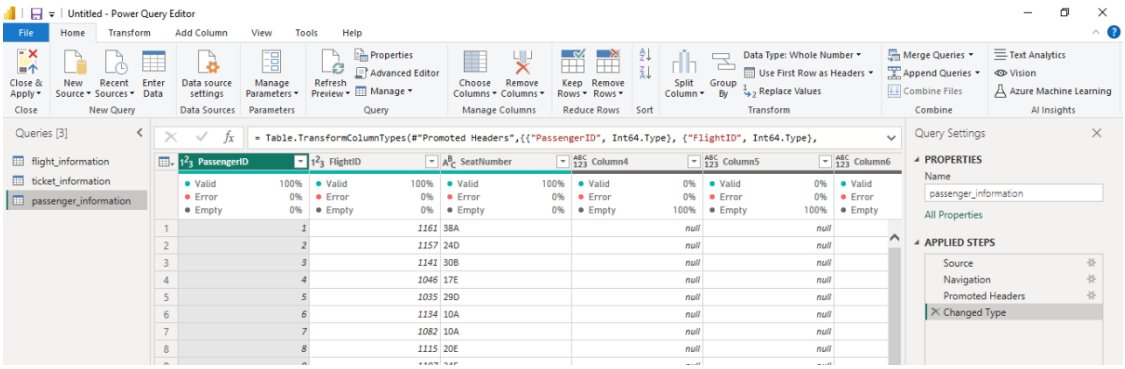
- Select all columns having necessary data right click and click on Remove other columns.



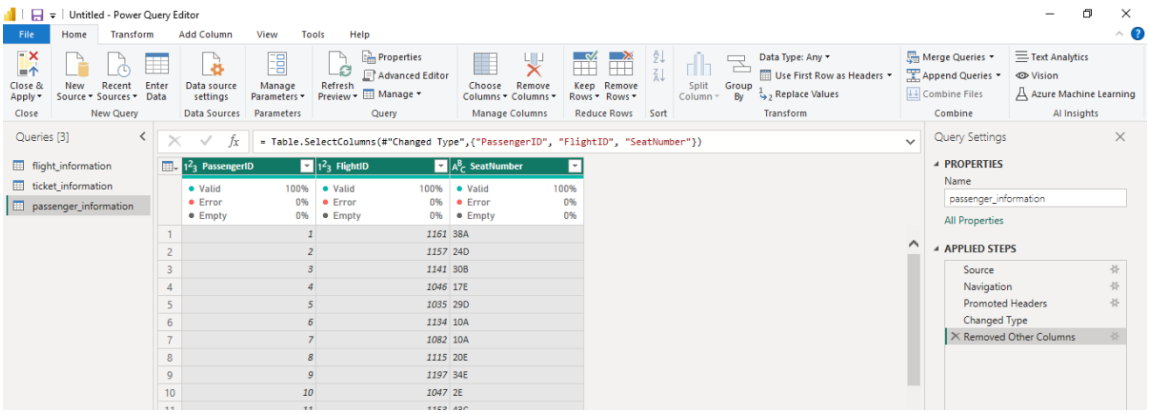
- Now Remove duplicates.
- Select Ticket information data.
- At home tab click on remove rows and then click on remove duplicates.
- There is no missing values in this table.
- All datatypes are also correct.



- Now go to Passenger information table.



- Select all columns having necessary data right click and click on Remove other columns.



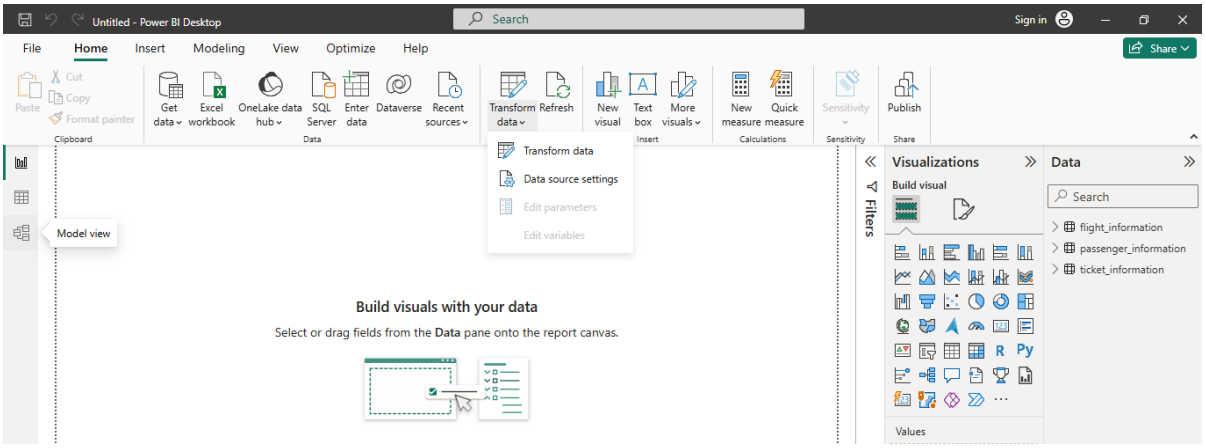
- Now Remove duplicates.
- Select Passenger information data.
- At home tab click on remove rows and then click on remove duplicates.
- There are no missing values in this table.
- All datatypes are also correct.
- Click on close and apply.

Task 2. Data Modeling

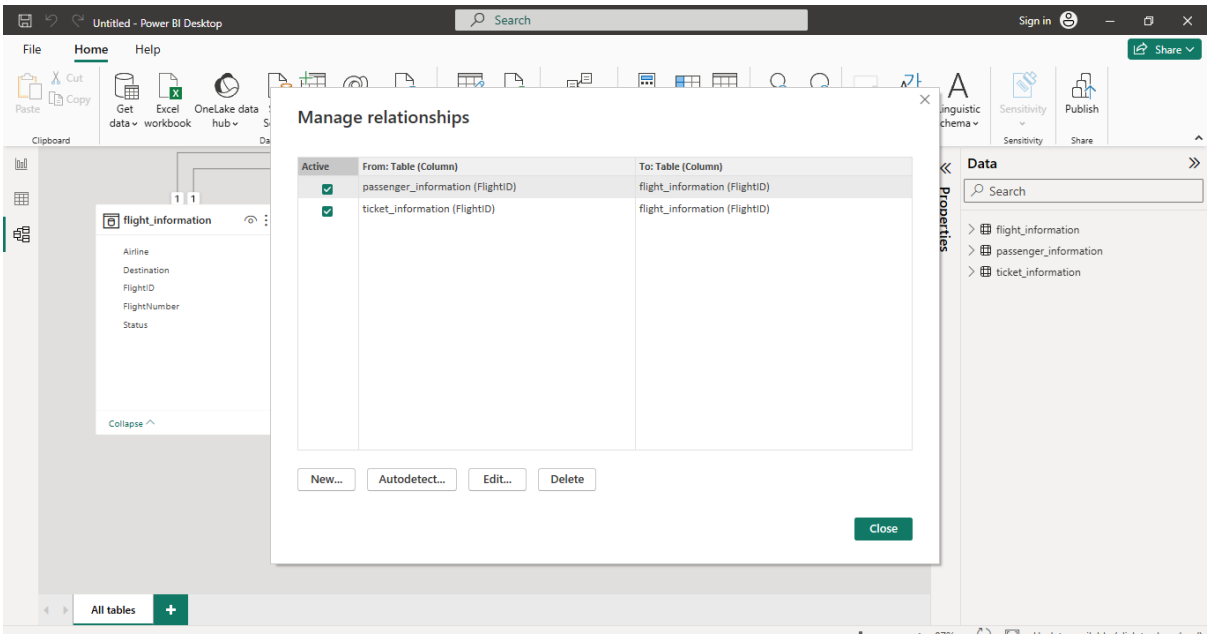
2.1 Create relationships between datasets (FlightID as the key).

