

Project Title

Airline Data Management and Analysis Using Power BI

Problem Statement:

The airline industry operates with numerous complexities, requiring effective data management and insights into flight schedules, passenger details, and ticketing systems. This project aims to analyze airline operations for improving efficiency and customer satisfaction.

Datasets Used:

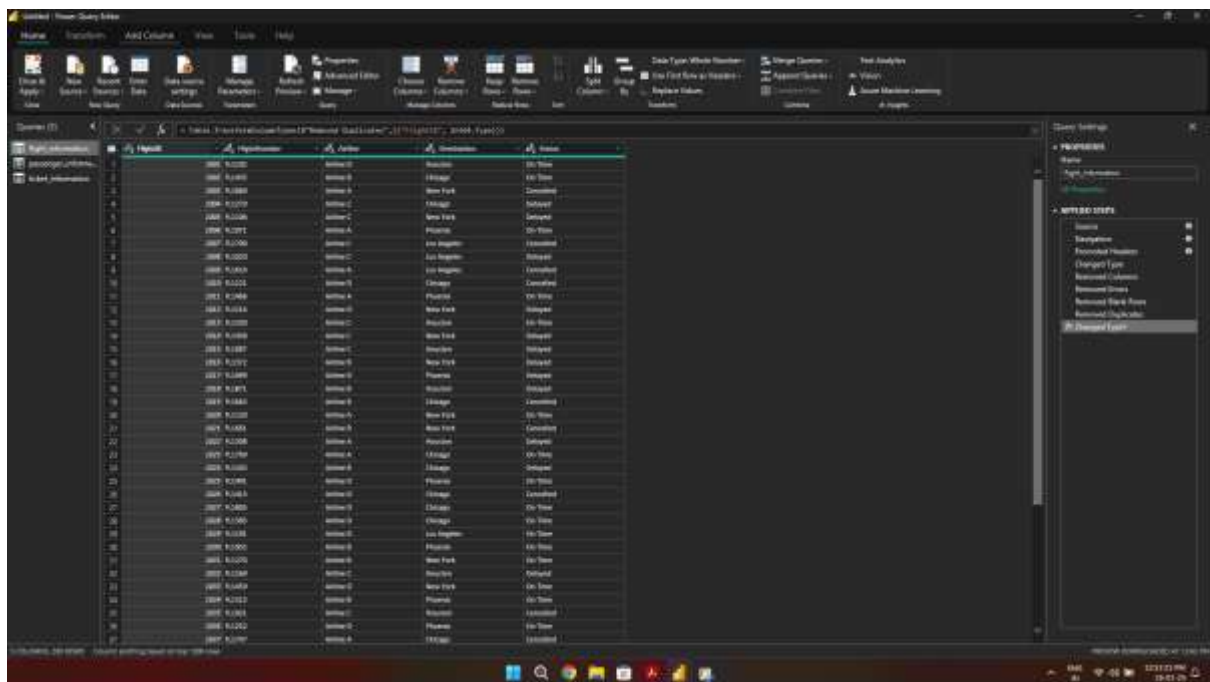
- Flight Information:** Includes FlightID, FlightNumber, Airline, Destination, and Status.
- Passenger Information:** Includes PassengerID, FlightID, and SeatNumber.
- Ticket Information:** Includes TicketID, FlightID, and BookingStatus.

Objective:

To analyze and visualize airline data for operational insights, passenger management, and ticket booking trends using Power BI.

