TÉCNICO LISBOA

95638 - Martim Santos
96839 - António Marques

Project Report - Data Analysis and Integration 22/23

a) SQL instructions to create the Data Warehouse

- Create a **database** for the DW:

```
DROP DATABASE IF EXISTS airports_dw;

CREATE DATABASE airports_dw;

USE airports_dw;
```

- Create table for the **airline dimension**:

```
CREATE TABLE dim_airline (
    AIRLINE_ID SMALLINT(6),
    AIRLINE_NAME VARCHAR(255),
    PRIMARY KEY (AIRLINE_ID)
);
```

- Create table for the **airplane dimension**:

```
CREATE TABLE dim_airplane (
    AIRPLANE_ID INT(11),
    TYPE_ID INT(11),
    PRIMARY KEY (AIRPLANE_ID)
);
```

- Create table for the **airport dimension**:

```
CREATE TABLE dim_airport (
    AIRPORT_ID SMALLINT(6),
    AIRPORT_NAME VARCHAR(255),
    CITY VARCHAR(255),
    COUNTRY VARCHAR(255),
    PRIMARY KEY (AIRPORT_ID)
);
```

- Create table for the **time dimension**:

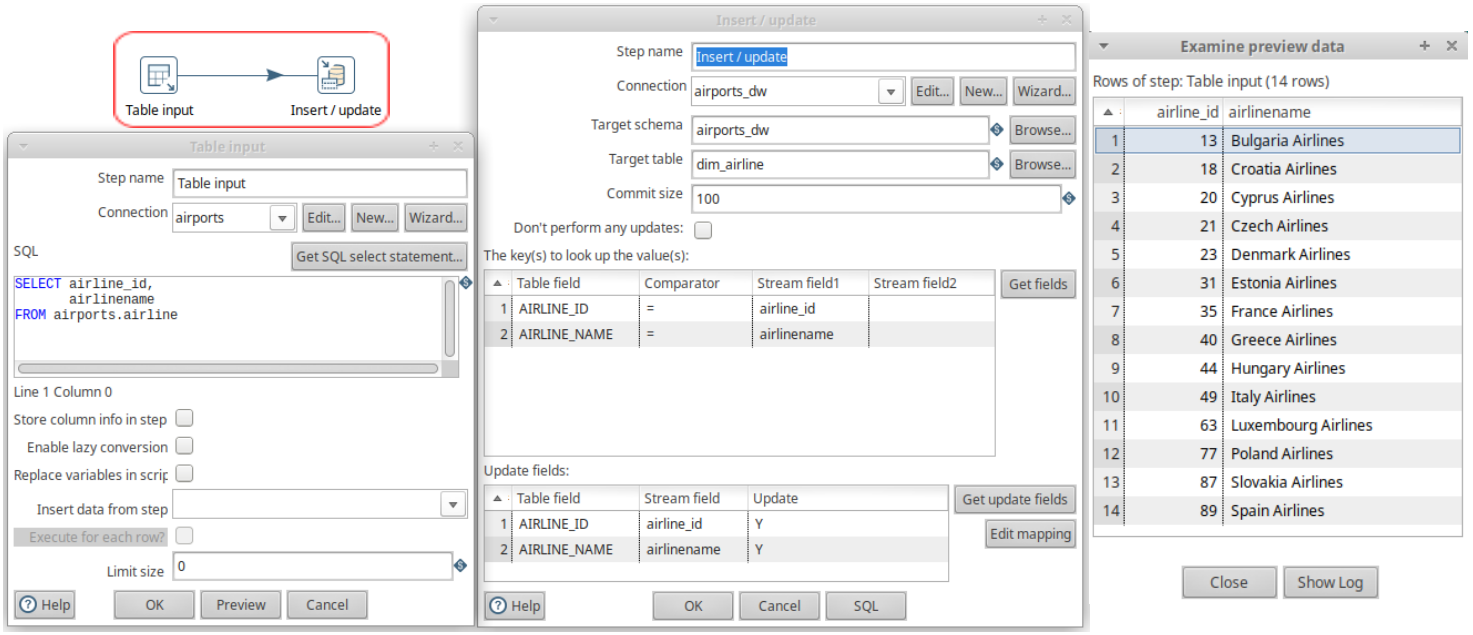
```
CREATE TABLE dim_time (
    TIME_ID DATETIME,
    YEAR_ID INT,
    MONTH_ID INT,
    MONTH_NAME VARCHAR(255),
    DAY_ID INT,
    PRIMARY KEY (TIME_ID)
);
```

- Create a **fact table** for the **flights**:

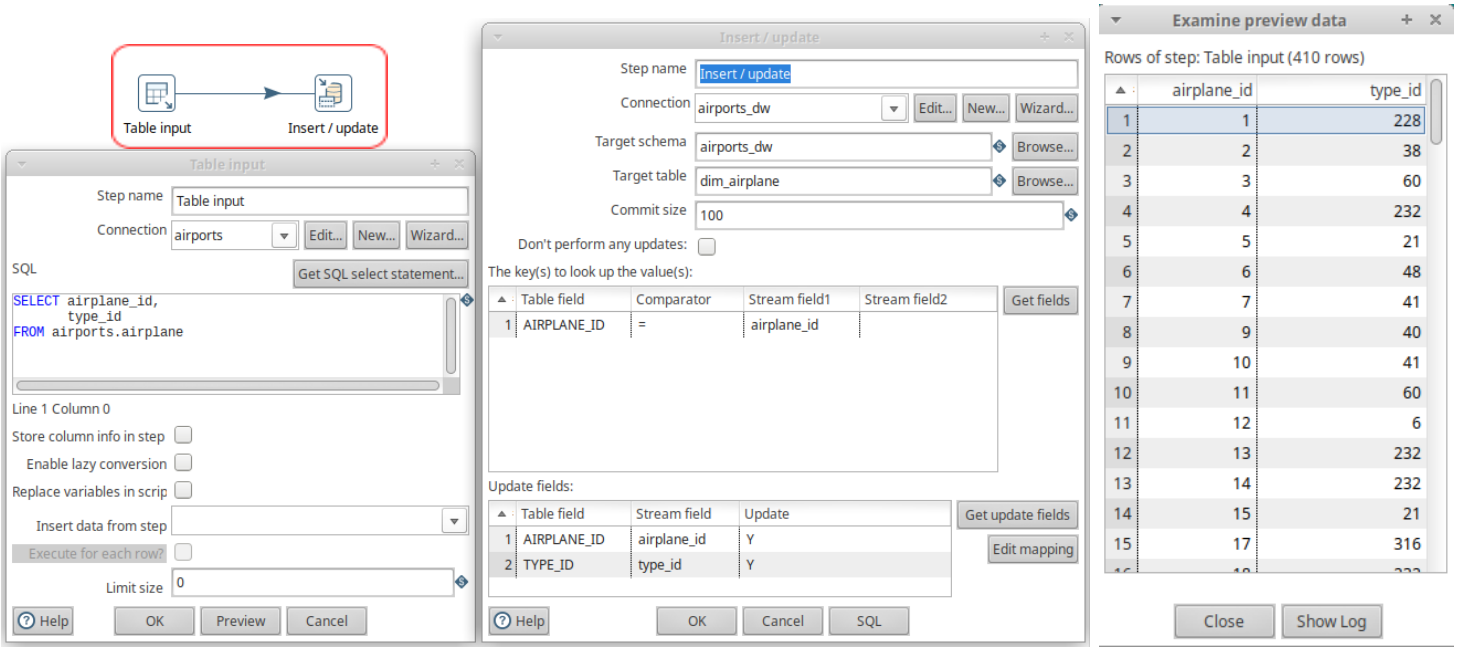
```
CREATE TABLE fact_flight (
    FLIGHT_ID INT,
    AIRPORT_ORIG SMALLINT(6),
    AIRPORT_DEST SMALLINT(6),
    DEPARTURE DATETIME,
    ARRIVAL DATETIME,
    AIRLINE_ID SMALLINT(6),
    AIRPLANE_ID INT(11),
    N_PASSENGERS INT,
    REVENUE DECIMAL(10,2),
    PRIMARY KEY (FLIGHT_ID),
    FOREIGN KEY (AIRPORT_ORIG) REFERENCES dim_airport (AIRPORT_ID),
    FOREIGN KEY (AIRPORT_DEST) REFERENCES dim_airport (AIRPORT_ID),
    FOREIGN KEY (DEPARTURE) REFERENCES dim_time (TIME_ID),
    FOREIGN KEY (ARRIVAL) REFERENCES dim_time (TIME_ID),
    FOREIGN KEY (AIRLINE_ID) REFERENCES dim_airline (AIRLINE_ID),
    FOREIGN KEY (AIRPLANE_ID) REFERENCES dim_airplane (AIRPLANE_ID)
);
```

b) PDI transformations

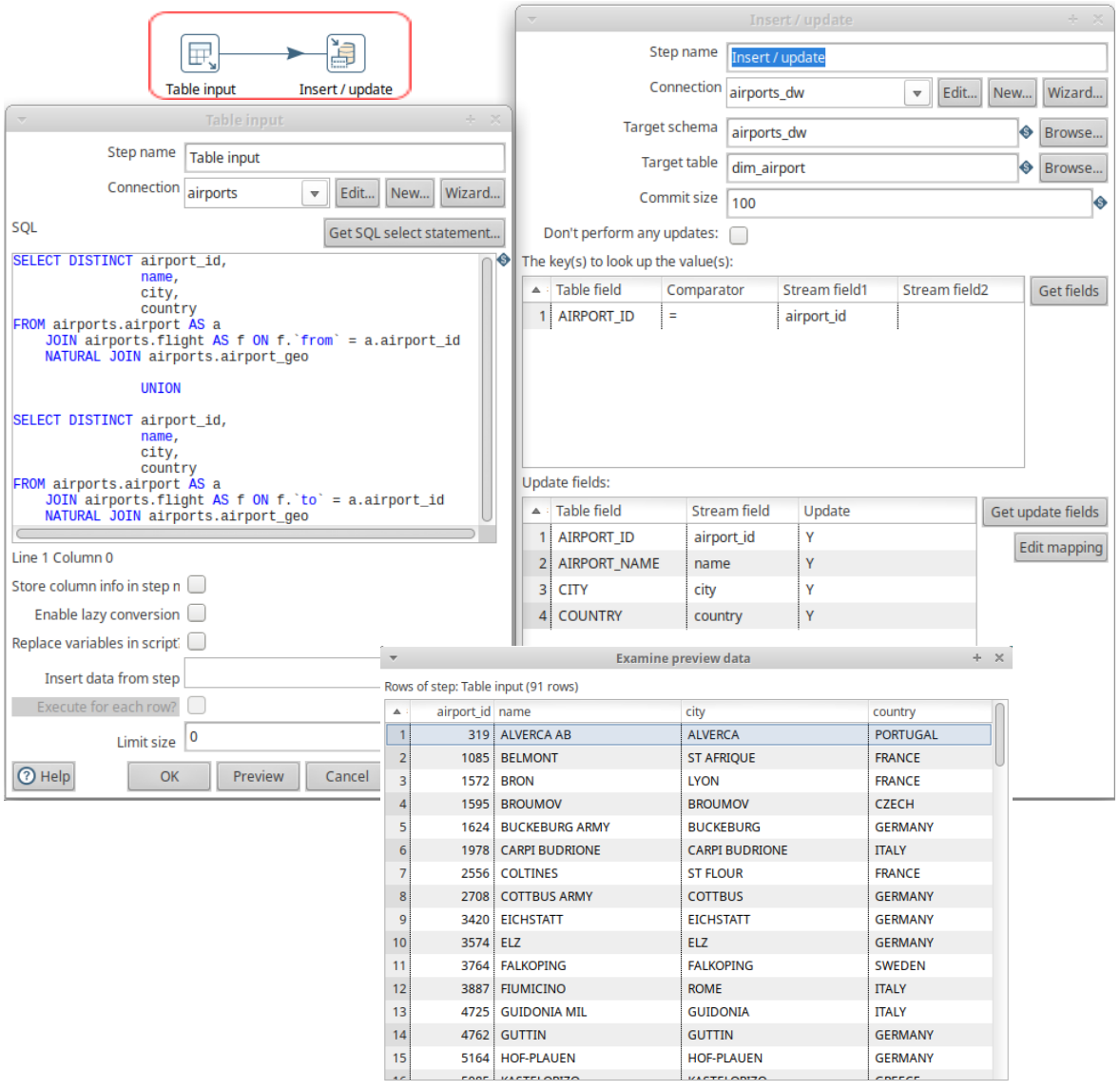
- Populate **airline dimension** table:



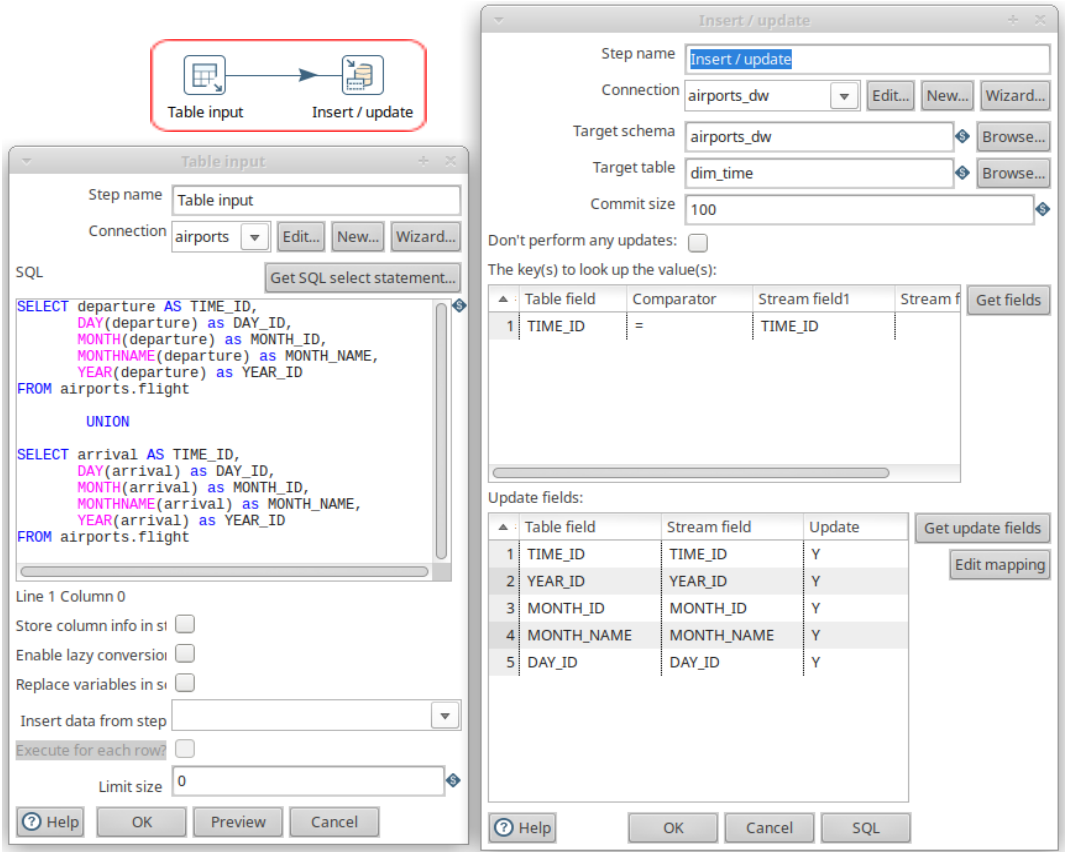
- Populate **airplane dimension** table:

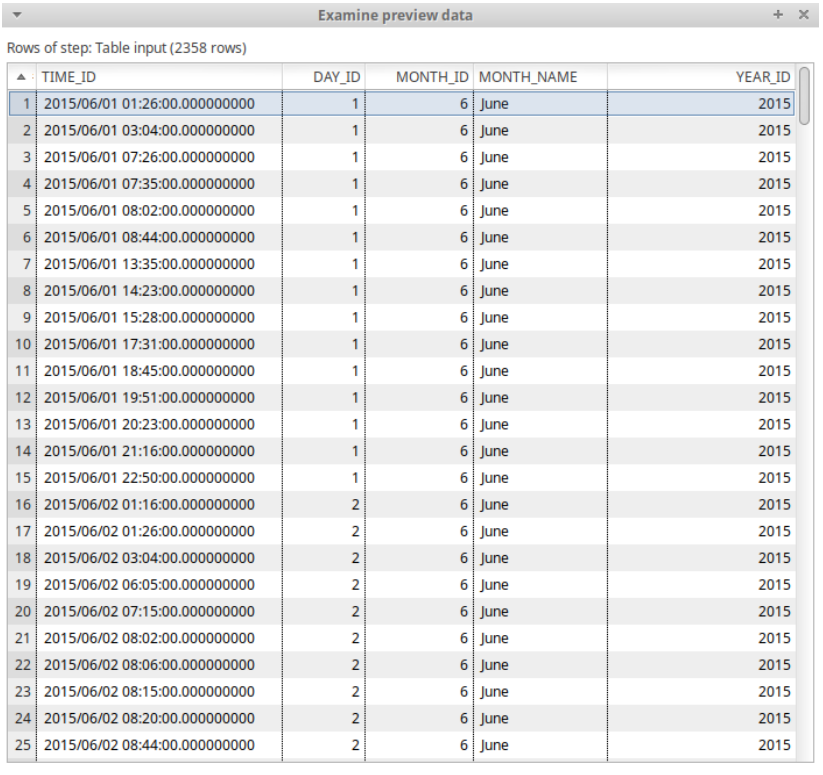


- Populate **airport dimension** table:



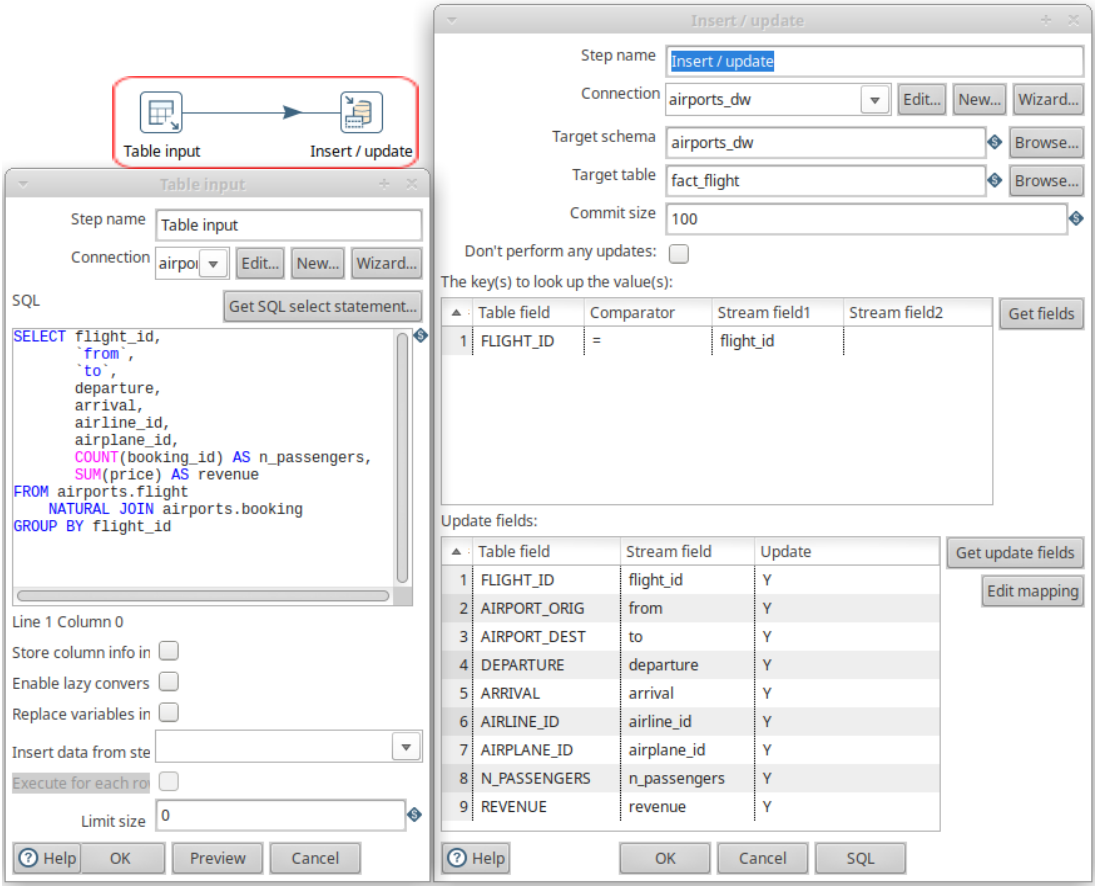
- Populate **time dimension** table:





	TIME_ID	DAY_ID	MONTH_ID	MONTH_NAME	YEAR_ID
1	2015/06/01 01:26:00.000000000	1	6	June	2015
2	2015/06/01 03:04:00.000000000	1	6	June	2015
3	2015/06/01 07:26:00.000000000	1	6	June	2015
4	2015/06/01 07:35:00.000000000	1	6	June	2015
5	2015/06/01 08:02:00.000000000	1	6	June	2015
6	2015/06/01 08:44:00.000000000	1	6	June	2015
7	2015/06/01 13:35:00.000000000	1	6	June	2015
8	2015/06/01 14:23:00.000000000	1	6	June	2015
9	2015/06/01 15:28:00.000000000	1	6	June	2015
10	2015/06/01 17:31:00.000000000	1	6	June	2015
11	2015/06/01 18:45:00.000000000	1	6	June	2015
12	2015/06/01 19:51:00.000000000	1	6	June	2015
13	2015/06/01 20:23:00.000000000	1	6	June	2015
14	2015/06/01 21:16:00.000000000	1	6	June	2015
15	2015/06/01 22:50:00.000000000	1	6	June	2015
16	2015/06/02 01:16:00.000000000	2	6	June	2015
17	2015/06/02 01:26:00.000000000	2	6	June	2015
18	2015/06/02 03:04:00.000000000	2	6	June	2015
19	2015/06/02 06:05:00.000000000	2	6	June	2015
20	2015/06/02 07:15:00.000000000	2	6	June	2015
21	2015/06/02 08:02:00.000000000	2	6	June	2015
22	2015/06/02 08:06:00.000000000	2	6	June	2015
23	2015/06/02 08:15:00.000000000	2	6	June	2015
24	2015/06/02 08:20:00.000000000	2	6	June	2015
25	2015/06/02 08:44:00.000000000	2	6	June	2015

- Populate **fact_flight** table



Examine preview data

Rows of step: Table input (1210 rows)

	flight_id	from	to	departure	arrival	airline_id	airplane_id	n_passengers	revenue
1	750	12624	8266	2015/06/01 14:23:00.000000000	2015/06/01 16:41:00.000000000	18	3938	6	1757.93
2	899	4762	9633	2015/06/01 03:04:00.000000000	2015/06/01 04:56:00.000000000	21	4326	6	1794.15
3	1511	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	18	4166.23
4	1515	3420	748	2015/06/01 08:02:00.000000000	2015/06/01 08:22:00.000000000	35	902	4	651.13
5	1543	3887	10805	2015/06/01 20:23:00.000000000	2015/06/01 22:20:00.000000000	35	902	3	483.37
6	1871	1085	6973	2015/06/01 21:16:00.000000000	2015/06/01 22:26:00.000000000	44	2557	5	1544.67
7	1880	11812	6429	2015/06/01 01:26:00.000000000	2015/06/01 03:19:00.000000000	44	2564	17	3945.94
8	2117	1572	8829	2015/06/01 08:44:00.000000000	2015/06/01 09:11:00.000000000	49	1207	4	1347.69
9	2673	10564	6002	2015/06/01 22:50:00.000000000	2015/06/02 01:24:00.000000000	63	4869	21	4986.82
10	2703	4725	9838	2015/06/01 19:51:00.000000000	2015/06/01 21:18:00.000000000	63	4827	17	4490.16
11	2715	10904	2867	2015/06/01 17:31:00.000000000	2015/06/01 19:09:00.000000000	63	4840	6	1678.74
12	2717	8210	5024	2015/06/01 13:35:00.000000000	2015/06/01 14:11:00.000000000	63	4869	20	4245.1
13	3359	12159	3796	2015/06/01 15:28:00.000000000	2015/06/01 17:39:00.000000000	77	2255	18	4450.93
14	3367	10903	3074	2015/06/01 03:04:00.000000000	2015/06/01 03:23:00.000000000	77	2254	5	1469.83
15	3793	2556	4430	2015/06/01 07:26:00.000000000	2015/06/01 08:59:00.000000000	87	4593	4	783.94
16	3854	11019	9646	2015/06/01 07:35:00.000000000	2015/06/01 08:16:00.000000000	89	6	6	2170.66
17	8758	319	13522	2015/06/02 08:15:00.000000000	2015/06/02 10:49:00.000000000	13	3481	16	3555.31
18	8773	10635	10332	2015/06/02 19:06:00.000000000	2015/06/02 22:26:00.000000000	13	3479	16	3462.84
19	9117	2708	1508	2015/06/02 07:15:00.000000000	2015/06/02 08:14:00.000000000	20	987	19	5949.75
20	9544	6379	8143	2015/06/02 08:44:00.000000000	2015/06/02 10:25:00.000000000	31	4432	6	1705.73
21	9736	3420	748	2015/06/02 08:02:00.000000000	2015/06/02 08:22:00.000000000	35	933	9	2443.58
22	9755	3887	10805	2015/06/02 20:23:00.000000000	2015/06/02 22:20:00.000000000	35	920	23	5124.7
23	9759	7232	6258	2015/06/02 08:20:00.000000000	2015/06/02 11:24:00.000000000	35	904	6	1712.3
24	9970	9969	2163	2015/06/02 19:06:00.000000000	2015/06/02 21:14:00.000000000	40	814	4	1245.36
25	10111	11812	6429	2015/06/02 01:26:00.000000000	2015/06/02 03:19:00.000000000	44	2559	18	4497.91
26	10118	1595	6537	2015/06/02 18:12:00.000000000	2015/06/02 19:25:00.000000000	44	2561	5	1659.43
27	10121	11879	7908	2015/06/02 01:16:00.000000000	2015/06/02 02:57:00.000000000	44	2554	32	9329.93
28	10957	5164	748	2015/06/02 21:15:00.000000000	2015/06/02 21:39:00.000000000	63	4893	20	5113.17
29	10963	4725	9838	2015/06/02 19:51:00.000000000	2015/06/02 21:18:00.000000000	63	4879	18	3529.09
30	11643	10903	3074	2015/06/02 03:04:00.000000000	2015/06/02 03:23:00.000000000	77	2260	3	847.67