Steps Taken:

- Go to the model view.



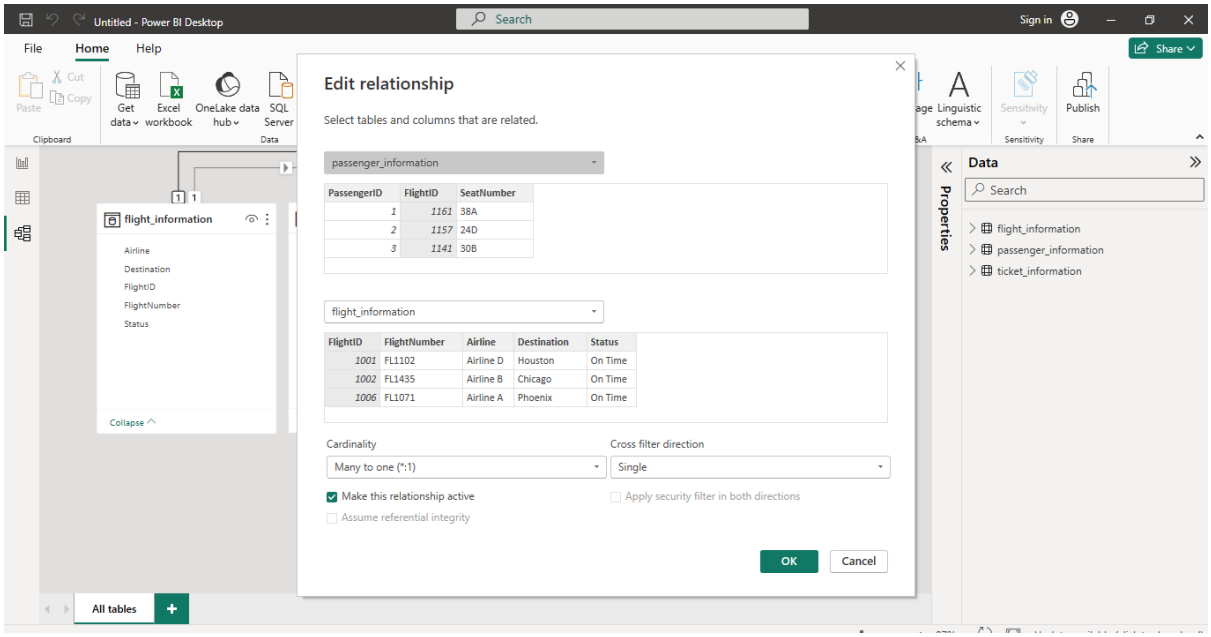
- Drag FlightID from Flight_Information → Ticket_Information
- Drag FlightID from Flight_Information → Passenger_Information

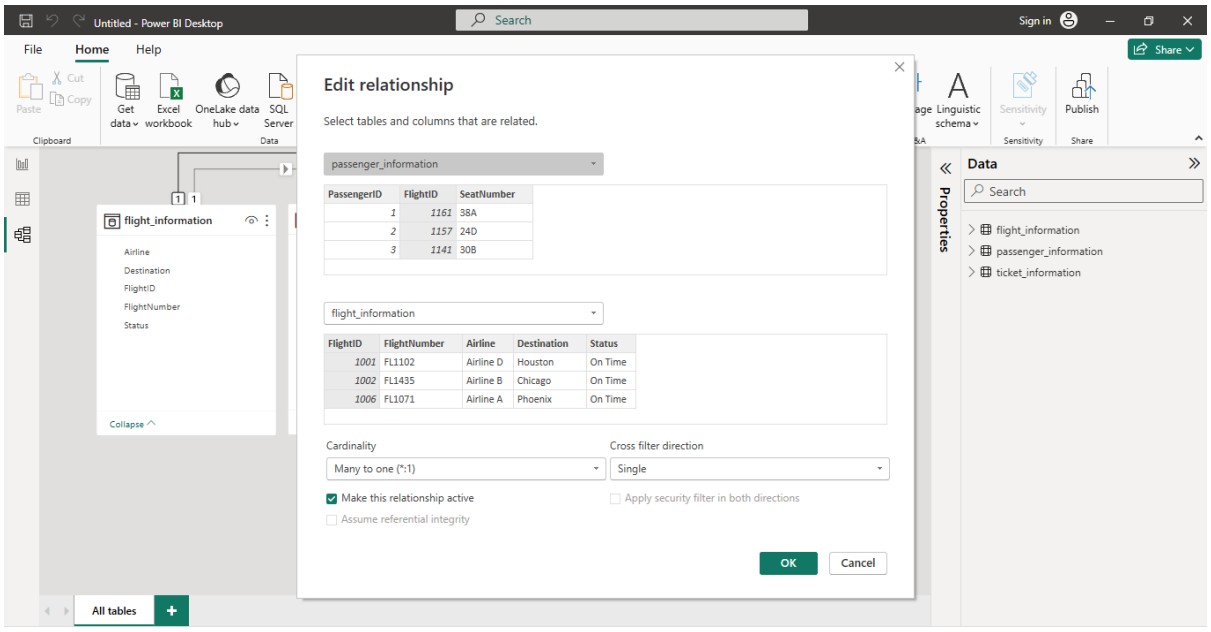


2.2 Understand cardinality and configure the model appropriately.

Steps Taken:

- Relationship 1: Flight_Information → Ticket_Information
- Cardinality: One-to-Many (1:*)
- Relationship 2: Flight_Information → Passenger_Information
- Cardinality: One-to-Many (1:*)