Tasks

1. Data Preparation and Cleaning



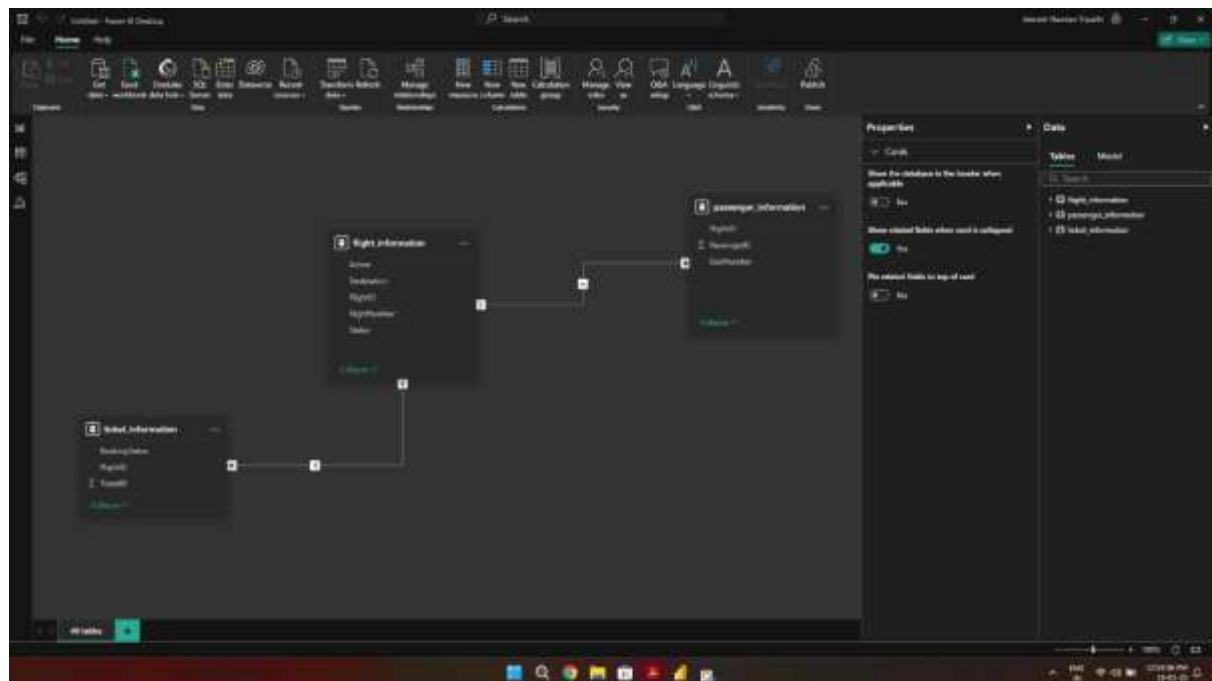
FlightID	FlightNumber	Airline	Destination	Status
1001	101001	Airline A	Los Angeles	On Time
1002	101002	Airline B	Chicago	Delayed
1003	101003	Airline C	New York	Cancelled
1004	101004	Airline D	Phoenix	On Time
1005	101005	Airline E	San Francisco	Delayed
1006	101006	Airline F	Los Angeles	On Time
1007	101007	Airline G	Chicago	Cancelled
1008	101008	Airline H	New York	On Time
1009	101009	Airline I	Phoenix	Delayed
1010	101010	Airline J	San Francisco	On Time
1011	101011	Airline K	Los Angeles	Cancelled
1012	101012	Airline L	Chicago	On Time
1013	101013	Airline M	New York	Delayed
1014	101014	Airline N	Phoenix	On Time
1015	101015	Airline O	San Francisco	Cancelled
1016	101016	Airline P	Los Angeles	On Time
1017	101017	Airline Q	Chicago	Delayed
1018	101018	Airline R	New York	On Time
1019	101019	Airline S	Phoenix	Cancelled
1020	101020	Airline T	San Francisco	On Time
1021	101021	Airline U	Los Angeles	Delayed
1022	101022	Airline V	Chicago	On Time
1023	101023	Airline W	New York	Cancelled
1024	101024	Airline X	Phoenix	On Time
1025	101025	Airline Y	San Francisco	Delayed
1026	101026	Airline Z	Los Angeles	On Time
1027	101027	Airline A	Chicago	Cancelled

The screenshot displays the Oracle SQL Developer environment. The main window shows a table named 'REGIONS' with the following columns: 'REGION_ID' (NUMBER), 'REGION_NAME' (VARCHAR2), and 'AREA_SQ_MILES' (NUMBER). The table contains 26 rows of data. The right-hand pane shows the 'Table Properties' dialog for the 'REGIONS' table, with the 'Tablespace' set to 'SYSTEM' and 'Storage' set to 'DEFAULT'.