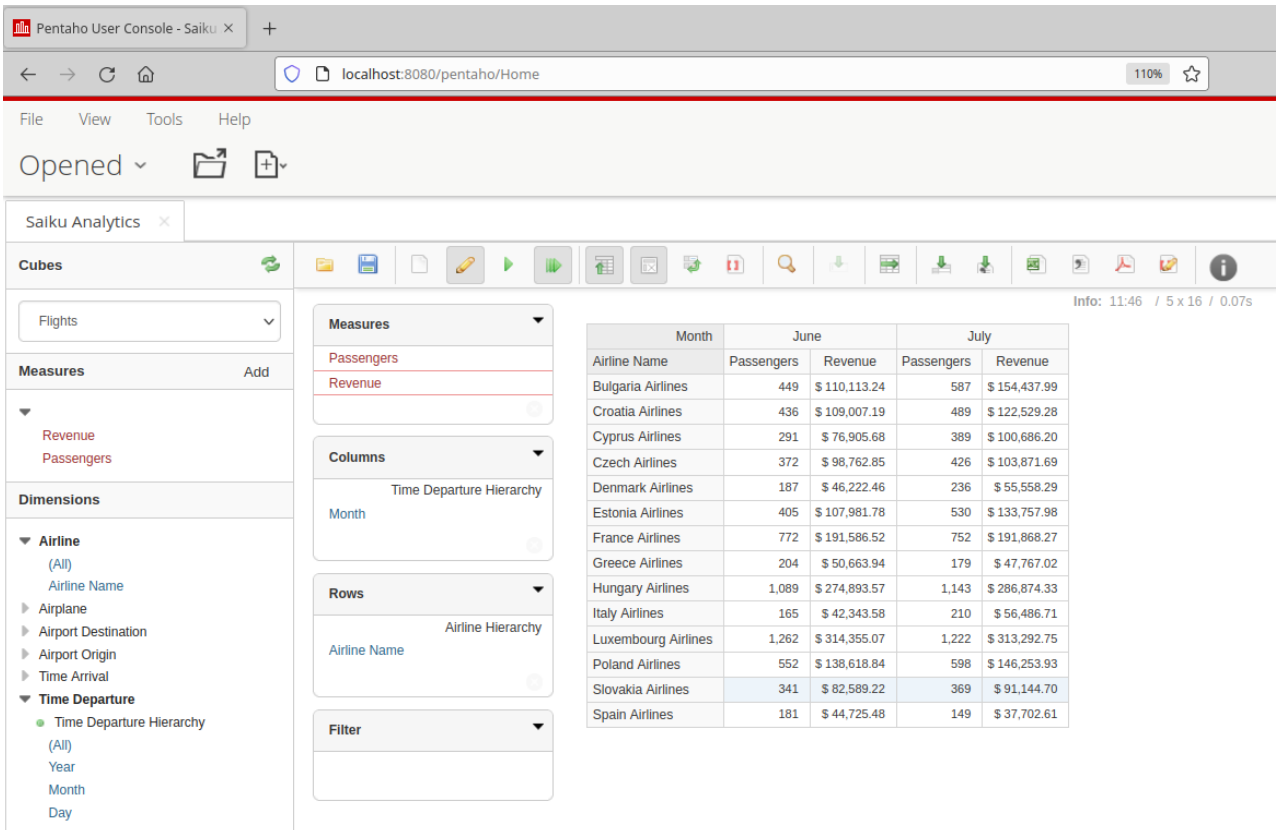
c) XML Data Cube

```
<Schema name="airports_dw">
  <Cube name="Flights" visible="true" cache="true" enabled="true">
    <Table name="fact_flight">
    </Table>
    <Dimension type="StandardDimension" visible="true" foreignKey="AIRLINE_ID" highCardinality="false" name="Airline">
      <Hierarchy name="Airline Hierarchy" visible="true" hasAll="true" allMemberName="All Airlines" primaryKey="AIRLINE_ID">
        <Table name="dim_airline">
        </Table>
        <Level name="Airline Name" visible="true" column="AIRLINE_NAME" type="String" uniqueMembers="false" levelType="Regular" hideMemberIf="Never">
        </Level>
      </Hierarchy>
    </Dimension>
    <Dimension type="StandardDimension" visible="true" foreignKey="AIRPLANE_ID" highCardinality="false" name="Airplane">
      <Hierarchy name="Airplane Hierarchy" visible="true" hasAll="true" allMemberName="All Airplanes" primaryKey="AIRPLANE_ID">
        <Table name="dim_airplane">
        </Table>
        <Level name="Airplane Type" visible="true" column="TYPE_ID" type="Integer" uniqueMembers="false" levelType="Regular" hideMemberIf="Never">
        </Level>
      </Hierarchy>
    </Dimension>
    <Dimension type="TimeDimension" visible="true" foreignKey="ARRIVAL" highCardinality="false" name="Time Arrival">
      <Hierarchy name="Time Arrival Hierarchy" visible="true" hasAll="true" allMemberName="All Time_Arrival" primaryKey="TIME_ID">
        <Table name="dim_time">
        </Table>
        <Level name="Year" visible="true" column="YEAR_ID" type="Integer" uniqueMembers="false" levelType="TimeYears" hideMemberIf="Never">
        </Level>
        <Level name="Month" visible="true" column="MONTH_NAME" ordinalColumn="MONTH_ID" type="String" uniqueMembers="false" levelType="TimeMonths" hideMemberIf="Never">
        </Level>
        <Level name="Day" visible="true" column="DAY_ID" type="Integer" uniqueMembers="false" levelType="TimeDays" hideMemberIf="Never">
        </Level>
      </Hierarchy>
    </Dimension>
    <Dimension type="TimeDimension" visible="true" foreignKey="DEPARTURE" highCardinality="false" name="Time Departure">
      <Hierarchy name="Time Departure Hierarchy" visible="true" hasAll="true" allMemberName="All Time_Departure" primaryKey="TIME_ID">
        <Table name="dim_time">
        </Table>
        <Level name="Year" visible="true" column="YEAR_ID" type="Integer" uniqueMembers="false" levelType="TimeYears" hideMemberIf="Never">
        </Level>
        <Level name="Month" visible="true" column="MONTH_NAME" ordinalColumn="MONTH_ID" type="String" uniqueMembers="false" levelType="TimeMonths" hideMemberIf="Never">
        </Level>
        <Level name="Day" visible="true" column="DAY_ID" type="Integer" uniqueMembers="false" levelType="TimeDays" hideMemberIf="Never">
        </Level>
      </Hierarchy>
    </Dimension>
    <Dimension type="StandardDimension" visible="true" foreignKey="AIRPORT_DEST" highCardinality="false" name="Airport Destination">
      <Hierarchy name="Airport Destination Hierarchy" visible="true" hasAll="true" allMemberName="All Airport_Destination" primaryKey="AIRPORT_ID">
        <Table name="dim_airport">
        </Table>
        <Level name="Country" visible="true" column="COUNTRY" type="String" uniqueMembers="false" levelType="Regular" hideMemberIf="Never">
        </Level>
        <Level name="City" visible="true" column="CITY" type="String" uniqueMembers="false" levelType="Regular" hideMemberIf="Never">
        </Level>
        <Level name="Airport Name" visible="true" column="AIRPORT_NAME" type="String" uniqueMembers="false" levelType="Regular" hideMemberIf="Never">
        </Level>
      </Hierarchy>
    </Dimension>
    <Dimension type="StandardDimension" visible="true" foreignKey="AIRPORT_ORIG" highCardinality="false" name="Airport Origin">
      <Hierarchy name="Airport Origin Hierarchy" visible="true" hasAll="true" allMemberName="All Airport Origin" primaryKey="AIRPORT_ID">
        <Table name="dim_airport">
        </Table>
        <Level name="Country" visible="true" column="COUNTRY" type="String" uniqueMembers="false" levelType="Regular" hideMemberIf="Never">
        </Level>
        <Level name="City" visible="true" column="CITY" type="String" uniqueMembers="false" levelType="Regular" hideMemberIf="Never">
        </Level>
        <Level name="Airport Name" visible="true" column="AIRPORT_NAME" type="String" uniqueMembers="false" levelType="Regular" hideMemberIf="Never">
        </Level>
      </Hierarchy>
    </Dimension>
    <Measure name="Revenue" column="REVENUE" datatype="Numeric" formatString="$ #,###.00" aggregator="sum" visible="true">
    </Measure>
    <Measure name="Passengers" column="N_PASSENGERS" datatype="Integer" formatString="#,####" aggregator="sum" visible="true">
    </Measure>
  </Cube>
</Schema>
```

d) & e) Pentaho Server Queries

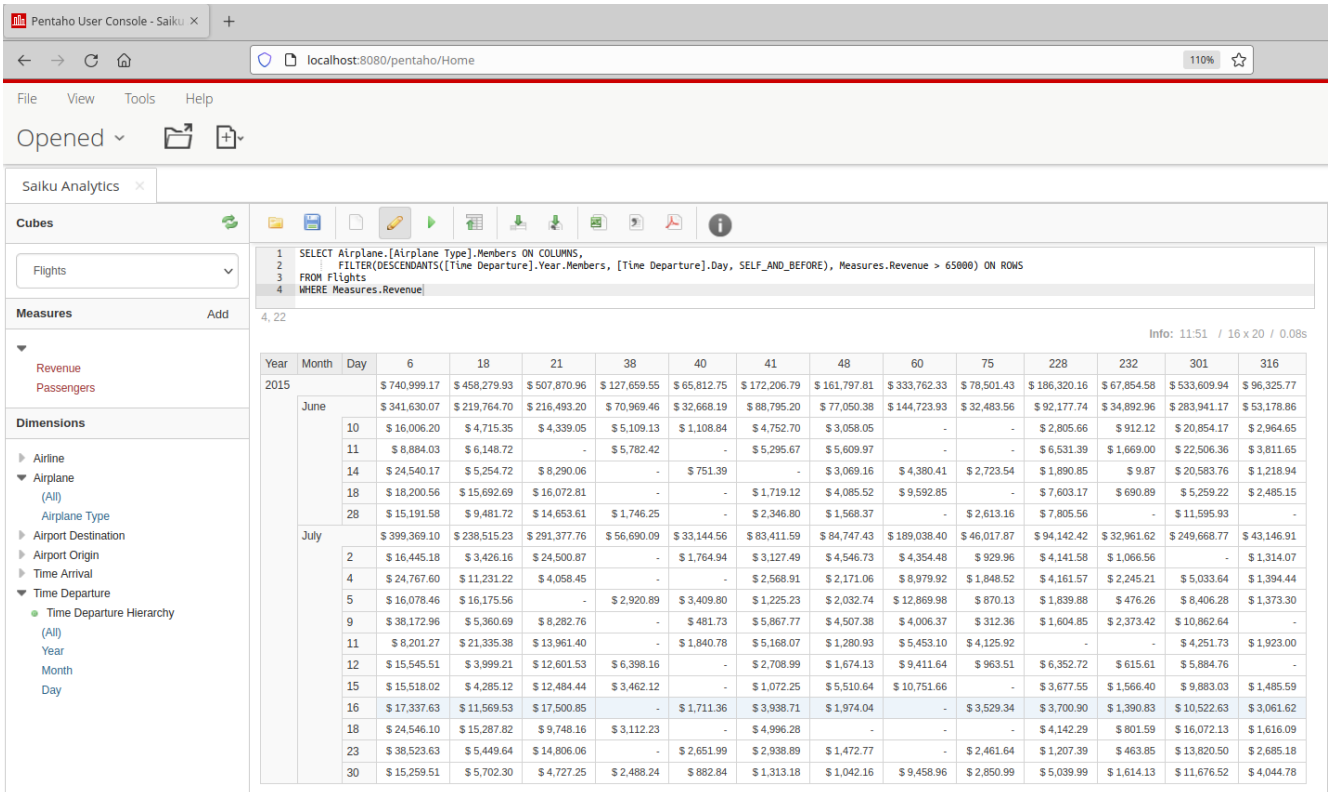
--- airports.sql ---

- Passengers and revenue by airline and month



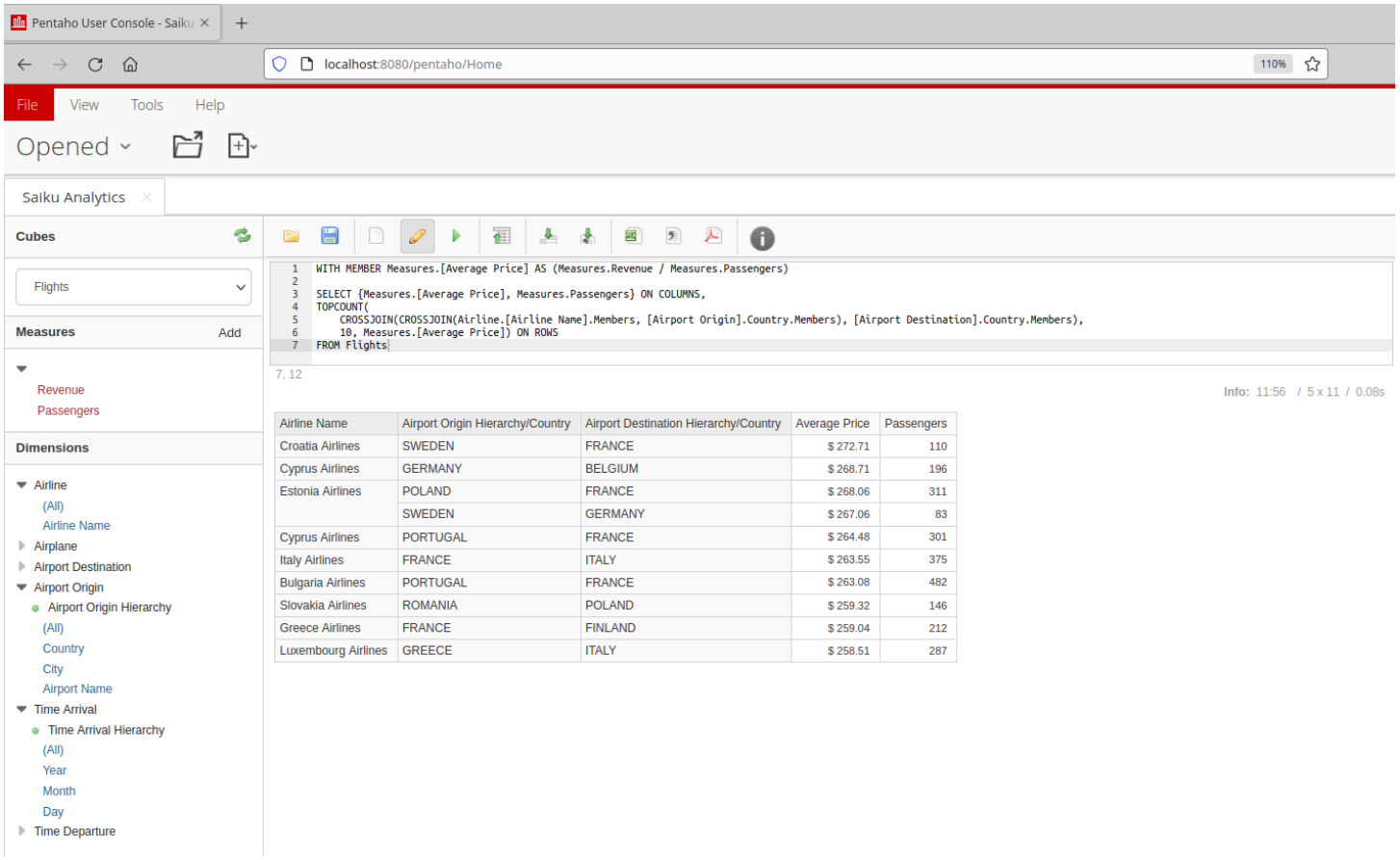
Month	June		July	
Airline Name	Passengers	Revenue	Passengers	Revenue
Bulgaria Airlines	449	$ 110,113.24	587	$ 154,437.99
Croatia Airlines	436	$ 109,007.19	489	$ 122,529.28
Cyprus Airlines	291	$ 76,905.68	389	$ 100,686.20
Czech Airlines	372	$ 98,762.85	426	$ 103,871.69
Denmark Airlines	187	$ 46,222.46	236	$ 55,558.29
Estonia Airlines	405	$ 107,981.78	530	$ 133,757.98
France Airlines	772	$ 191,586.52	752	$ 191,868.27
Greece Airlines	204	$ 50,663.94	179	$ 47,767.02
Hungary Airlines	1,089	$ 274,893.57	1,143	$ 286,874.33
Italy Airlines	165	$ 42,343.58	210	$ 56,486.71
Luxembourg Airlines	1,262	$ 314,355.07	1,222	$ 313,292.75
Poland Airlines	552	$ 138,618.84	598	$ 146,253.93
Slovakia Airlines	341	$ 82,589.22	369	$ 91,144.70
Spain Airlines	181	$ 44,725.48	149	$ 37,702.61