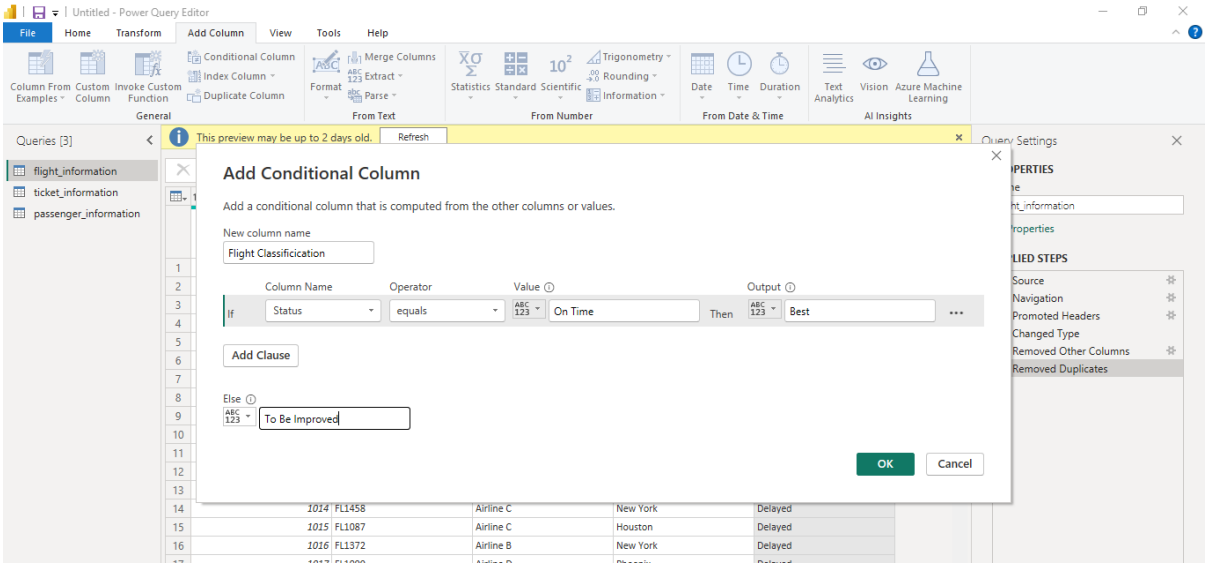


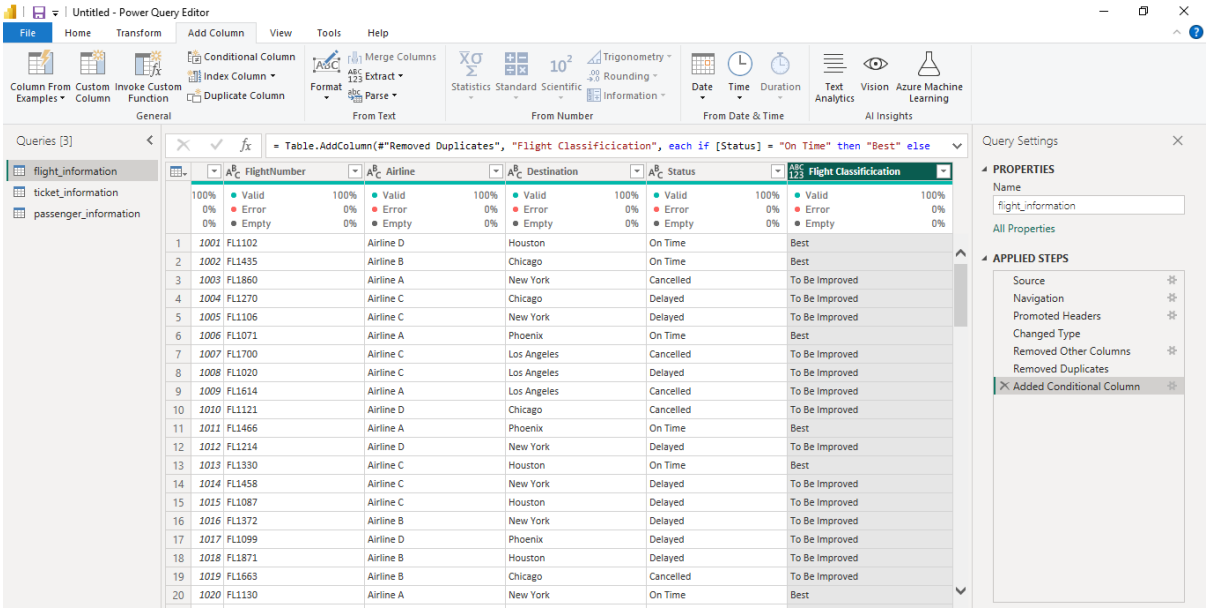
Task 3. Enhanced Data Insights

3.1 Add a conditional column to classify flights as "Best" or "To Be Improved" based on status.

Steps Taken:

- Go to power Query editor. (Click on Transform Data)
- Click on flight information table.
- Select status column.
- In the add column section click on conditional column.
- Add column name as Flight Classification
- If status equals on time then Best else to be improved.
- Click on OK.