REGION_ID	REGION_NAME	AREA_SQ_MILES
1	ANZANIA	2352.456
2	ANTARCTICA	2129.268
3	ARGENTINA	2352.456
4	ARMENIA	2848.175
5	ARUBA	2852.245
6	AUSTRIA	2352.456
7	AZEBAIJAN	2848.175
8	BALUTIA	2352.456
9	BANGLADESH	2352.456
10	BELGIUM	2848.175
11	BELIZE	2352.456
12	BELGIUM	2352.456
13	BELGIUM	2352.456
14	BELGIUM	2352.456
15	BELGIUM	2352.456
16	BELGIUM	2352.456
17	BELGIUM	2352.456
18	BELGIUM	2352.456
19	BELGIUM	2352.456
20	BELGIUM	2352.456
21	BELGIUM	2352.456
22	BELGIUM	2352.456
23	BELGIUM	2352.456
24	BELGIUM	2352.456
25	BELGIUM	2352.456
26	BELGIUM	2352.456

The screenshot shows the Orange3 data mining software interface. The main workspace displays a data table with the following columns: 'Year', 'Month', and 'Passenger'. The data is organized into a grid, with rows representing individual passenger records. The 'Year' column contains values from 1990 to 2007, and the 'Month' column contains values from 1 to 12. The 'Passenger' column contains values from 1 to 12. The interface includes a top menu bar with options like 'File', 'Edit', 'View', 'Tools', and 'Help'. On the right side, there is a 'Data Settings' panel with a 'Variables' tab, showing a list of variables and their types. The bottom status bar indicates the current file is 'data1.csv' and shows the number of rows (12) and columns (3).

2. Data Modeling



3. Enhanced Data Insights

Flight	Origin	Destination	Status	Delay
1001	New York	Los Angeles	On Time	0
1002	New York	Los Angeles	Delayed	15
1003	New York	Los Angeles	On Time	0
1004	New York	Los Angeles	Delayed	10
1005	New York	Los Angeles	On Time	0
1006	New York	Los Angeles	Delayed	20
1007	New York	Los Angeles	On Time	0
1008	New York	Los Angeles	Delayed	12
1009	New York	Los Angeles	On Time	0
1010	New York	Los Angeles	Delayed	18
1011	New York	Los Angeles	On Time	0
1012	New York	Los Angeles	Delayed	14
1013	New York	Los Angeles	On Time	0
1014	New York	Los Angeles	Delayed	16
1015	New York	Los Angeles	On Time	0
1016	New York	Los Angeles	Delayed	11
1017	New York	Los Angeles	On Time	0
1018	New York	Los Angeles	Delayed	13
1019	New York	Los Angeles	On Time	0
1020	New York	Los Angeles	Delayed	17
1021	New York	Los Angeles	On Time	0
1022	New York	Los Angeles	Delayed	19
1023	New York	Los Angeles	On Time	0
1024	New York	Los Angeles	Delayed	14
1025	New York	Los Angeles	On Time	0
1026	New York	Los Angeles	Delayed	16
1027	New York	Los Angeles	On Time	0
1028	New York	Los Angeles	Delayed	12
1029	New York	Los Angeles	On Time	0
1030	New York	Los Angeles	Delayed	18
1031	New York	Los Angeles	On Time	0