- Plane type revenue when daily, monthly or yearly revenue is above 65k



Year	Month	Day	6	18	21	38	40	41	48	60	75	228	232	301	316
2015			$ 740,999.17	$ 458,279.93	$ 507,870.96	$ 127,659.55	$ 65,812.75	$ 172,206.79	$ 161,797.81	$ 333,762.33	$ 78,501.43	$ 186,320.16	$ 67,854.58	$ 533,609.94	$ 96,325.77
	June		$ 341,630.07	$ 219,764.70	$ 216,493.20	$ 70,969.46	$ 32,668.19	$ 88,795.20	$ 77,050.38	$ 144,723.93	$ 32,483.56	$ 92,177.74	$ 34,892.96	$ 283,941.17	$ 53,178.86
		10	$ 16,006.20	$ 4,715.35	$ 4,339.05	$ 5,109.13	$ 1,108.84	$ 4,752.70	$ 3,058.05	-	-	$ 2,805.66	$ 912.12	$ 20,854.17	$ 2,964.65
		11	$ 8,884.03	$ 6,148.72	-	$ 5,782.42	-	$ 5,295.67	$ 5,609.97	-	-	$ 6,531.39	$ 1,669.00	$ 22,506.36	$ 3,811.65
		14	$ 24,540.17	$ 5,254.72	$ 8,290.06	-	$ 751.39	-	$ 3,069.16	$ 4,380.41	$ 2,723.54	$ 1,890.85	$ 9.87	$ 20,583.76	$ 1,218.94
		18	$ 18,200.56	$ 15,692.69	$ 16,072.81	-	-	$ 1,719.12	$ 4,085.52	$ 9,592.85	-	$ 7,603.17	$ 690.89	$ 5,259.22	$ 2,485.15
		28	$ 15,191.58	$ 9,481.72	$ 14,653.61	$ 1,746.25	-	$ 2,346.80	$ 1,568.37	-	$ 2,613.16	$ 7,805.56	-	$ 11,595.93	-
	July		$ 399,369.10	$ 238,515.23	$ 291,377.76	$ 56,690.09	$ 33,144.56	$ 83,411.59	$ 84,747.43	$ 189,038.40	$ 46,017.87	$ 94,142.42	$ 32,961.62	$ 249,668.77	$ 43,146.91
		2	$ 16,445.18	$ 3,426.16	$ 24,500.87	-	$ 1,764.94	$ 3,127.49	$ 4,546.73	$ 4,354.48	$ 929.96	$ 4,141.58	$ 1,066.56	-	$ 1,314.07
		4	$ 24,767.60	$ 11,231.22	$ 4,058.45	-	-	$ 2,568.91	$ 2,171.06	$ 8,979.92	$ 1,848.52	$ 4,161.57	$ 2,245.21	$ 5,033.64	$ 1,394.44
		5	$ 16,078.46	$ 16,175.56	-	$ 2,920.89	$ 3,409.80	$ 1,225.23	$ 2,032.74	$ 12,869.98	$ 870.13	$ 1,839.88	$ 476.26	$ 8,406.28	$ 1,373.30
		9	$ 38,172.96	$ 5,360.69	$ 8,282.76	-	$ 481.73	$ 5,867.77	$ 4,507.38	$ 4,006.37	$ 312.36	$ 1,604.85	$ 2,373.42	$ 10,862.64	-
		11	$ 8,201.27	$ 21,335.38	$ 13,961.40	-	$ 1,840.78	$ 5,168.07	$ 1,280.93	$ 5,453.10	$ 4,125.92	-	-	$ 4,251.73	$ 1,923.00
		12	$ 15,545.51	$ 3,999.21	$ 12,601.53	$ 6,398.16	-	$ 2,708.99	$ 1,674.13	$ 9,411.64	$ 963.51	$ 6,352.72	$ 615.61	$ 5,884.76	-
		15	$ 15,518.02	$ 4,285.12	$ 12,484.44	$ 3,462.12	-	$ 1,072.25	$ 5,510.64	$ 10,751.66	-	$ 3,677.55	$ 1,566.40	$ 9,883.03	$ 1,485.59
		16	$ 17,337.63	$ 11,569.53	$ 17,500.85	-	$ 1,711.36	$ 3,938.71	$ 1,974.04	-	$ 3,529.34	$ 3,700.90	$ 1,390.83	$ 10,522.63	$ 3,061.62
		18	$ 24,546.10	$ 15,287.82	$ 9,748.16	$ 3,112.23	-	$ 4,996.28	-	-	-	$ 4,142.29	$ 801.59	$ 16,072.13	$ 1,616.09
		23	$ 38,523.63	$ 5,449.64	$ 14,806.06	-	$ 2,651.99	$ 2,938.89	$ 1,472.77	-	$ 2,461.64	$ 1,207.39	$ 463.85	$ 13,820.50	$ 2,685.18
		30	$ 15,259.51	$ 5,702.30	$ 4,727.25	$ 2,488.24	$ 882.84	$ 1,313.18	$ 1,042.16	$ 9,458.96	$ 2,850.99	$ 5,039.99	$ 1,614.13	$ 11,676.52	$ 4,044.78

- Top 10 routes with the highest average price per person and their information (airline, origin and destination countries, average price and total of passengers)



Airline Name	Airport Origin Hierarchy/Country	Airport Destination Hierarchy/Country	Average Price	Passengers
Croatia Airlines	SWEDEN	FRANCE	$ 272.71	110
Cyprus Airlines	GERMANY	BELGIUM	$ 268.71	196
Estonia Airlines	POLAND	FRANCE	$ 268.06	311
	SWEDEN	GERMANY	$ 267.06	83
Cyprus Airlines	PORTUGAL	FRANCE	$ 264.48	301
Italy Airlines	FRANCE	ITALY	$ 263.55	375
Bulgaria Airlines	PORTUGAL	FRANCE	$ 263.08	482
Slovakia Airlines	ROMANIA	POLAND	$ 259.32	146
Greece Airlines	FRANCE	FINLAND	$ 259.04	212
Luxembourg Airlines	GREECE	ITALY	$ 258.51	287

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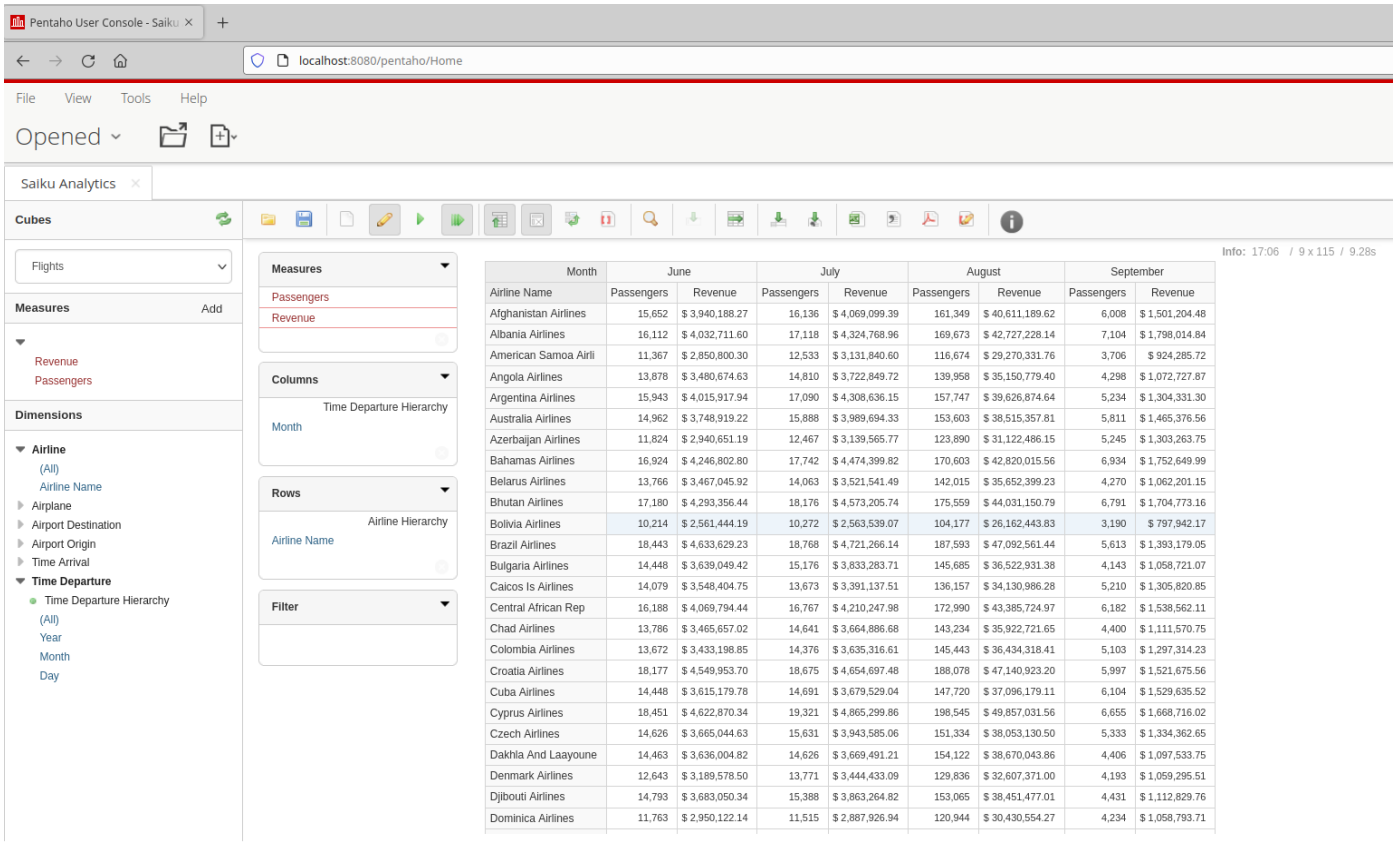
96839 - António Marques

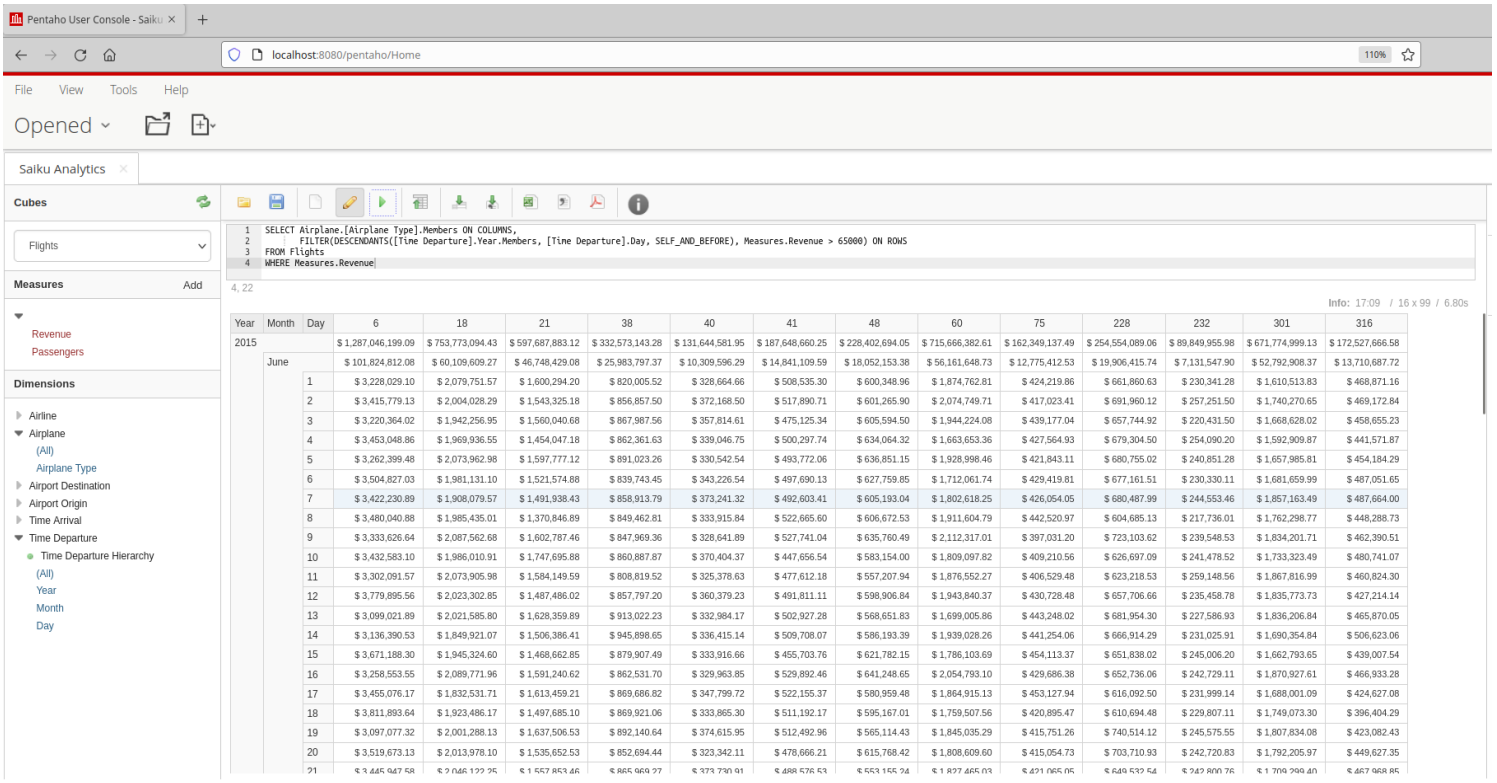
--- airports-large.sql ---

- Passengers and revenue by airline and month



Month	June		July		August		September	
Airline Name	Passengers	Revenue	Passengers	Revenue	Passengers	Revenue	Passengers	Revenue
Afghanistan Airlines	15,652	$ 3,940,188.27	16,136	$ 4,069,099.39	161,349	$ 40,611,189.62	6,008	$ 1,501,204.48
Albania Airlines	16,112	$ 4,032,711.60	17,118	$ 4,324,768.96	169,673	$ 42,727,228.14	7,104	$ 1,798,014.84
American Samoa Airli	11,367	$ 2,850,800.30	12,533	$ 3,131,840.60	116,674	$ 29,270,331.76	3,706	$ 924,285.72
Angola Airlines	13,878	$ 3,480,674.63	14,810	$ 3,722,849.72	139,958	$ 35,150,779.40	4,298	$ 1,072,727.87
Argentina Airlines	15,943	$ 4,015,917.94	17,090	$ 4,308,636.15	157,747	$ 39,626,874.64	5,234	$ 1,304,331.30
Australia Airlines	14,962	$ 3,748,919.22	15,888	$ 3,989,694.33	153,603	$ 38,515,357.81	5,811	$ 1,465,376.56
Azerbaijan Airlines	11,824	$ 2,940,651.19	12,467	$ 3,139,565.77	123,890	$ 31,122,486.15	5,245	$ 1,303,263.75
Bahamas Airlines	16,924	$ 4,246,802.80	17,742	$ 4,474,399.82	170,603	$ 42,820,015.56	6,934	$ 1,752,649.99
Belarus Airlines	13,766	$ 3,467,045.92	14,063	$ 3,521,541.49	142,015	$ 35,652,399.23	4,270	$ 1,062,201.15
Bhutan Airlines	17,180	$ 4,293,356.44	18,176	$ 4,573,205.74	175,559	$ 44,031,150.79	6,791	$ 1,704,773.16
Bolivia Airlines	10,214	$ 2,561,444.19	10,272	$ 2,563,539.07	104,177	$ 26,162,443.83	3,190	$ 797,942.17
Brazil Airlines	18,443	$ 4,633,629.23	18,768	$ 4,721,266.14	187,593	$ 47,092,561.44	5,613	$ 1,393,179.05
Bulgaria Airlines	14,448	$ 3,639,049.42	15,176	$ 3,833,283.71	145,685	$ 36,522,931.38	4,143	$ 1,058,721.07
Caicos Is Airlines	14,079	$ 3,548,404.75	13,673	$ 3,391,137.51	136,157	$ 34,130,986.28	5,210	$ 1,305,820.85
Central African Rep	16,188	$ 4,069,794.44	16,767	$ 4,210,247.98	172,990	$ 43,385,724.97	6,182	$ 1,538,562.11
Chad Airlines	13,786	$ 3,465,657.02	14,641	$ 3,664,886.68	143,234	$ 35,922,721.65	4,400	$ 1,111,570.75
Colombia Airlines	13,672	$ 3,433,198.85	14,376	$ 3,635,316.61	145,443	$ 36,434,318.41	5,103	$ 1,297,314.23
Croatia Airlines	18,177	$ 4,549,953.70	18,675	$ 4,654,697.48	188,078	$ 47,140,923.20	5,997	$ 1,521,675.56
Cuba Airlines	14,448	$ 3,615,179.78	14,691	$ 3,679,529.04	147,720	$ 37,096,179.11	6,104	$ 1,529,635.52
Cyprus Airlines	18,451	$ 4,622,870.34	19,321	$ 4,865,299.86	198,545	$ 49,857,031.56	6,655	$ 1,668,716.02
Czech Airlines	14,626	$ 3,665,044.63	15,631	$ 3,943,585.06	151,334	$ 38,053,130.50	5,333	$ 1,334,362.65
Dakhla And Laayoune	14,463	$ 3,636,004.82	14,626	$ 3,669,491.21	154,122	$ 38,670,043.86	4,406	$ 1,097,533.75
Denmark Airlines	12,643	$ 3,189,578.50	13,771	$ 3,444,433.09	129,836	$ 32,607,371.00	4,193	$ 1,059,295.51
Djibouti Airlines	14,793	$ 3,683,050.34	15,388	$ 3,863,264.82	153,065	$ 38,451,477.01	4,431	$ 1,112,829.76
Dominica Airlines	11,763	$ 2,950,122.14	11,515	$ 2,887,926.94	120,944	$ 30,430,554.27	4,234	$ 1,058,793.71