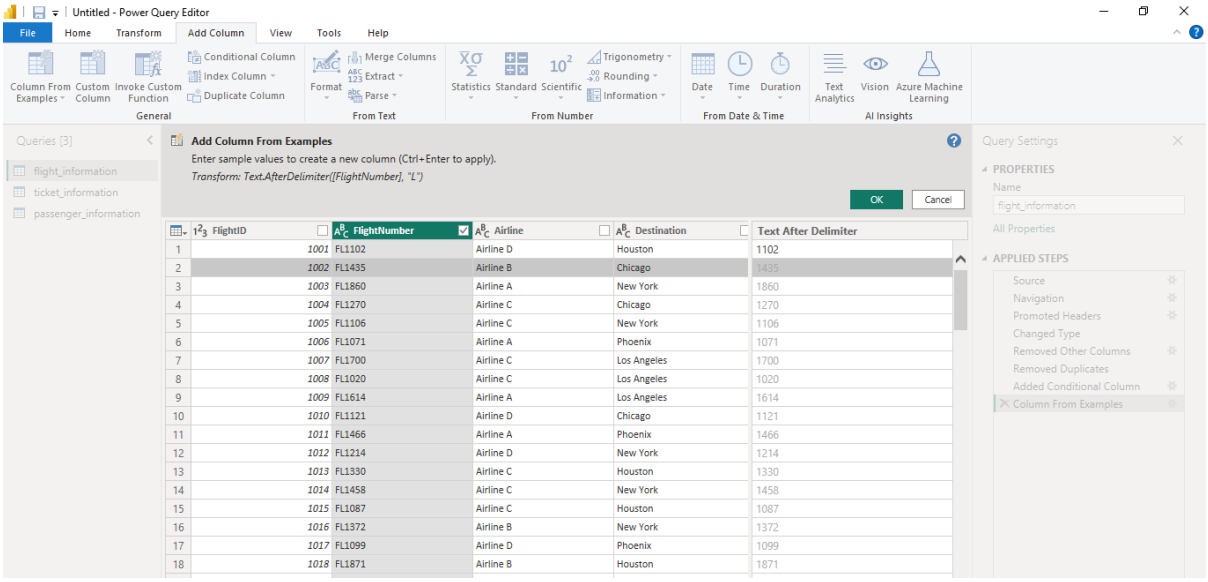




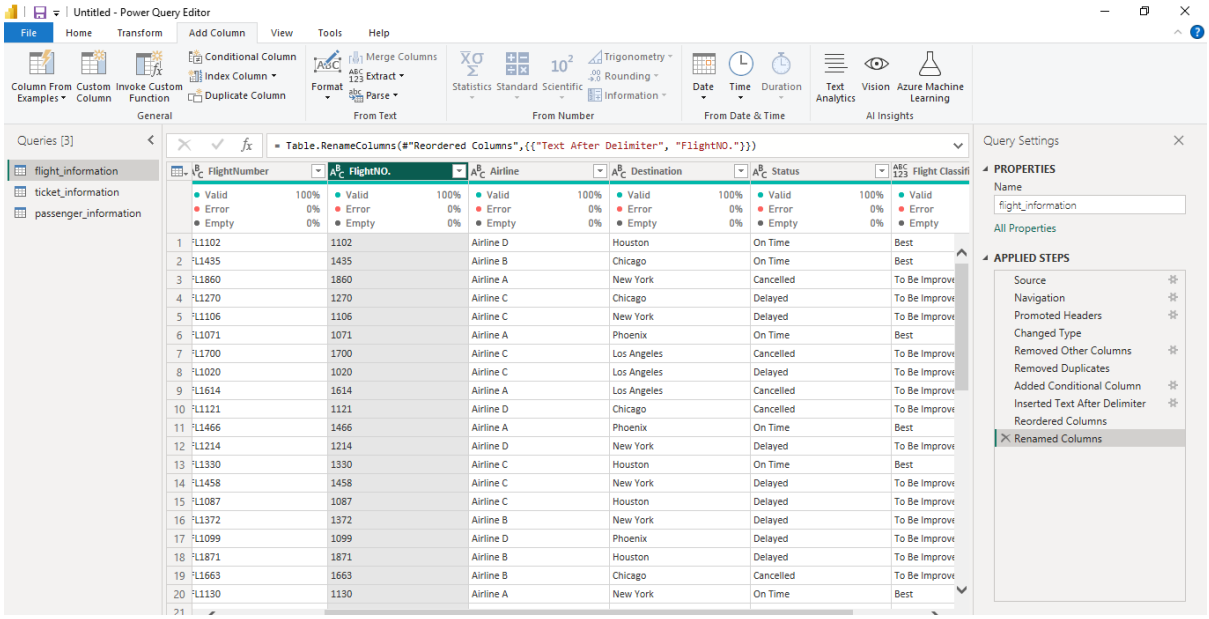
3.2 Use"Column from Examples" to extract the flight number from Flight Number.

Steps Taken:

- Go to power Query editor. (Click on Transform Data)
- Click on flight information table.
- Select FlightNumber Column.
- Go to add column and click on columns from example.
- Then click on from selection.
- Write flight no. 1102 in first row. Rest will be filled automatically.
- Click on ok.



- Rename column as FlightNo.



Task 4. Calculations Using DAX

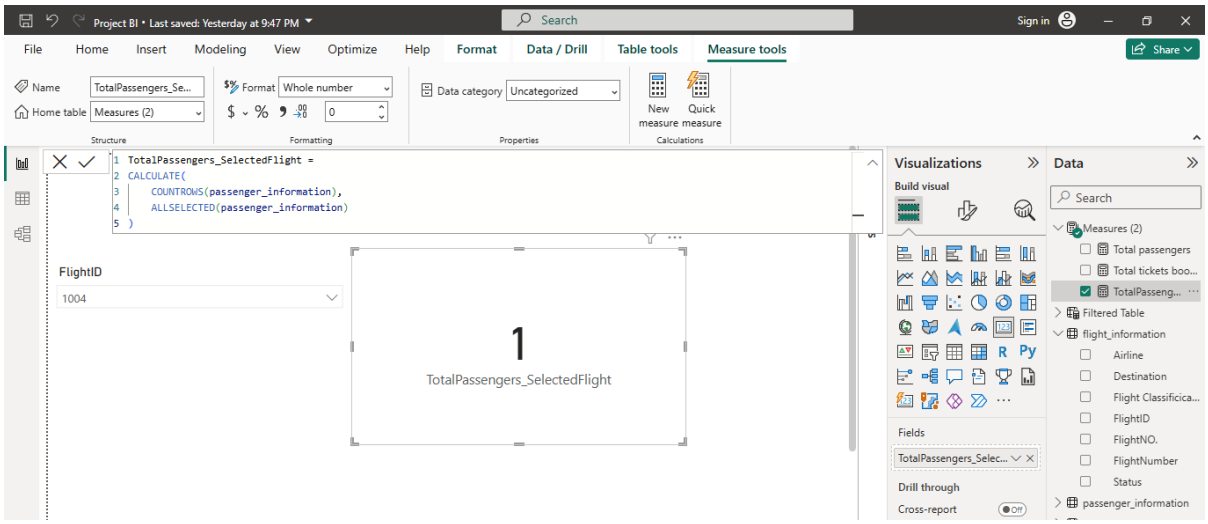
4.1 Calculate Total passengers for a specific flight.