1032	New York	Los Angeles	Delayed	15
1033	New York	Los Angeles	On Time	0
1034	New York	Los Angeles	Delayed	17
1035	New York	Los Angeles	On Time	0
1036	New York	Los Angeles	Delayed	13
1037	New York	Los Angeles	On Time	0
1038	New York	Los Angeles	Delayed	19
1039	New York	Los Angeles	On Time	0
1040	New York	Los Angeles	Delayed	14
1041	New York	Los Angeles	On Time	0
1042	New York	Los Angeles	Delayed	16
1043	New York	Los Angeles	On Time	0
1044	New York	Los Angeles	Delayed	12
1045	New York	Los Angeles	On Time	0
1046	New York	Los Angeles	Delayed	18
1047	New York	Los Angeles	On Time	0
1048	New York	Los Angeles	Delayed	15
1049	New York	Los Angeles	On Time	0
1050	New York	Los Angeles	Delayed	17
1051	New York	Los Angeles	On Time	0
1052	New York	Los Angeles	Delayed	13
1053	New York	Los Angeles	On Time	0
1054	New York	Los Angeles	Delayed	19
1055	New York	Los Angeles	On Time	0
1056	New York	Los Angeles	Delayed	14
1057	New York	Los Angeles	On Time	0
1058	New York	Los Angeles	Delayed	16
1059	New York	Los Angeles	On Time	0
1060	New York	Los Angeles	Delayed	12
1061	New York	Los Angeles	On Time	0
1062	New York	Los Angeles	Delayed	18
1063	New York	Los Angeles	On Time	0
1064	New York	Los Angeles	Delayed	15
1065	New York	Los Angeles	On Time	0
1066	New York	Los Angeles	Delayed	17
1067	New York	Los Angeles	On Time	0
1068	New York	Los Angeles	Delayed	13
1069	New York	Los Angeles	On Time	0
1070	New York	Los Angeles	Delayed	19
1071	New York	Los Angeles	On Time	0
1072	New York	Los Angeles	Delayed	14
1073	New York	Los Angeles	On Time	0
1074	New York	Los Angeles	Delayed	16
1075	New York	Los Angeles	On Time	0
1076	New York	Los Angeles	Delayed	12
1077	New York	Los Angeles	On Time	0
1078	New York	Los Angeles	Delayed	18
1079	New York	Los Angeles	On Time	0
1080	New York	Los Angeles	Delayed	15
1081	New York	Los Angeles	On Time	0
1082	New York	Los Angeles	Delayed	17
1083	New York	Los Angeles	On Time	0
1084	New York	Los Angeles	Delayed	13
1085	New York	Los Angeles	On Time	0
1086	New York	Los Angeles	Delayed	19
1087	New York	Los Angeles	On Time	0
1088	New York	Los Angeles	Delayed	14
1089	New York	Los Angeles	On Time	0
1090	New York	Los Angeles	Delayed	16
1091	New York	Los Angeles	On Time	0
1092	New York	Los Angeles	Delayed	12
1093	New York	Los Angeles	On Time	0
1094	New York	Los Angeles	Delayed	18
1095	New York	Los Angeles	On Time	0
1096	New York	Los Angeles	Delayed	15
1097	New York	Los Angeles	On Time	0
1098	New York	Los Angeles	Delayed	17
1099	New York	Los Angeles	On Time	0
1100	New York	Los Angeles	Delayed	13