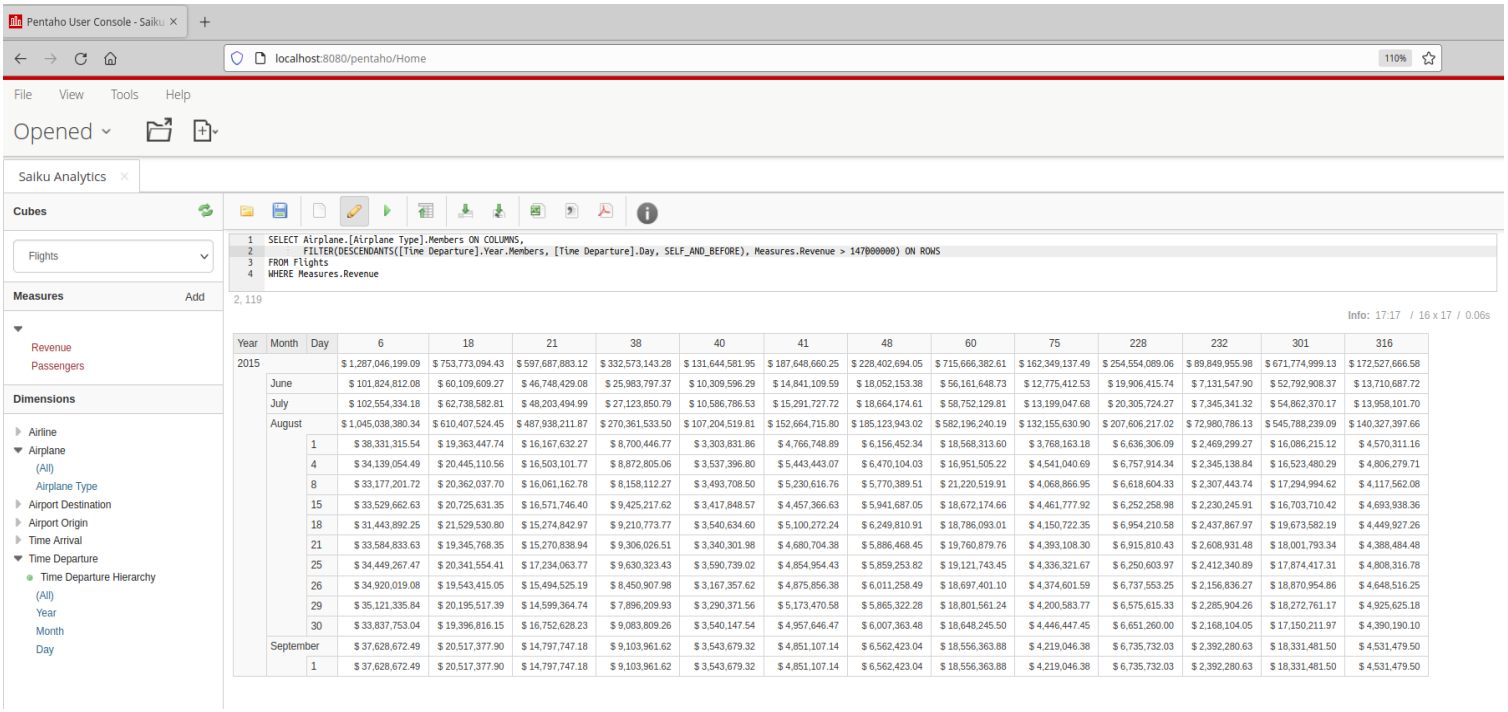
- Plane type revenue when daily, monthly or yearly revenue is above 65k



Year	Month	Day	6	18	21	38	40	41	48	60	75	228	232	301	316
2015			$ 1,287,046,199.09	$ 753,773,094.43	$ 597,687,883.12	$ 332,573,143.28	$ 131,644,581.95	$ 187,648,660.25	$ 228,402,694.05	$ 715,666,382.61	$ 162,349,137.49	$ 254,554,089.06	$ 89,849,955.98	$ 671,774,999.13	$ 172,527,666.58
	June		$ 101,824,812.08	$ 60,109,609.27	$ 46,748,429.08	$ 25,983,797.37	$ 10,309,596.29	$ 14,841,109.59	$ 18,052,153.38	$ 56,161,648.73	$ 12,775,412.53	$ 19,906,415.74	$ 7,131,547.90	$ 52,792,908.37	$ 13,710,687.72
		1	$ 3,228,029.10	$ 2,079,751.57	$ 1,600,294.20	$ 820,005.52	$ 328,664.66	$ 508,535.30	$ 600,348.96	$ 1,874,762.81	$ 424,219.86	$ 661,860.63	$ 230,341.28	$ 1,610,513.83	$ 468,871.16
		2	$ 3,415,779.13	$ 2,004,028.29	$ 1,543,325.18	$ 856,857.50	$ 372,168.50	$ 517,890.71	$ 601,265.90	$ 2,074,749.71	$ 417,023.41	$ 691,960.12	$ 257,251.50	$ 1,740,270.65	$ 469,172.84
		3	$ 3,220,364.02	$ 1,942,256.95	$ 1,560,040.68	$ 867,987.56	$ 357,814.61	$ 475,125.34	$ 605,594.50	$ 1,944,224.08	$ 439,177.04	$ 657,744.92	$ 220,431.50	$ 1,668,628.02	$ 458,655.23
		4	$ 3,453,048.86	$ 1,969,936.55	$ 1,454,047.18	$ 862,361.63	$ 339,046.75	$ 500,297.74	$ 634,064.32	$ 1,663,653.36	$ 427,564.93	$ 679,304.50	$ 254,090.20	$ 1,592,909.87	$ 441,571.87
		5	$ 3,262,399.48	$ 2,073,962.98	$ 1,597,777.12	$ 891,023.26	$ 330,542.54	$ 493,772.06	$ 636,851.15	$ 1,928,998.46	$ 421,843.11	$ 680,755.02	$ 240,851.28	$ 1,657,985.81	$ 454,184.29
		6	$ 3,504,827.03	$ 1,981,131.10	$ 1,521,574.88	$ 839,743.45	$ 343,226.54	$ 497,690.13	$ 627,759.85	$ 1,712,061.74	$ 429,419.81	$ 677,161.51	$ 230,330.11	$ 1,681,659.99	$ 487,051.65
		7	$ 3,422,230.89	$ 1,908,079.57	$ 1,491,938.43	$ 858,913.79	$ 373,241.32	$ 492,603.41	$ 605,193.04	$ 1,802,618.25	$ 426,054.05	$ 680,487.99	$ 244,553.46	$ 1,857,163.49	$ 487,664.00
		8	$ 3,480,040.88	$ 1,985,435.01	$ 1,370,846.89	$ 849,462.81	$ 333,915.84	$ 522,665.60	$ 606,672.53	$ 1,911,604.79	$ 442,520.97	$ 604,685.13	$ 217,736.01	$ 1,762,298.77	$ 448,288.73
		9	$ 3,333,626.64	$ 2,087,562.68	$ 1,602,787.46	$ 847,969.36	$ 328,641.89	$ 527,741.04	$ 635,760.49	$ 2,112,317.01	$ 397,031.20	$ 723,103.62	$ 239,548.53	$ 1,834,201.71	$ 462,390.51
		10	$ 3,432,583.10	$ 1,986,010.91	$ 1,747,695.88	$ 860,887.87	$ 370,404.37	$ 447,656.54	$ 583,154.00	$ 1,809,097.82	$ 409,210.56	$ 626,697.09	$ 241,478.52	$ 1,733,323.49	$ 480,741.07
		11	$ 3,302,091.57	$ 2,073,905.98	$ 1,584,149.59	$ 808,819.52	$ 325,378.63	$ 477,612.18	$ 557,207.94	$ 1,876,552.27	$ 406,529.48	$ 623,218.53	$ 259,148.56	$ 1,867,816.99	$ 460,824.30
		12	$ 3,779,895.56	$ 2,023,302.85	$ 1,487,486.02	$ 857,797.20	$ 360,379.23	$ 491,811.11	$ 598,906.84	$ 1,943,840.37	$ 430,728.48	$ 657,706.66	$ 235,458.78	$ 1,835,773.73	$ 427,214.14
		13	$ 3,099,021.89	$ 2,021,585.80	$ 1,628,359.89	$ 913,022.23	$ 332,984.17	$ 502,927.28	$ 568,651.83	$ 1,699,005.86	$ 443,248.02	$ 681,954.30	$ 227,586.93	$ 1,836,206.84	$ 465,870.05
		14	$ 3,136,390.53	$ 1,849,921.07	$ 1,506,386.41	$ 945,898.65	$ 336,415.14	$ 509,708.07	$ 586,193.39	$ 1,939,028.26	$ 441,254.06	$ 666,914.29	$ 231,025.91	$ 1,690,354.84	$ 506,623.06
		15	$ 3,671,188.30	$ 1,945,324.60	$ 1,468,662.85	$ 879,907.49	$ 333,916.66	$ 455,703.76	$ 621,782.15	$ 1,786,103.69	$ 454,113.37	$ 651,838.02	$ 245,006.20	$ 1,662,793.65	$ 439,007.54
		16	$ 3,258,553.55	$ 2,089,771.96	$ 1,591,240.62	$ 862,531.70	$ 329,963.85	$ 529,892.46	$ 641,248.65	$ 2,054,793.10	$ 429,686.38	$ 652,736.06	$ 242,729.11	$ 1,870,927.61	$ 466,933.28
		17	$ 3,455,076.17	$ 1,832,531.71	$ 1,613,459.21	$ 869,686.82	$ 347,799.72	$ 522,155.37	$ 580,959.48	$ 1,864,915.13	$ 453,127.94	$ 616,092.50	$ 231,999.14	$ 1,688,001.09	$ 424,627.08
		18	$ 3,811,893.64	$ 1,923,486.17	$ 1,497,685.10	$ 869,921.06	$ 333,865.30	$ 511,192.17	$ 595,167.01	$ 1,759,507.56	$ 420,895.47	$ 610,694.48	$ 229,807.11	$ 1,749,073.30	$ 396,404.29
		19	$ 3,097,077.32	$ 2,001,288.13	$ 1,637,506.53	$ 892,140.64	$ 374,615.95	$ 512,492.96	$ 565,114.43	$ 1,845,035.29	$ 415,751.26	$ 740,514.12	$ 245,575.55	$ 1,807,834.08	$ 423,082.43
		20	$ 3,519,673.13	$ 2,013,978.10	$ 1,535,652.53	$ 852,694.44	$ 323,342.11	$ 478,666.21	$ 615,768.42	$ 1,808,609.60	$ 415,054.73	$ 703,710.93	$ 242,720.83	$ 1,792,205.97	$ 449,627.35
		21	$ 3,445,947.58	$ 2,046,122.25	$ 1,557,853.46	$ 865,969.27	$ 373,730.91	$ 488,576.53	$ 553,155.24	$ 1,827,465.03	$ 421,065.05	$ 649,532.54	$ 242,800.76	$ 1,709,299.40	$ 467,968.85

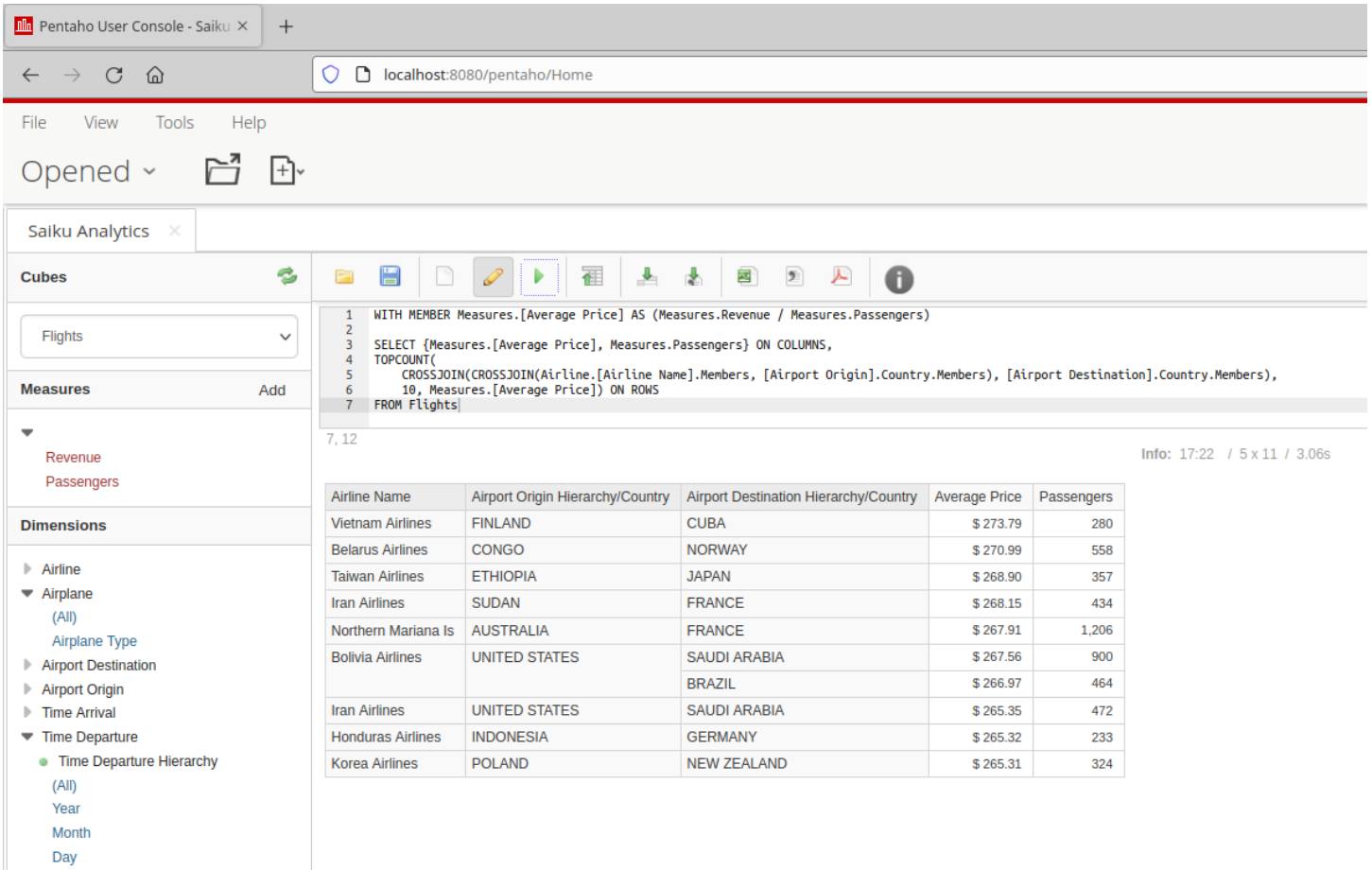
Comment: We noticed that 65k was a negligible value for airports-large so we decided to test the query with a much higher value that made sense (147M)