Steps Taken:

- Go to Report View.
- Add a slicer and drag flightID in the field.
- Now create a new measure

TotalPassengers_SelectedFlight = CALCULATE(COUNTROWS(passenger_information), ALLSELECTED(passenger_information))

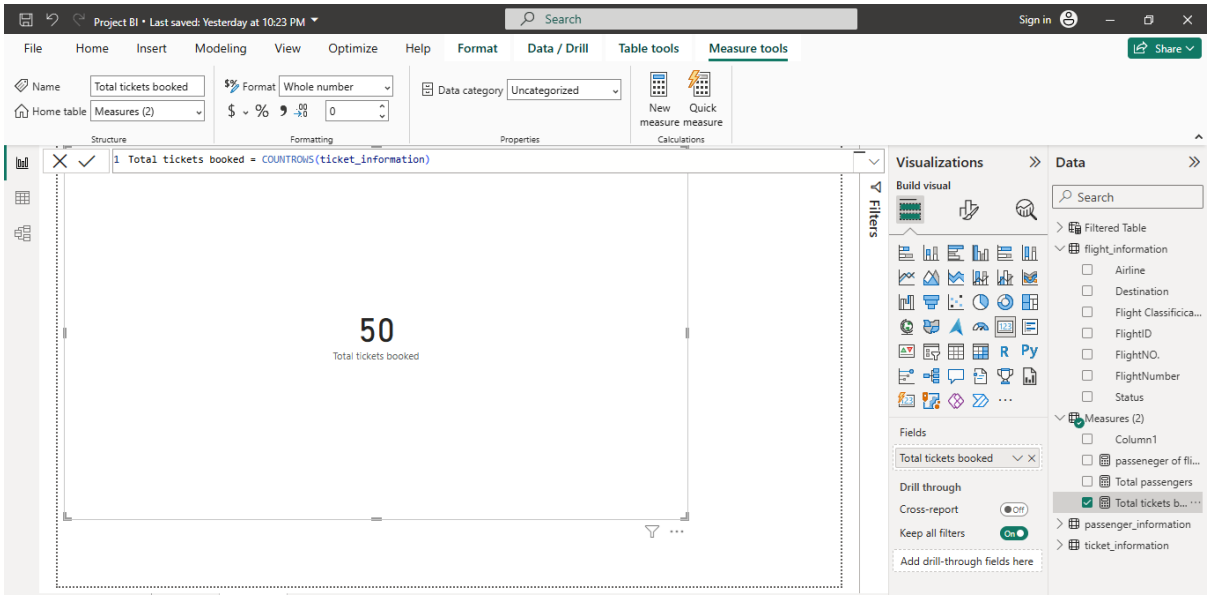
- Insert a card.
- And drag TotalPassengers_SelectedFlight measure on the fields.



4.2 Total tickets booked.

Steps Taken:

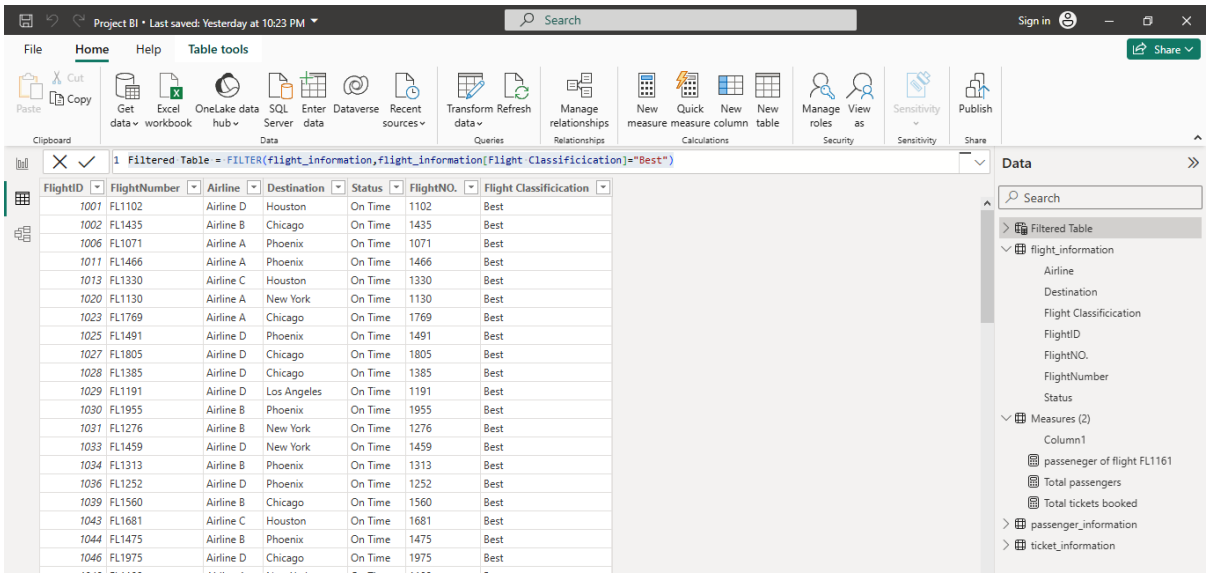
- Go to Power BI Report View.
- Click on New measure.
- Total tickets booked = COUNTROWS(ticket_information)
-



4.3 Filtered table showing "Best" flights only.

Steps Taken:

- At home tab, click on New table.
- then type Filtered Table = FILTER(flight_information,flight_information[Flight Classificication]="Best").
- Click enter.



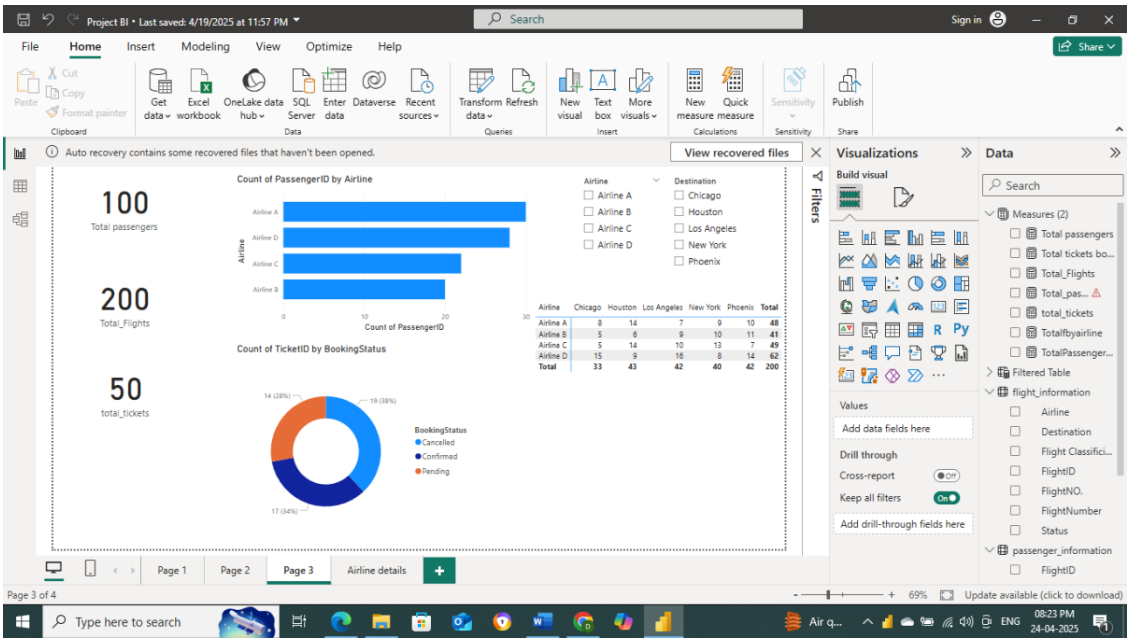
Task 5. Visualization and Interactive Features