4. Calculations Using DAX.



TotalPassengers = COUNT(Passenger_Information[PassengerID])



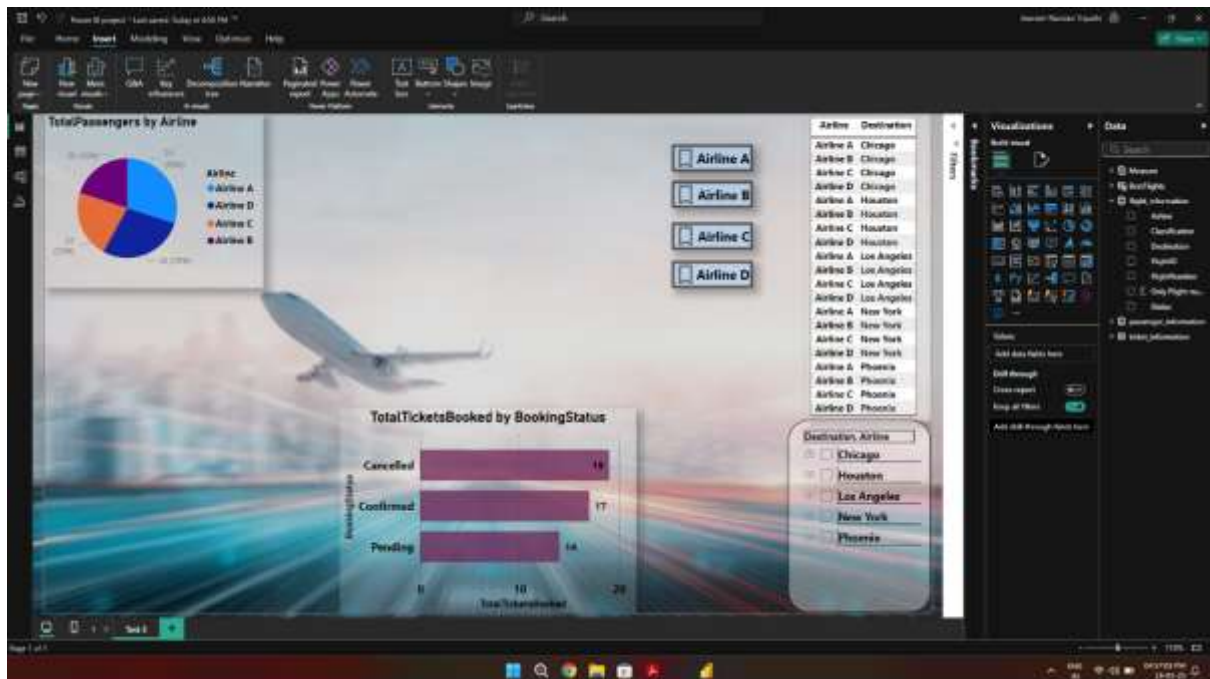
TotalTicketsBooked = COUNT(Ticket_Information[TicketID])