- Plane type revenue when daily, monthly or yearly revenue is above 147M



Year	Month	Day	6	18	21	38	40	41	48	60	75	228	232	301	316
2015			$ 1,287,046,199.09	$ 753,773,094.43	$ 597,687,883.12	$ 332,573,143.28	$ 131,644,581.95	$ 187,648,660.25	$ 228,402,694.05	$ 715,666,382.61	$ 162,349,137.49	$ 254,554,089.06	$ 89,849,955.98	$ 671,774,999.13	$ 172,527,666.58
	June		$ 101,824,812.08	$ 60,109,609.27	$ 46,748,429.08	$ 25,983,797.37	$ 10,309,596.29	$ 14,841,109.59	$ 18,052,153.38	$ 56,161,648.73	$ 12,775,412.53	$ 19,906,415.74	$ 7,131,547.90	$ 52,792,908.37	$ 13,710,687.72
	July		$ 102,554,334.18	$ 62,738,582.81	$ 48,203,494.99	$ 27,123,850.79	$ 10,586,786.53	$ 15,291,727.72	$ 18,664,174.61	$ 58,752,129.81	$ 13,199,047.68	$ 20,305,724.27	$ 7,345,341.32	$ 54,862,370.17	$ 13,958,101.70
	August		$ 1,045,038,380.34	$ 610,407,524.45	$ 487,938,211.87	$ 270,361,533.50	$ 107,204,519.81	$ 152,664,715.80	$ 185,123,943.02	$ 582,196,240.19	$ 132,155,630.90	$ 207,606,217.02	$ 72,980,786.13	$ 545,788,239.09	$ 140,327,397.66
		1	$ 38,331,315.54	$ 19,363,447.74	$ 16,167,632.27	$ 8,700,446.77	$ 3,303,831.86	$ 4,766,748.89	$ 6,156,452.34	$ 18,568,313.60	$ 3,768,163.18	$ 6,636,306.09	$ 2,469,299.27	$ 16,086,215.12	$ 4,570,311.16
		4	$ 34,139,054.49	$ 20,445,110.56	$ 16,503,101.77	$ 8,872,805.06	$ 3,537,396.80	$ 5,443,443.07	$ 6,470,104.03	$ 16,951,505.22	$ 4,541,040.69	$ 6,757,914.34	$ 2,345,138.84	$ 16,523,480.29	$ 4,806,279.71
		8	$ 33,177,201.72	$ 20,362,037.70	$ 16,061,162.78	$ 8,158,112.27	$ 3,493,708.50	$ 5,230,616.76	$ 5,770,389.51	$ 21,220,519.91	$ 4,068,866.95	$ 6,618,604.33	$ 2,307,443.74	$ 17,294,994.62	$ 4,117,562.08
		15	$ 33,529,662.63	$ 20,725,631.35	$ 16,571,746.40	$ 9,425,217.62	$ 3,417,848.57	$ 4,457,366.63	$ 5,941,687.05	$ 18,672,174.66	$ 4,461,777.92	$ 6,252,258.98	$ 2,230,245.91	$ 16,703,710.42	$ 4,693,938.36
		18	$ 31,443,892.25	$ 21,529,530.80	$ 15,274,842.97	$ 9,210,773.77	$ 3,540,634.60	$ 5,100,272.24	$ 6,249,810.91	$ 18,786,093.01	$ 4,150,722.35	$ 6,954,210.58	$ 2,437,867.97	$ 19,673,582.19	$ 4,449,927.26
		21	$ 33,584,833.63	$ 19,345,768.35	$ 15,270,838.94	$ 9,306,026.51	$ 3,340,301.98	$ 4,680,704.38	$ 5,886,468.45	$ 19,760,879.76	$ 4,393,108.30	$ 6,915,810.43	$ 2,608,931.48	$ 18,001,793.34	$ 4,388,484.48
		25	$ 34,449,267.47	$ 20,341,554.41	$ 17,234,063.77	$ 9,630,323.43	$ 3,590,739.02	$ 4,854,954.43	$ 5,859,253.82	$ 19,121,743.45	$ 4,336,321.67	$ 6,250,603.97	$ 2,412,340.89	$ 17,874,417.31	$ 4,808,316.78
		26	$ 34,920,019.08	$ 19,543,415.05	$ 15,494,525.19	$ 8,450,907.98	$ 3,167,357.62	$ 4,875,856.38	$ 6,011,258.49	$ 18,697,401.10	$ 4,374,601.59	$ 6,737,553.25	$ 2,156,836.27	$ 18,870,954.86	$ 4,648,516.25
		29	$ 35,121,335.84	$ 20,195,517.39	$ 14,599,364.74	$ 7,896,209.93	$ 3,290,371.56	$ 5,173,470.58	$ 5,865,322.28	$ 18,801,561.24	$ 4,200,583.77	$ 6,575,615.33	$ 2,285,904.26	$ 18,272,761.17	$ 4,925,625.18
		30	$ 33,837,753.04	$ 19,396,816.15	$ 16,752,628.23	$ 9,083,809.26	$ 3,540,147.54	$ 4,957,646.47	$ 6,007,363.48	$ 18,648,245.50	$ 4,446,447.45	$ 6,651,260.00	$ 2,168,104.05	$ 17,150,211.97	$ 4,390,190.10
	September		$ 37,628,672.49	$ 20,517,377.90	$ 14,797,747.18	$ 9,103,961.62	$ 3,543,679.32	$ 4,851,107.14	$ 6,562,423.04	$ 18,556,363.88	$ 4,219,046.38	$ 6,735,732.03	$ 2,392,280.63	$ 18,331,481.50	$ 4,531,479.50
		1	$ 37,628,672.49	$ 20,517,377.90	$ 14,797,747.18	$ 9,103,961.62	$ 3,543,679.32	$ 4,851,107.14	$ 6,562,423.04	$ 18,556,363.88	$ 4,219,046.38	$ 6,735,732.03	$ 2,392,280.63	$ 18,331,481.50	$ 4,531,479.50

- Top 10 routes with the highest average price per person and their information (airline, origin and destination countries, average price and total of passengers)



Airline Name	Airport Origin Hierarchy/Country	Airport Destination Hierarchy/Country	Average Price	Passengers
Vietnam Airlines	FINLAND	CUBA	$ 273.79	280
Belarus Airlines	CONGO	NORWAY	$ 270.99	558
Taiwan Airlines	ETHIOPIA	JAPAN	$ 268.90	357
Iran Airlines	SUDAN	FRANCE	$ 268.15	434
Northern Mariana Is	AUSTRALIA	FRANCE	$ 267.91	1,206
Bolivia Airlines	UNITED STATES	SAUDI ARABIA	$ 267.56	900
		BRAZIL	$ 266.97	464
Iran Airlines	UNITED STATES	SAUDI ARABIA	$ 265.35	472
Honduras Airlines	INDONESIA	GERMANY	$ 265.32	233
Korea Airlines	POLAND	NEW ZEALAND	$ 265.31	324

95638 - Martim Santos
96839 - António Marques

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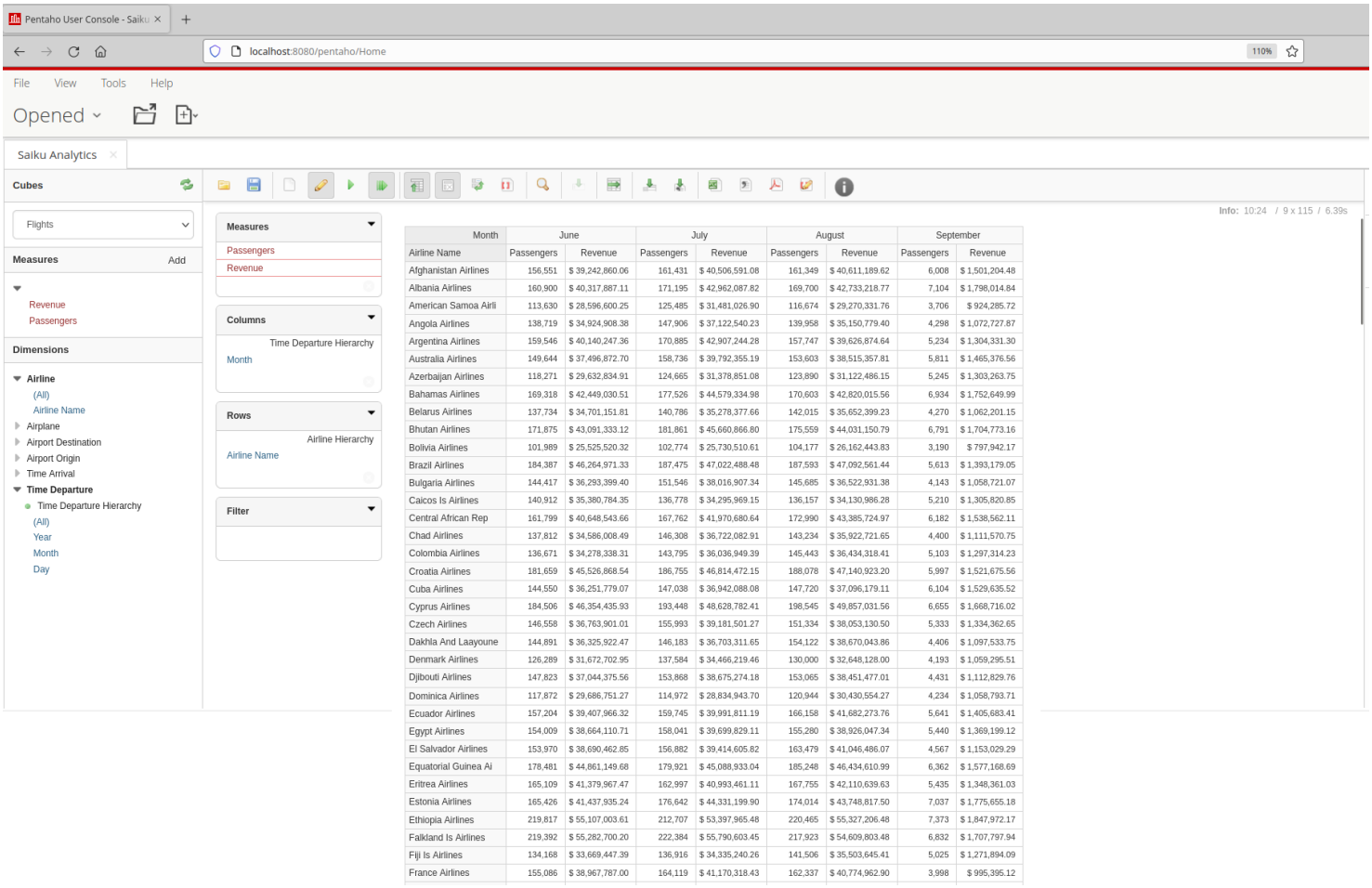
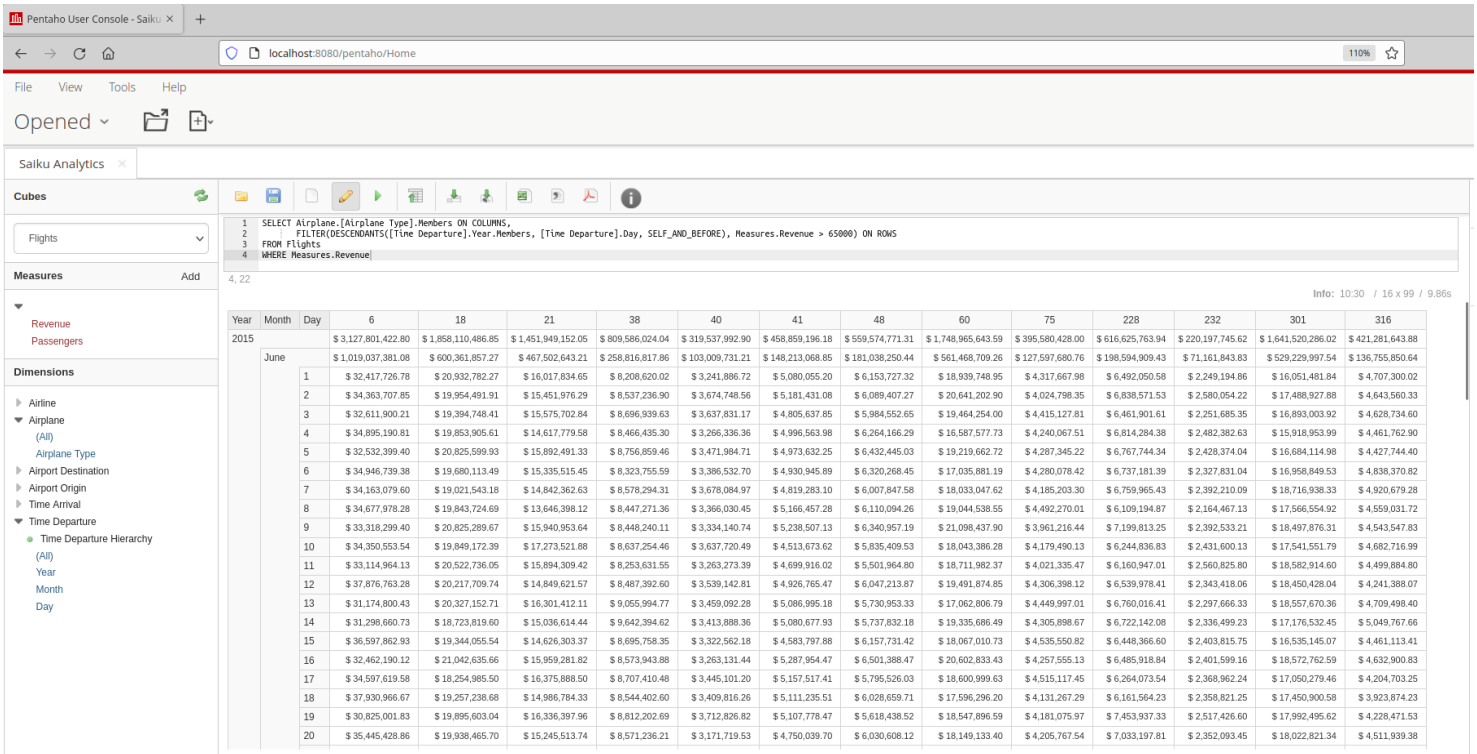
- Passengers and revenue by airline and month