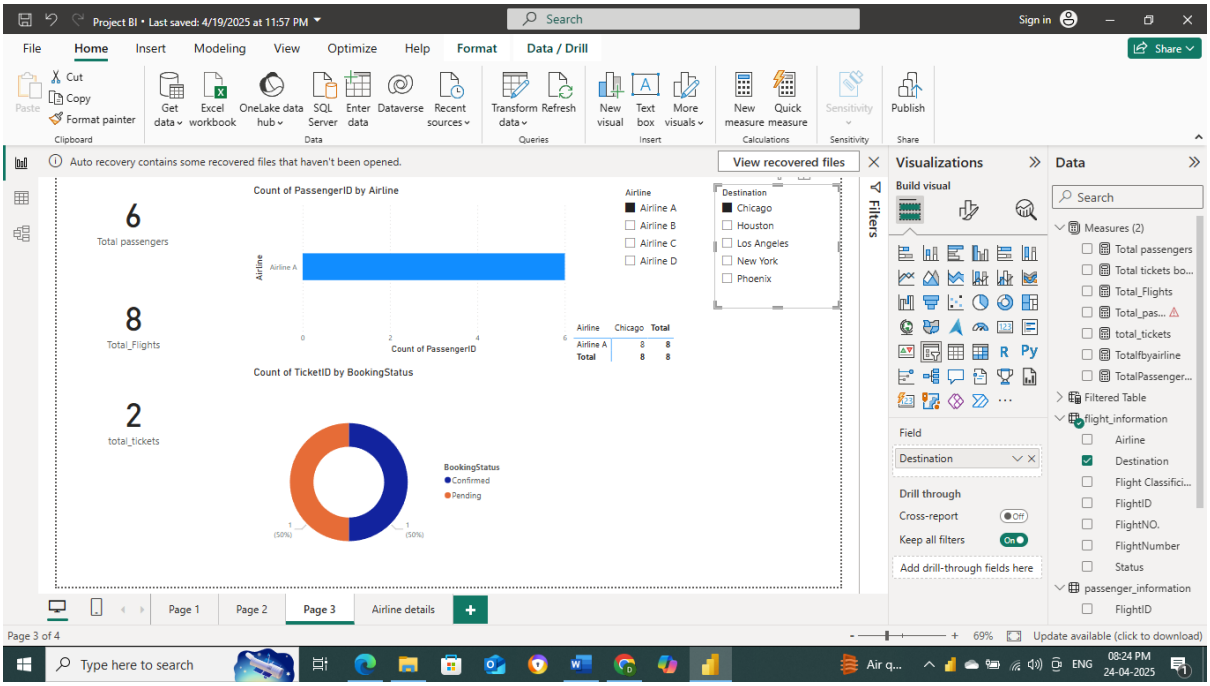
Create visuals for:

- Passenger count by airline.
- Ticket booking statuses.
- Flights by airline and destination.
  Add interactive features for
- Destination and Airline.
- Quick views
- Airline Specific pages.

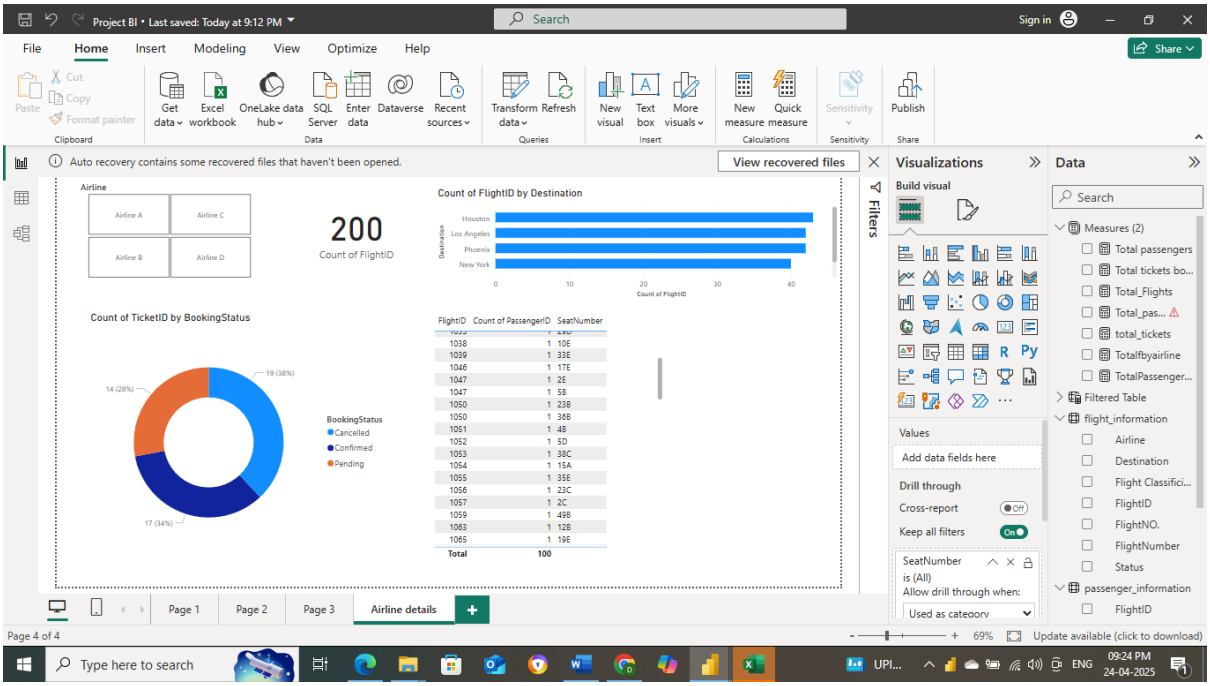
Steps Taken:

- Go to Report View.
- Insert a card drag total passengers measure on to fields.
- Insert a card drag total Flights measure on to fields
- Insert a card drag total tickets measure on to fields.
- Insert a bar chart and drag airline on y axis and passenger id (summarize to count) on x axis.
- Insert a donut chart and drag booking status on legend and ticket id (summarize to count) on values.
- Insert a matrix chart and drag airline to rows, destination to columns and flight id (summarize to count) to values.
- Insert slicer and drag airline to fields.
- Insert slicer and drag destination to fields.