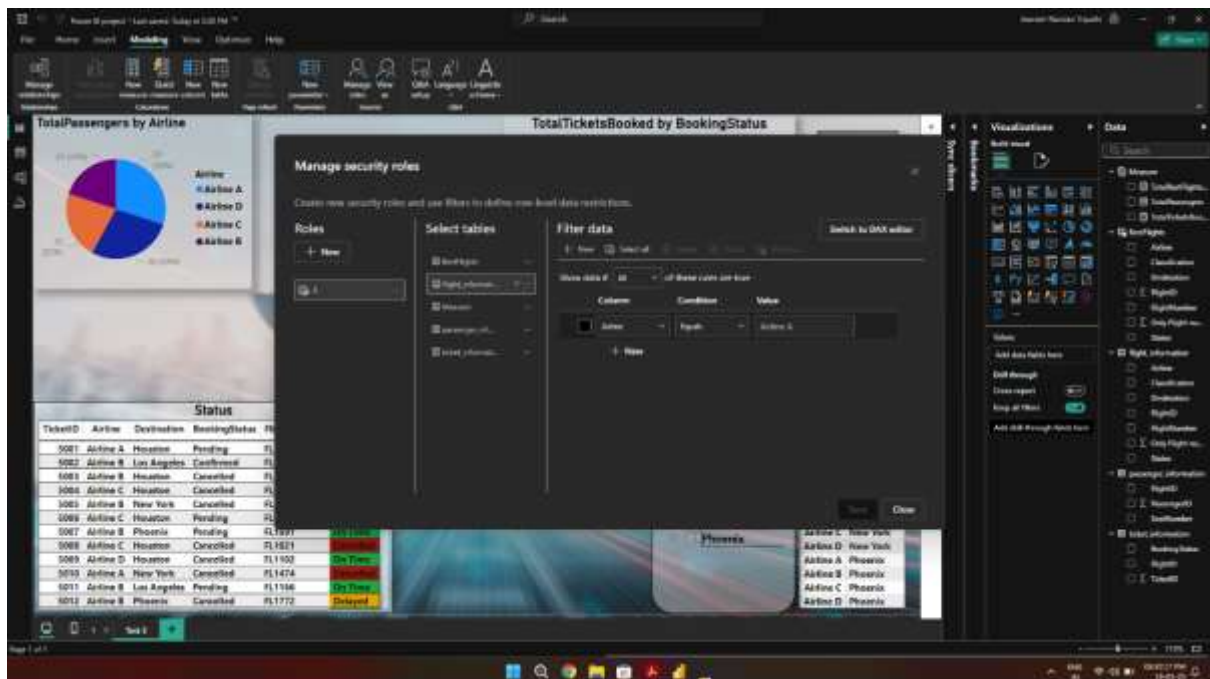
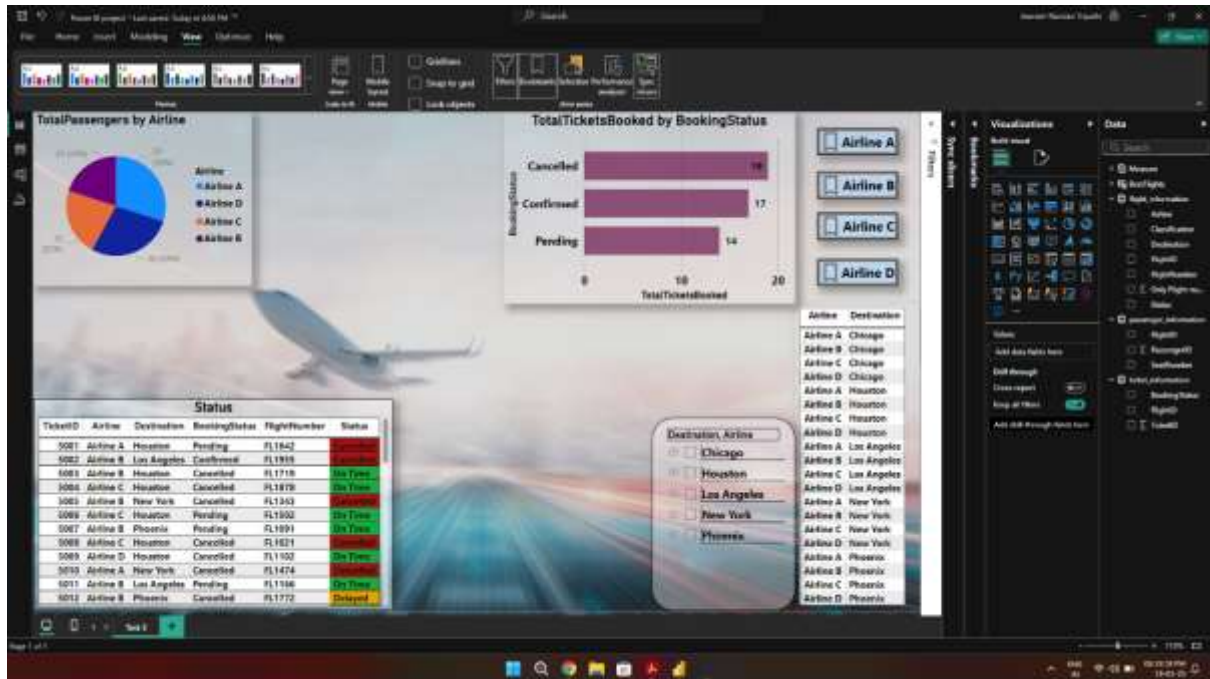
BestFlights = FILTER(Flight_Information, Flight_Information[Classification] = "Best")