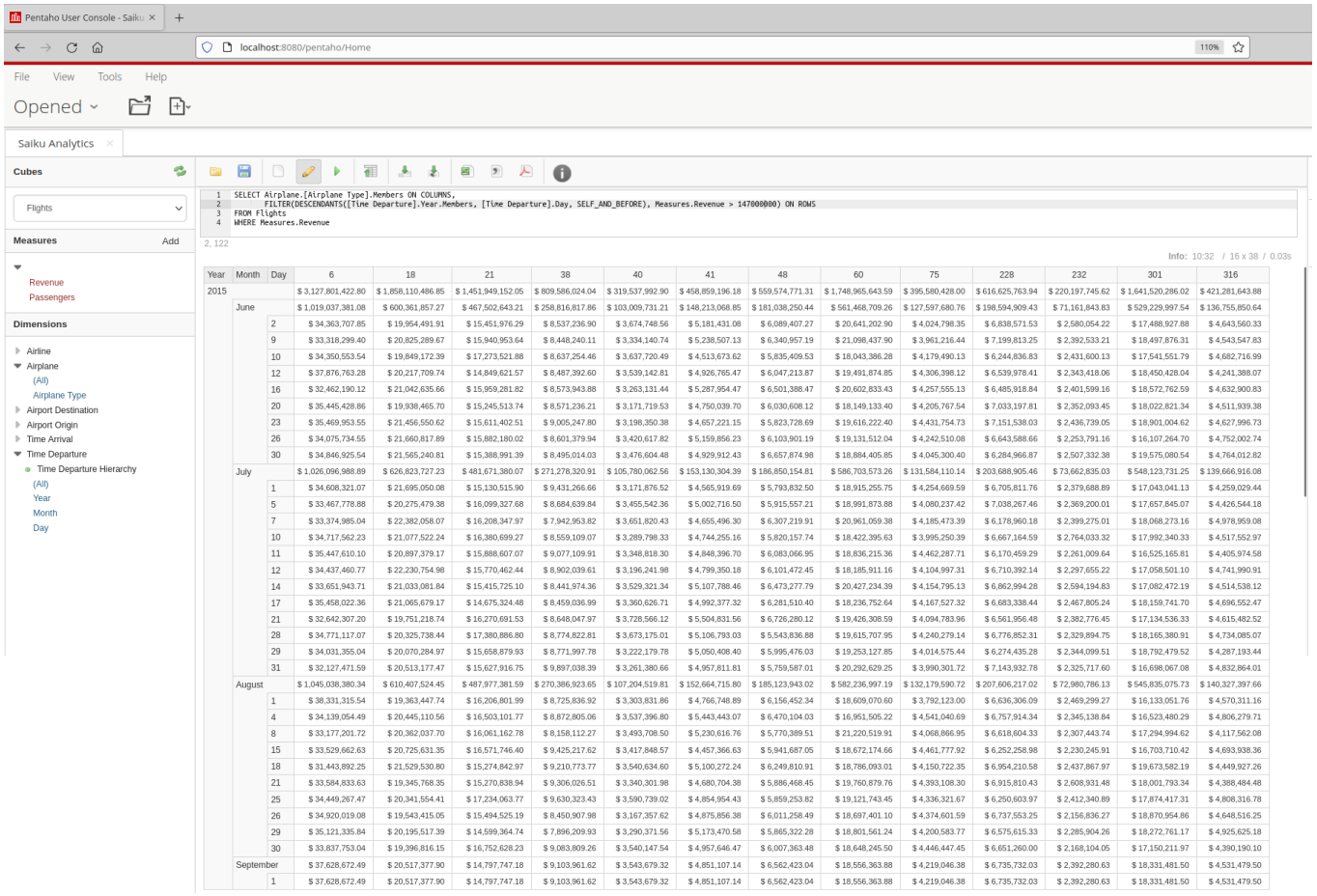
Month	June		July		August		September	
Airline Name	Passengers	Revenue	Passengers	Revenue	Passengers	Revenue	Passengers	Revenue
Afghanistan Airlines	156,551	$ 39,242,860.06	161,431	$ 40,506,591.08	161,349	$ 40,611,189.62	6,008	$ 1,501,204.48
Albania Airlines	160,900	$ 40,317,887.11	171,195	$ 42,962,087.82	169,700	$ 42,733,218.77	7,104	$ 1,798,014.84
American Samoa Airli	113,630	$ 28,596,600.25	125,485	$ 31,481,026.90	116,674	$ 29,270,331.76	3,706	$ 924,285.72
Angola Airlines	138,719	$ 34,924,908.38	147,906	$ 37,122,540.23	139,958	$ 35,150,779.40	4,298	$ 1,072,727.87
Argentina Airlines	159,546	$ 40,140,247.36	170,885	$ 42,907,244.28	157,747	$ 39,626,874.64	5,234	$ 1,304,331.30
Australia Airlines	149,644	$ 37,496,872.70	158,736	$ 39,792,355.19	153,603	$ 38,515,357.81	5,811	$ 1,465,376.56
Azerbaijan Airlines	118,271	$ 29,632,834.91	124,665	$ 31,378,851.08	123,890	$ 31,122,486.15	5,245	$ 1,303,263.75
Bahamas Airlines	169,318	$ 42,449,030.51	177,526	$ 44,579,334.98	170,603	$ 42,820,015.56	6,934	$ 1,752,649.99
Belarus Airlines	137,734	$ 34,701,151.81	140,786	$ 35,278,377.66	142,015	$ 35,652,399.23	4,270	$ 1,062,201.15
Bhutan Airlines	171,875	$ 43,091,333.12	181,861	$ 45,660,866.80	175,559	$ 44,031,150.79	6,791	$ 1,704,773.16
Bolivia Airlines	101,989	$ 25,525,520.32	102,774	$ 25,730,510.61	104,177	$ 26,162,443.83	3,190	$ 797,942.17
Brazil Airlines	184,387	$ 46,264,971.33	187,475	$ 47,022,488.48	187,593	$ 47,092,561.44	5,613	$ 1,393,179.05
Bulgaria Airlines	144,417	$ 36,293,399.40	151,546	$ 38,016,907.34	145,685	$ 36,522,931.38	4,143	$ 1,058,721.07
Caicos Is Airlines	140,912	$ 35,380,784.35	136,778	$ 34,295,969.15	136,157	$ 34,130,986.28	5,210	$ 1,305,820.85
Central African Rep	161,799	$ 40,648,543.66	167,762	$ 41,970,680.64	172,990	$ 43,385,724.97	6,182	$ 1,538,562.11
Chad Airlines	137,812	$ 34,586,008.49	146,308	$ 36,722,082.91	143,234	$ 35,922,721.65	4,400	$ 1,111,570.75
Colombia Airlines	136,671	$ 34,278,338.31	143,795	$ 36,036,949.39	145,443	$ 36,434,318.41	5,103	$ 1,297,314.23
Croatia Airlines	181,659	$ 45,526,868.54	186,755	$ 46,814,472.15	188,078	$ 47,140,923.20	5,997	$ 1,521,675.56
Cuba Airlines	144,550	$ 36,251,779.07	147,038	$ 36,942,088.08	147,720	$ 37,096,179.11	6,104	$ 1,529,635.52
Cyprus Airlines	184,506	$ 46,354,435.93	193,448	$ 48,628,782.41	198,545	$ 49,857,031.56	6,655	$ 1,668,716.02
Czech Airlines	146,558	$ 36,763,901.01	155,993	$ 39,181,501.27	151,334	$ 38,053,130.50	5,333	$ 1,334,362.65
Dakhla And Laayoune	144,891	$ 36,325,922.47	146,183	$ 36,703,311.65	154,122	$ 38,670,043.86	4,406	$ 1,097,533.75
Denmark Airlines	126,289	$ 31,672,702.95	137,584	$ 34,466,219.46	130,000	$ 32,648,128.00	4,193	$ 1,059,295.51
Djibouti Airlines	147,823	$ 37,044,375.56	153,868	$ 38,675,274.18	153,065	$ 38,451,477.01	4,431	$ 1,112,829.76
Dominica Airlines	117,872	$ 29,686,751.27	114,972	$ 28,834,943.70	120,944	$ 30,430,554.27	4,234	$ 1,058,793.71
Ecuador Airlines	157,204	$ 39,407,966.32	159,745	$ 39,991,811.19	166,158	$ 41,682,273.76	5,641	$ 1,405,683.41
Egypt Airlines	154,009	$ 38,664,110.71	158,041	$ 39,699,829.11	155,280	$ 38,926,047.34	5,440	$ 1,369,199.12
El Salvador Airlines	153,970	$ 38,690,462.85	156,882	$ 39,414,605.82	163,479	$ 41,046,486.07	4,567	$ 1,153,029.29
Equatorial Guinea Ai	178,481	$ 44,861,149.68	179,921	$ 45,088,933.04	185,248	$ 46,434,610.99	6,362	$ 1,577,168.69
Eritrea Airlines	165,109	$ 41,379,967.47	162,997	$ 40,993,461.11	167,755	$ 42,110,639.63	5,435	$ 1,348,361.03
Estonia Airlines	165,426	$ 41,437,935.24	176,642	$ 44,331,199.90	174,014	$ 43,748,817.50	7,037	$ 1,775,655.18
Ethiopia Airlines	219,817	$ 55,107,003.61	212,707	$ 53,397,965.48	220,465	$ 55,327,206.48	7,373	$ 1,847,972.17
Falkland Is Airlines	219,392	$ 55,282,700.20	222,384	$ 55,790,603.45	217,923	$ 54,609,803.48	6,832	$ 1,707,797.94
Fiji Is Airlines	134,168	$ 33,669,447.39	136,916	$ 34,335,240.26	141,506	$ 35,503,645.41	5,025	$ 1,271,894.09
France Airlines	155,086	$ 38,967,787.00	164,119	$ 41,170,318.43	162,337	$ 40,774,962.90	3,998	$ 995,395.12