- Click New Page.
- Add a Slicer for Airline.
- Style it tile format.
- Inset Bar chart drag Destination to axis and FlightID (summarize to count) to values.
- Insert donut chart and drag booking status to legend and ticketid (summarixe to count) to values.
- Insert a card and drag flight Id (summarize to count) on fields.
- Insert a bar chart and drag destination to y axis and flight id (summarize to count) to y axis.
- Insert a matrix chart and drag flightid, seat number and passengerid (summarize to count) on columns.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Sign in
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Insert
Modeling
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Optimize
Help
Share
Auto recovery contains some recovered files that haven't been opened.
View recovered files
Airline
Airline A
Airline C
Airline B
Airline D
200
Count of FlightID
Count of FlightID by Destination
Houston
Los Angeles
Phoenix
New York
Count of TicketID by BookingStatus
19 (38%)
14 (28%)
17 (34%)
BookingStatus
Cancelled
Confirmed
Pending
FlightID
Count of PassengerID
SeatNumber
1038 1 10E
1039 1 33E
1046 1 17E
1047 1 2E
1047 1 5B
1050 1 23B
1050 1 36B
1051 1 4B
1052 1 5D
1053 1 38C
1054 1 15A
1055 1 35E
1056 1 23C
1057 1 2C
1059 1 49B
1063 1 12B
1065 1 19E
Total 100
Visualizations
Build visual
Values
Add data fields here
Drill through
Cross-report
Keep all filters
SeatNumber
is (All)
Allow drill through when:
Used as category
Data
Search
Measures (2)
Total passengers
Total tickets bo...
Total_Flights
Total_pas...
total_tickets
Totalfbyairline
TotalPassenger...
Filtered Table
flight_information
Airline
Destination
Flight Classifici...
FlightID
FlightNO.
FlightNumber
Status
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FlightID
Page 1
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Page 3
Airline details
Page 4 of 4
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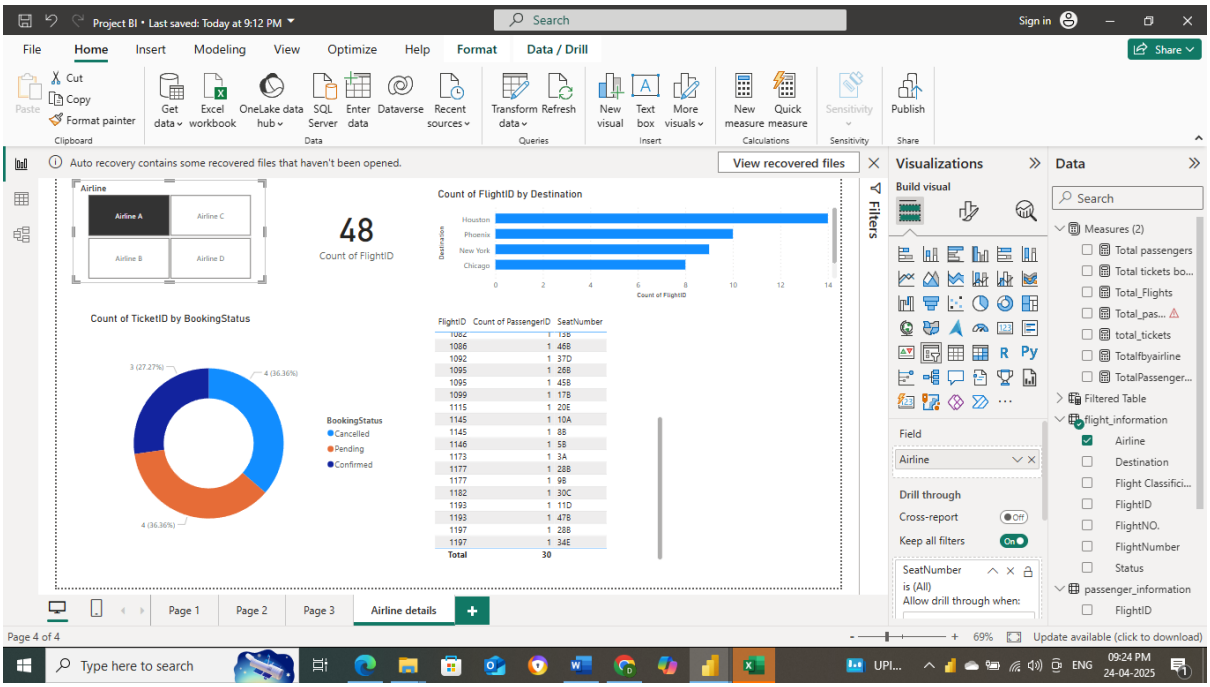
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Share
Auto recovery contains some recovered files that haven't been opened.
View recovered files
Airline
Airline A
Airline C
Airline B
Airline D
48
Count of FlightID
Count of FlightID by Destination
Houston
Phoenix
New York
Chicago
Count of TicketID by BookingStatus
3 (27.27%)
4 (36.36%)
4 (36.36%)
BookingStatus
Cancelled
Pending
Confirmed
FlightID
Count of PassengerID
SeatNumber
1086 1 46B
1092 1 37D
1095 1 26B
1095 1 45B
1099 1 17B
1115 1 20E
1145 1 10A
1145 1 8B
1146 1 9B
1173 1 3A
1177 1 28B
1177 1 9B
1182 1 30C
1193 1 11D
1193 1 47B
1197 1 28B
1197 1 34E
Total 30
Visualizations
Build visual
Field
Airline
Drill through
Cross-report
Keep all filters
SeatNumber
is (All)
Allow drill through when:
Data
Search
Measures (2)
Total passengers
Total tickets bo...
Total_Flights
Total_pas...
total_tickets
Totalfbyairline
TotalPassenger...
Filtered Table
flight_information
Airline
Destination
Flight Classifici...
FlightID
FlightNO.
FlightNumber
Status
passenger_information
FlightID
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Page 3
Airline details
Page 4 of 4
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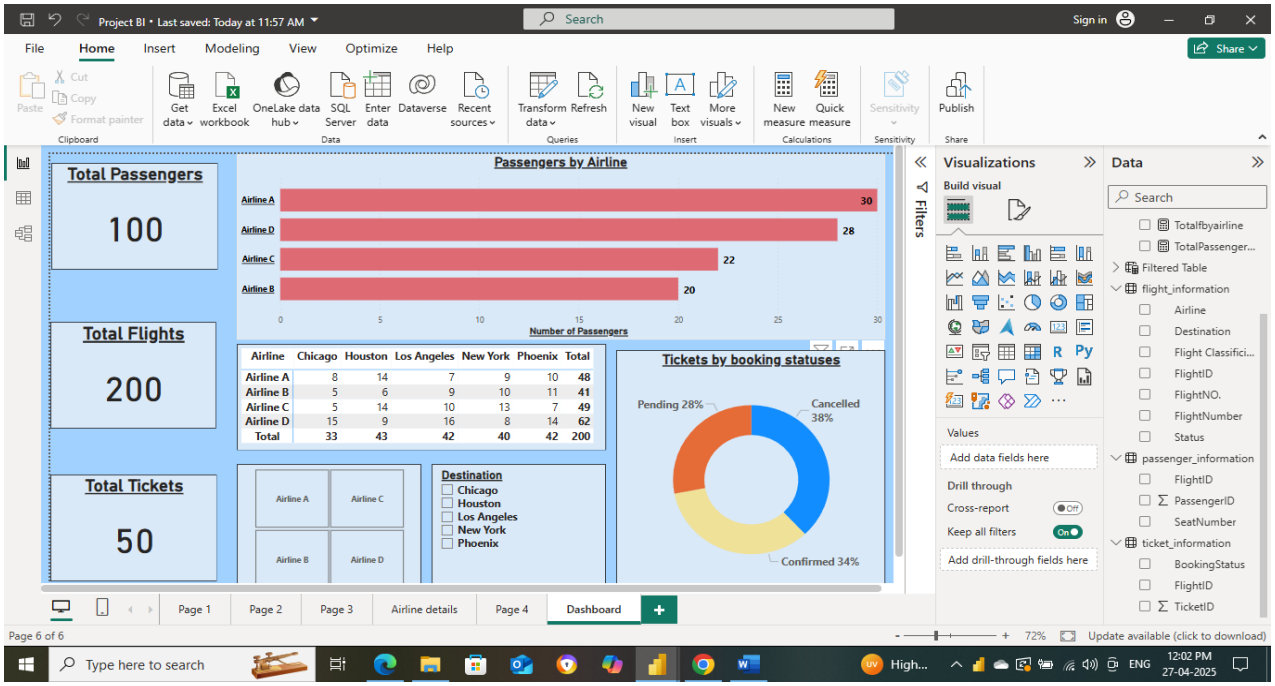
Tasks 6. Final Dashboard and Power BI Services