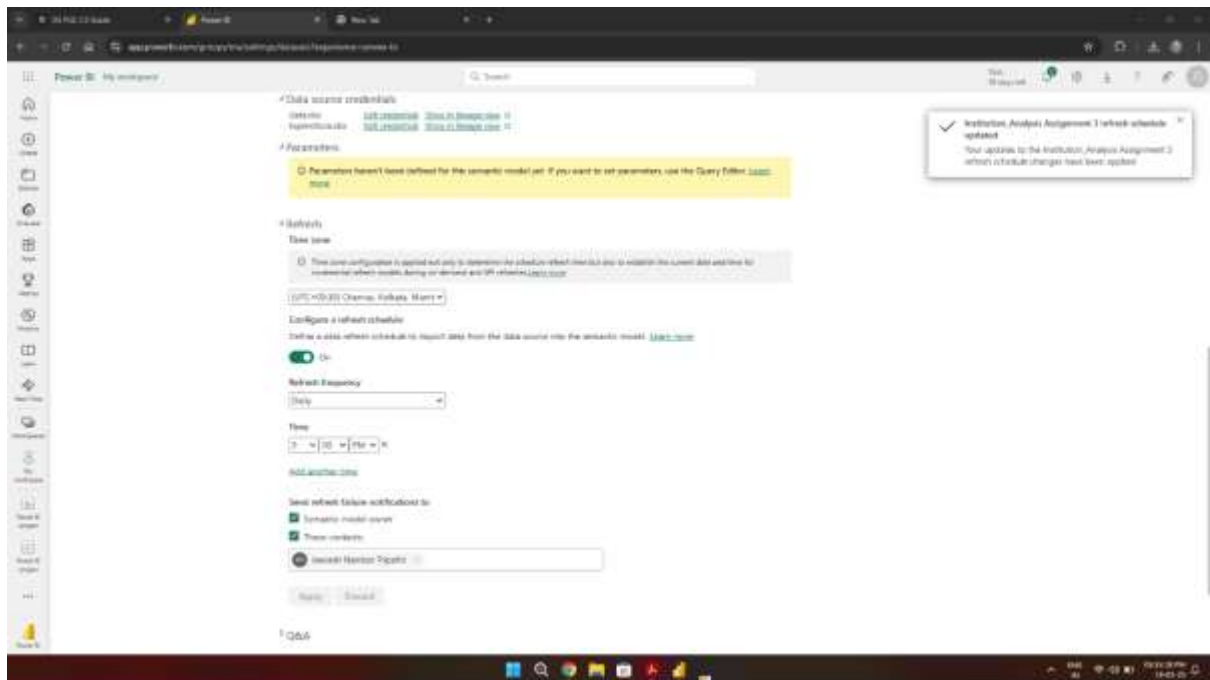
Flightlights - 11/11/2023						
FlightID	FlightNumber	Airline	Origin	Destination	Classification	Only Flight number
1001	111100	Airline A	Phoenix	San Francisco	Basic	1100
1002	111101	Airline B	Chicago	San Francisco	Basic	1101
1003	111102	Airline A	Phoenix	San Francisco	Basic	1102
1004	111103	Airline B	Phoenix	San Francisco	Basic	1103
1005	111104	Airline C	Phoenix	San Francisco	Basic	1104
1006	111105	Airline D	New York	San Francisco	Basic	1105
1007	111106	Airline B	Chicago	San Francisco	Basic	1106
1008	111107	Airline C	Phoenix	San Francisco	Basic	1107
1009	111108	Airline D	Chicago	San Francisco	Basic	1108
1010	111109	Airline A	Phoenix	San Francisco	Basic	1109
1011	111110	Airline B	Chicago	San Francisco	Basic	1110
1012	111111	Airline C	Phoenix	San Francisco	Basic	1111
1013	111112	Airline D	Chicago	San Francisco	Basic	1112
1014	111113	Airline A	Phoenix	San Francisco	Basic	1113
1015	111114	Airline B	Chicago	San Francisco	Basic	1114
1016	111115	Airline C	Phoenix	San Francisco	Basic	1115
1017	111116	Airline D	Chicago	San Francisco	Basic	1116
1018	111117	Airline A	Phoenix	San Francisco	Basic	1117
1019	111118	Airline B	Chicago	San Francisco	Basic	1118
1020	111119	Airline C	Phoenix	San Francisco	Basic	1119
1021	111120	Airline D	Chicago	San Francisco	Basic	1120
1022	111121	Airline A	Phoenix	San Francisco	Basic	1121
1023	111122	Airline B	Chicago	San Francisco	Basic	1122
1024	111123	Airline C	Phoenix	San Francisco	Basic	1123
1025	111124	Airline D	Chicago	San Francisco	Basic	1124
1026	111125	Airline A	Phoenix	San Francisco	Basic	1125
1027	111126	Airline B	Chicago	San Francisco	Basic	1126
1028	111127	Airline C	Phoenix	San Francisco	Basic	1127
1029	111128	Airline D	Chicago	San Francisco	Basic	1128
1030	111129	Airline A	Phoenix	San Francisco	Basic	1129
1031	111130	Airline B	Chicago	San Francisco	Basic	1130
1032	111131	Airline C	Phoenix	San Francisco	Basic	1131
1033	111132	Airline D	Chicago	San Francisco	Basic	1132
1034	111133	Airline A	Phoenix	San Francisco	Basic	1133
1035	111134	Airline B	Chicago	San Francisco	Basic	1134
1036	111135	Airline C	Phoenix	San Francisco	Basic	1135
1037	111136	Airline D	Chicago	San Francisco	Basic	1136
1038	111137	Airline A	Phoenix	San Francisco	Basic	1137
1039	111138	Airline B	Chicago	San Francisco	Basic	1138
1040	111139	Airline C	Phoenix	San Francisco	Basic	1139
1041	111140	Airline D	Chicago	San Francisco	Basic	1140
1042	111141	Airline A	Phoenix	San Francisco	Basic	1141
1043	111142	Airline B	Chicago	San Francisco	Basic	1142
1044	111143	Airline C	Phoenix	San Francisco	Basic	1143
1045	111144	Airline D	Chicago	San Francisco	Basic	1144
1046	111145	Airline A	Phoenix	San Francisco	Basic	1145
1047	111146	Airline B	Chicago	San Francisco	Basic	1146
1048	111147	Airline C	Phoenix	San Francisco	Basic	1147
1049	111148	Airline D	Chicago	San Francisco	Basic	1148
1050	111149	Airline A	Phoenix	San Francisco	Basic	1149
1051	111150	Airline B	Chicago	San Francisco	Basic	1150