6.1 Design a comprehensive dashboard with key visuals and insights.

Steps Taken:

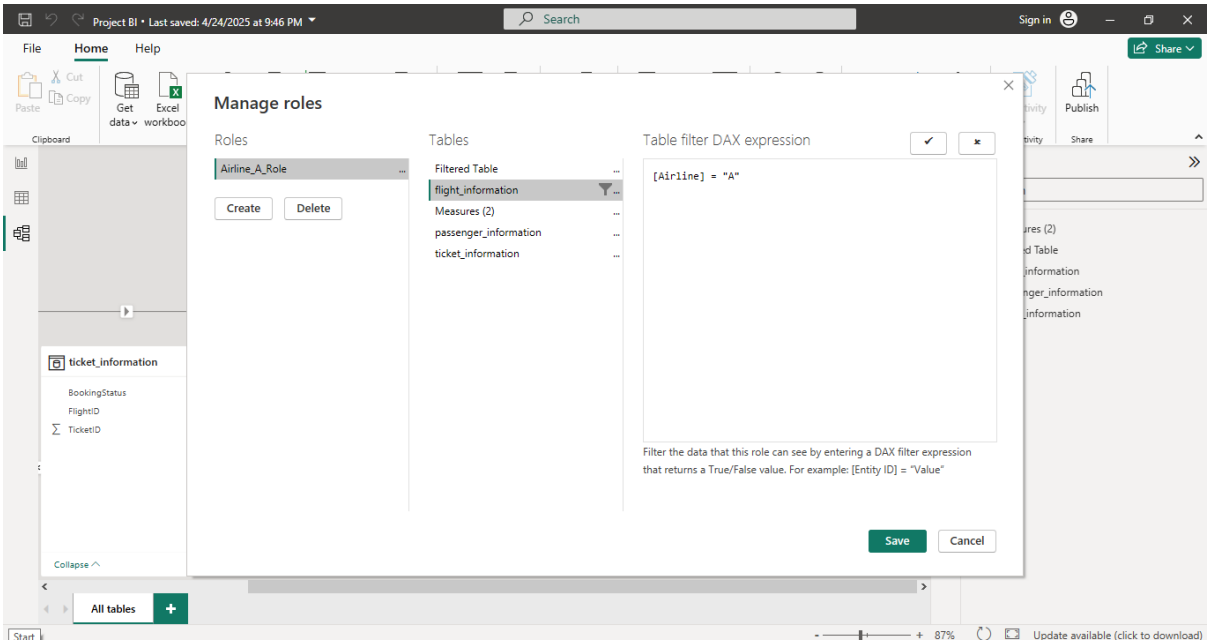
- Go to Report View.
- Insert a card drag total passengers measure on to fields.
- Insert a card drag total Flights measure on to fields
- Insert a card drag total tickets measure on to fields.
- Insert a bar chart and drag airline on y axis and passenger id (summarize to count) on x axis.
- Insert a donut chart and drag booking status on legend and ticket id (summarize to count) on values.
- Insert a matrix chart and drag airline to rows, destination to columns and flight id (summarize to count) to values.
- Insert slicer and drag airline to fields.
- Insert slicer and drag destination to fields.
- Format all the visuals things that is title, backgoround color, borders, spacing etc.



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

Steps Taken:

- Create the Role
- Go to Model view and Click Manage Roles (top ribbon).
- Click Create and Name it Airline_A _Role.
- Select Flight_Information table
- Apply this filter : [Airline] = "Airline A"
- Then click on Save.



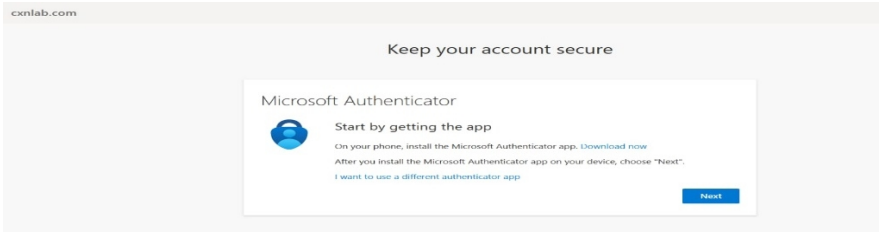
- For assigning user publish it into Power BI Service.
- After publishing, in Power BI Service, go to Workspace then Dataset and then Security
- Select the Airline_A_Role
- Add user email addresses (e.g., dj@mail.com)

6.3 Set up a schedule refresh at 5 PM daily.

Steps Taken:

- Go to Power BI Service.
- Go to Workspace and then Dataset and then Settings.
- Under Scheduled Refresh Turn it On.
- Set the Time: 5:00 PM (select Time zone)

MY POWER BI SERVICE WAS NOTWORKING DUE TO SOME UPDATE BY MICROSOFT ATTACHING SCREENSHOTS FOR THE SAME.



Link For the Video : https://drive.google.com/file/d/1ap-D06J-l5O_MD6h68OdSqstWOwip8zW/view?usp=sharing