1052	111151	Airline C	Phoenix	San Francisco	Basic	1151
1053	111152	Airline D	Chicago	San Francisco	Basic	1152
1054	111153	Airline A	Phoenix	San Francisco	Basic	1153
1055	111154	Airline B	Chicago	San Francisco	Basic	1154
1056	111155	Airline C	Phoenix	San Francisco	Basic	1155
1057	111156	Airline D	Chicago	San Francisco	Basic	1156
1058	111157	Airline A	Phoenix	San Francisco	Basic	1157
1059	111158	Airline B	Chicago	San Francisco	Basic	1158
1060	111159	Airline C	Phoenix	San Francisco	Basic	1159
1061	111160	Airline D	Chicago	San Francisco	Basic	1160
1062	111161	Airline A	Phoenix	San Francisco	Basic	1161
1063	111162	Airline B	Chicago	San Francisco	Basic	1162
1064	111163	Airline C	Phoenix	San Francisco	Basic	1163
1065	111164	Airline D	Chicago	San Francisco	Basic	1164
1066	111165	Airline A	Phoenix	San Francisco	Basic	1165
1067	111166	Airline B	Chicago	San Francisco	Basic	1166
1068	111167	Airline C	Phoenix	San Francisco	Basic	1167
1069	111168	Airline D	Chicago	San Francisco	Basic	1168
1070	111169	Airline A	Phoenix	San Francisco	Basic	1169
1071	111170	Airline B	Chicago	San Francisco	Basic	1170
1072	111171	Airline C	Phoenix	San Francisco	Basic	1171
1073	111172	Airline D	Chicago	San Francisco	Basic	1172
1074	111173	Airline A	Phoenix	San Francisco	Basic	1173
1075	111174	Airline B	Chicago	San Francisco	Basic	1174
1076	111175	Airline C	Phoenix	San Francisco	Basic	1175
1077	111176	Airline D	Chicago	San Francisco	Basic	1176
1078	111177	Airline A	Phoenix	San Francisco	Basic	1177
1079	111178	Airline B	Chicago	San Francisco	Basic	1178
1080	111179	Airline C	Phoenix	San Francisco	Basic	1179
1081	111180	Airline D	Chicago	San Francisco	Basic	1180
1082	111181	Airline A	Phoenix	San Francisco	Basic	1181
1083	111182	Airline B	Chicago	San Francisco	Basic	1182
1084	111183	Airline C	Phoenix	San Francisco	Basic	1183
1085	111184	Airline D	Chicago	San Francisco	Basic	1184
1086	111185	Airline A	Phoenix	San Francisco	Basic	1185
1087	111186	Airline B	Chicago	San Francisco	Basic	1186
1088	111187	Airline C	Phoenix	San Francisco	Basic	1187
1089	111188	Airline D	Chicago	San Francisco	Basic	1188
1090	111189	Airline A	Phoenix	San Francisco	Basic	1189
1091	111190	Airline B	Chicago	San Francisco	Basic	1190
1092	111191	Airline C	Phoenix	San Francisco	Basic	1191
1093	111192	Airline D	Chicago	San Francisco	Basic	1192
1094	111193	Airline A	Phoenix	San Francisco	Basic	1193
1095	111194	Airline B	Chicago	San Francisco	Basic	1194
1096	111195	Airline C	Phoenix	San Francisco	Basic	1195
1097	111196	Airline D	Chicago	San Francisco	Basic	1196
1098	111197	Airline A	Phoenix	San Francisco	Basic	1197
1099	111198	Airline B	Chicago	San Francisco	Basic	1198
1100	111199	Airline C	Phoenix	San Francisco	Basic	1199
1101	111200	Airline D	Chicago	San Francisco	Basic	1200

5. Visualization and Interactive Features



6. Final Dashboard and Power BI Service





Video Link –

https://drive.google.com/file/d/1aJlh_OztYJxczRY5v9h7jr1Rd7rXPsk6/view?usp=sharing