- Plane type revenue when daily, monthly or yearly revenue is above 65k



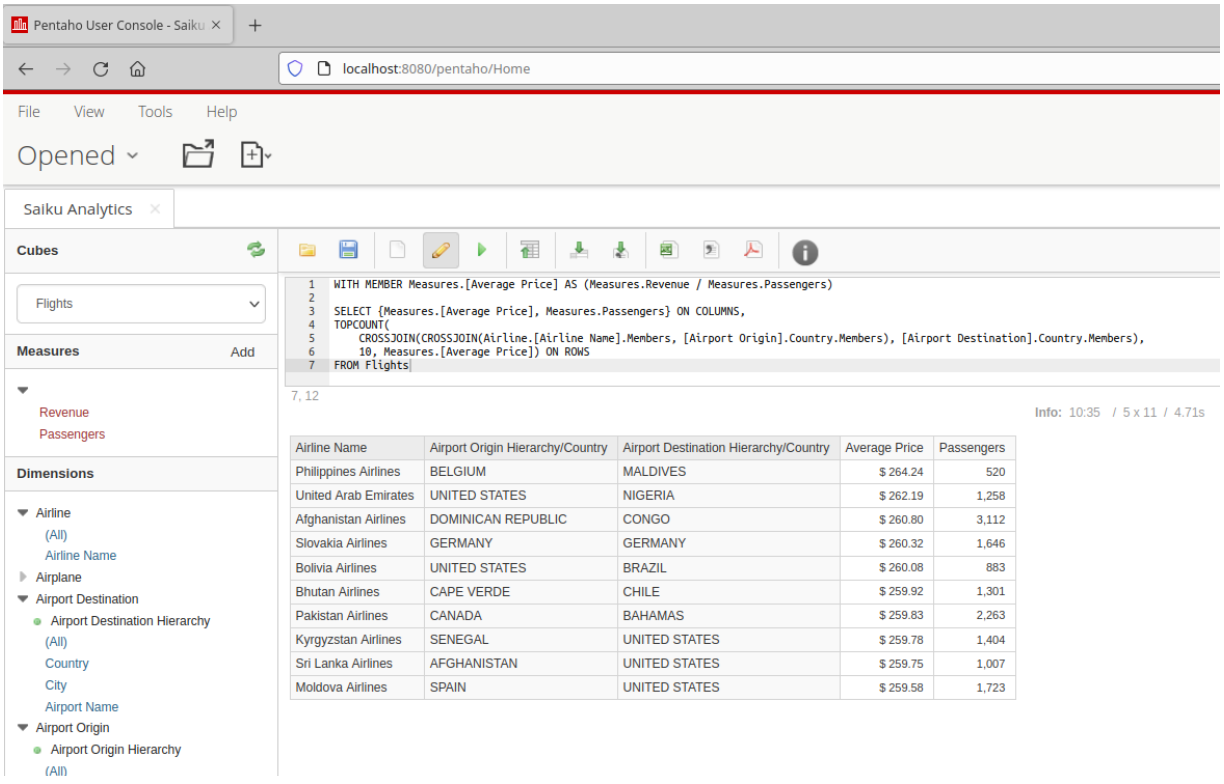
Year	Month	Day	6	18	21	38	40	41	48	60	75	228	232	301	316
2015			$ 3,127,801,422.80	$ 1,858,110,486.85	$ 1,451,949,152.05	$ 809,586,024.04	$ 319,537,992.90	$ 458,859,196.18	$ 559,574,771.31	$ 1,748,965,643.59	$ 395,580,428.00	$ 616,625,763.94	$ 220,197,745.62	$ 1,641,520,286.02	$ 421,281,643.88
	June		$ 1,019,037,381.08	$ 600,361,857.27	$ 467,502,643.21	$ 258,816,817.86	$ 103,009,731.21	$ 148,213,068.85	$ 181,038,250.44	$ 561,468,709.26	$ 127,597,680.76	$ 198,594,909.43	$ 71,161,843.83	$ 529,229,997.54	$ 136,755,850.64
		1	$ 32,417,726.78	$ 20,932,782.27	$ 16,017,834.65	$ 8,208,620.02	$ 3,241,886.72	$ 5,080,055.20	$ 6,153,727.32	$ 18,939,748.95	$ 4,317,667.98	$ 6,492,050.58	$ 2,249,194.86	$ 16,051,481.84	$ 4,707,300.02
		2	$ 34,363,707.85	$ 19,954,491.91	$ 15,451,976.29	$ 8,537,236.90	$ 3,674,748.56	$ 5,181,431.08	$ 6,089,407.27	$ 20,641,202.90	$ 4,024,798.35	$ 6,838,571.53	$ 2,580,054.22	$ 17,488,927.88	$ 4,643,560.33
		3	$ 32,611,900.21	$ 19,394,748.41	$ 15,575,702.84	$ 8,696,939.63	$ 3,637,831.17	$ 4,805,637.85	$ 5,984,552.65	$ 19,464,254.00	$ 4,415,127.81	$ 6,461,901.61	$ 2,251,685.35	$ 16,893,003.92	$ 4,628,734.60
		4	$ 34,895,190.81	$ 19,853,905.61	$ 14,617,779.58	$ 8,466,435.30	$ 3,266,336.36	$ 4,996,563.98	$ 6,264,166.29	$ 16,587,577.73	$ 4,240,067.51	$ 6,814,284.38	$ 2,482,382.63	$ 15,918,953.99	$ 4,461,762.90
		5	$ 32,532,399.40	$ 20,825,599.93	$ 15,892,491.33	$ 8,756,859.46	$ 3,471,984.71	$ 4,973,632.25	$ 6,432,445.03	$ 19,219,662.72	$ 4,287,345.22	$ 6,767,744.34	$ 2,428,374.04	$ 16,684,114.98	$ 4,427,744.40
		6	$ 34,946,739.38	$ 19,680,113.49	$ 15,335,515.45	$ 8,323,755.59	$ 3,386,532.70	$ 4,930,945.89	$ 6,320,268.45	$ 17,035,881.19	$ 4,280,078.42	$ 6,737,181.39	$ 2,327,831.04	$ 16,958,849.53	$ 4,838,370.82
		7	$ 34,163,079.60	$ 19,021,543.18	$ 14,842,362.63	$ 8,578,294.31	$ 3,678,084.97	$ 4,819,283.10	$ 6,007,847.58	$ 18,033,047.62	$ 4,185,203.30	$ 6,759,965.43	$ 2,392,210.09	$ 18,716,938.33	$ 4,920,679.28
		8	$ 34,677,978.28	$ 19,843,724.69	$ 13,646,398.12	$ 8,447,271.36	$ 3,366,030.45	$ 5,166,457.28	$ 6,110,094.26	$ 19,044,538.55	$ 4,492,270.01	$ 6,109,194.87	$ 2,164,467.13	$ 17,566,554.92	$ 4,559,031.72
		9	$ 33,318,299.40	$ 20,825,289.67	$ 15,940,953.64	$ 8,448,240.11	$ 3,334,140.74	$ 5,238,507.13	$ 6,340,957.19	$ 21,098,437.90	$ 3,961,216.44	$ 7,199,813.25	$ 2,392,533.21	$ 18,497,876.31	$ 4,543,547.83
		10	$ 34,350,553.54	$ 19,849,172.39	$ 17,273,521.88	$ 8,637,254.46	$ 3,637,720.49	$ 4,513,673.62	$ 5,835,409.53	$ 18,043,386.28	$ 4,179,490.13	$ 6,244,836.83	$ 2,431,600.13	$ 17,541,551.79	$ 4,682,716.99
		11	$ 33,114,964.13	$ 20,522,736.05	$ 15,894,309.42	$ 8,253,631.55	$ 3,263,273.39	$ 4,699,916.02	$ 5,501,964.80	$ 18,711,982.37	$ 4,021,335.47	$ 6,160,947.01	$ 2,560,825.80	$ 18,582,914.60	$ 4,499,884.80
		12	$ 37,876,763.28	$ 20,217,709.74	$ 14,849,621.57	$ 8,487,392.60	$ 3,539,142.81	$ 4,926,765.47	$ 6,047,213.87	$ 19,491,874.85	$ 4,306,398.12	$ 6,539,978.41	$ 2,343,418.06	$ 18,450,428.04	$ 4,241,388.07
		13	$ 31,174,800.43	$ 20,327,152.71	$ 16,301,412.11	$ 9,055,994.77	$ 3,459,092.28	$ 5,086,995.18	$ 5,730,953.33	$ 17,062,806.79	$ 4,449,997.01	$ 6,760,016.41	$ 2,297,666.33	$ 18,557,670.36	$ 4,709,498.40
		14	$ 31,298,660.73	$ 18,723,819.60	$ 15,036,614.44	$ 9,642,394.62	$ 3,413,888.36	$ 5,080,677.93	$ 5,737,832.18	$ 19,335,686.49	$ 4,305,898.67	$ 6,722,142.08	$ 2,336,499.23	$ 17,176,532.45	$ 5,049,767.66
		15	$ 36,597,862.93	$ 19,344,055.54	$ 14,626,303.37	$ 8,695,758.35	$ 3,322,562.18	$ 4,583,797.88	$ 6,157,731.42	$ 18,067,010.73	$ 4,535,550.82	$ 6,448,366.60	$ 2,403,815.75	$ 16,535,145.07	$ 4,461,113.41
		16	$ 32,462,190.12	$ 21,042,635.66	$ 15,959,281.82	$ 8,573,943.88	$ 3,263,131.44	$ 5,287,954.47	$ 6,501,388.47	$ 20,602,833.43	$ 4,257,555.13	$ 6,485,918.84	$ 2,401,599.16	$ 18,572,762.59	$ 4,632,900.83
		17	$ 34,597,619.58	$ 18,254,985.50	$ 16,375,888.50	$ 8,707,410.48	$ 3,445,101.20	$ 5,157,517.41	$ 5,795,526.03	$ 18,600,999.63	$ 4,515,117.45	$ 6,264,073.54	$ 2,368,962.24	$ 17,050,279.46	$ 4,204,703.25
		18	$ 37,930,966.67	$ 19,257,238.68	$ 14,986,784.33	$ 8,544,402.60	$ 3,409,816.26	$ 5,111,235.51	$ 6,028,659.71	$ 17,596,296.20	$ 4,131,267.29	$ 6,161,564.23	$ 2,358,821.25	$ 17,450,900.58	$ 3,923,874.23
		19	$ 30,825,001.83	$ 19,895,603.04	$ 16,336,397.96	$ 8,812,202.69	$ 3,712,826.82	$ 5,107,778.47	$ 5,618,438.52	$ 18,547,896.59	$ 4,181,075.97	$ 7,453,937.33	$ 2,517,426.60	$ 17,992,495.62	$ 4,228,471.53
		20	$ 35,445,428.86	$ 19,938,465.70	$ 15,245,513.74	$ 8,571,236.21	$ 3,171,719.53	$ 4,750,039.70	$ 6,030,608.12	$ 18,149,133.40	$ 4,205,767.54	$ 7,033,197.81	$ 2,352,093.45	$ 18,022,821.34	$ 4,511,939.38

Comment: Once again, we noticed that 65k was a negligible value for airports-large-extra so we decided to test the query with a much higher value that made sense (147M)



Year	Month	Day	6	18	21	38	40	41	48	60	75	228	232	301	316
2015			$ 3,127,801,422.80	$ 1,858,110,486.85	$ 1,451,949,152.05	$ 809,586,024.04	$ 319,537,992.90	$ 458,859,196.18	$ 559,574,771.31	$ 1,748,965,643.59	$ 395,580,428.00	$ 616,625,763.94	$ 220,197,745.62	$ 1,641,520,286.02	$ 421,281,643.88
	June		$ 1,019,037,381.08	$ 600,361,857.27	$ 467,502,643.21	$ 258,816,817.86	$ 103,009,731.21	$ 148,213,068.85	$ 181,038,250.44	$ 561,468,709.26	$ 127,597,680.76	$ 198,594,909.43	$ 71,161,843.83	$ 529,229,997.54	$ 136,755,850.64
		2	$ 34,363,707.85	$ 19,954,491.91	$ 15,451,976.29	$ 8,537,236.90	$ 3,674,748.56	$ 5,181,431.08	$ 6,089,407.27	$ 20,641,202.90	$ 4,024,798.35	$ 6,838,571.53	$ 2,580,054.22	$ 17,488,927.88	$ 4,643,560.33
		9	$ 33,318,299.40	$ 20,825,289.67	$ 15,940,953.64	$ 8,448,240.11	$ 3,334,140.74	$ 5,238,507.13	$ 6,340,957.19	$ 21,098,437.90	$ 3,961,216.44	$ 7,199,813.25	$ 2,392,533.21	$ 18,497,876.31	$ 4,543,547.83
		10	$ 34,350,553.54	$ 19,849,172.39	$ 17,273,521.88	$ 8,637,254.46	$ 3,637,720.49	$ 4,513,673.62	$ 5,835,409.53	$ 18,043,386.28	$ 4,179,490.13	$ 6,244,836.83	$ 2,431,600.13	$ 17,541,551.79	$ 4,682,716.99
		12	$ 37,876,763.28	$ 20,217,709.74	$ 14,849,621.57	$ 8,487,392.60	$ 3,539,142.81	$ 4,926,765.47	$ 6,047,213.87	$ 19,491,874.85	$ 4,306,398.12	$ 6,539,978.41	$ 2,343,418.06	$ 18,450,428.04	$ 4,241,388.07
		16	$ 32,462,190.12	$ 21,042,635.66	$ 15,959,281.82	$ 8,573,943.88	$ 3,263,131.44	$ 5,287,954.47	$ 6,501,388.47	$ 20,602,833.43	$ 4,257,555.13	$ 6,485,918.84	$ 2,401,599.16	$ 18,572,762.59	$ 4,632,900.83
		20	$ 35,445,428.86	$ 19,938,465.70	$ 15,245,513.74	$ 8,571,236.21	$ 3,171,719.53	$ 4,750,039.70	$ 6,030,608.12	$ 18,149,133.40	$ 4,205,767.54	$ 7,033,197.81	$ 2,352,093.45	$ 18,022,821.34	$ 4,511,939.38
		23	$ 35,469,953.55	$ 21,456,550.62	$ 15,611,402.51	$ 9,005,247.80	$ 3,198,350.38	$ 4,657,221.15	$ 5,823,728.69	$ 19,616,222.40	$ 4,431,754.73	$ 7,151,538.03	$ 2,436,739.05	$ 18,901,004.62	$ 4,627,996.73
		26	$ 34,075,734.55	$ 21,660,817.89	$ 15,882,180.02	$ 8,601,379.94	$ 3,420,617.82	$ 5,159,856.23	$ 6,103,901.19	$ 19,131,512.04	$ 4,242,510.08	$ 6,643,588.66	$ 2,253,791.16	$ 16,107,264.70	$ 4,752,002.74
		30	$ 34,846,925.54	$ 21,565,240.81	$ 15,388,991.39	$ 8,495,014.03	$ 3,476,604.48	$ 4,929,912.43	$ 6,657,874.98	$ 18,884,405.85	$ 4,045,300.40	$ 6,284,966.87	$ 2,507,332.38	$ 19,575,080.54	$ 4,764,012.82
	July		$ 1,026,096,988.89	$ 626,823,727.23	$ 481,671,380.07	$ 271,278,320.91	$ 105,780,062.56	$ 153,130,304.39	$ 186,850,154.81	$ 586,703,573.26	$ 131,584,110.14	$ 203,688,905.46	$ 73,662,835.03	$ 548,123,731.25	$ 139,666,916.08
		1	$ 34,608,321.07	$ 21,695,050.08	$ 15,130,515.90	$ 9,431,266.66	$ 3,171,876.52	$ 4,565,919.69	$ 5,793,832.50	$ 18,915,255.75	$ 4,254,669.59	$ 6,705,811.76	$ 2,379,688.89	$ 17,043,041.13	$ 4,259,029.44
		5	$ 33,467,778.88	$ 20,275,479.38	$ 16,099,327.68	$ 8,684,639.84	$ 3,455,542.36	$ 5,002,716.50	$ 5,915,557.21	$ 18,991,873.88	$ 4,080,237.42	$ 7,038,267.46	$ 2,369,200.01	$ 17,657,845.07	$ 4,426,544.18
		7	$ 33,374,985.04	$ 22,382,058.07	$ 16,208,347.97	$ 7,942,953.82	$ 3,651,820.43	$ 4,655,496.30	$ 6,307,219.91	$ 20,961,059.38	$ 4,185,473.39	$ 6,178,960.18	$ 2,399,275.01	$ 18,068,273.16	$ 4,978,959.08
		10	$ 34,717,562.23	$ 21,077,522.24	$ 16,380,699.27	$ 8,559,109.07	$ 3,289,798.33	$ 4,744,255.16	$ 5,820,157.74	$ 18,422,395.63	$ 3,995,250.39	$ 6,667,164.59	$ 2,764,033.32	$ 17,992,340.33	$ 4,517,552.97
		11	$ 35,447,610.10	$ 20,897,379.17	$ 15,888,607.07	$ 9,077,109.91	$ 3,348,818.30	$ 4,848,396.70	$ 6,083,066.95	$ 18,836,215.36	$ 4,462,287.71	$ 6,170,459.29	$ 2,261,009.64	$ 16,525,165.81	$ 4,405,974.58
		12	$ 34,437,460.77	$ 22,230,754.98	$ 15,770,462.44	$ 8,902,039.61	$ 3,196,241.98	$ 4,799,350.18	$ 6,101,472.45	$ 18,185,911.16	$ 4,104,997.31	$ 6,710,392.14	$ 2,297,655.22	$ 17,058,501.10	$ 4,741,990.91
		14	$ 33,651,943.71	$ 21,033,081.84	$ 15,415,725.10	$ 8,441,974.36	$ 3,529,321.34	$ 5,107,788.46	$ 6,473,277.79	$ 20,427,234.39	$ 4,154,795.13	$ 6,862,994.28	$ 2,594,194.83	$ 17,082,472.19	$ 4,514,538.12
		17	$ 35,458,022.36	$ 21,065,679.17	$ 14,675,324.48	$ 8,459,036.99	$ 3,360,626.71	$ 4,992,377.32	$ 6,281,510.40	$ 18,236,752.64	$ 4,167,527.32	$ 6,683,338.44	$ 2,467,805.24	$ 18,159,741.70	$ 4,696,552.47
		21	$ 32,642,307.20	$ 19,751,218.74	$ 16,270,691.53	$ 8,648,047.97	$ 3,728,566.12	$ 5,504,831.56	$ 6,726,280.12	$ 19,426,308.59	$ 4,094,783.96	$ 6,561,956.48	$ 2,382,776.45	$ 17,134,536.33	$ 4,615,482.52
		28	$ 34,771,117.07	$ 20,325,738.44	$ 17,380,886.80	$ 8,774,822.81	$ 3,673,175.01	$ 5,106,793.03	$ 5,543,836.88	$ 19,615,707.95	$ 4,240,279.14	$ 6,776,852.31	$ 2,329,894.75	$ 18,165,380.91	$ 4,734,085.07
		29	$ 34,031,355.04	$ 20,070,284.97	$ 15,658,879.93	$ 8,771,997.78	$ 3,222,179.78	$ 5,050,408.40	$ 5,995,476.03	$ 19,253,127.85	$ 4,014,575.44	$ 6,274,435.28	$ 2,344,099.51	$ 18,792,479.52	$ 4,287,193.44
		31	$ 32,127,471.59	$ 20,513,177.47	$ 15,627,916.75	$ 9,897,038.39	$ 3,261,380.66	$ 4,957,811.81	$ 5,759,587.01	$ 20,292,629.25	$ 3,990,301.72	$ 7,143,932.78	$ 2,325,717.60	$ 16,698,067.08	$ 4,832,864.01
	August		$ 1,045,038,380.34	$ 610,407,524.45	$ 487,977,381.59	$ 270,386,923.65	$ 107,204,519.81	$ 152,664,715.80	$ 185,123,943.02	$ 582,236,997.19	$ 132,179,590.72	$ 207,606,217.02	$ 72,980,786.13	$ 545,835,075.73	$ 140,327,397.66
		1	$ 38,331,315.54	$ 19,363,447.74	$ 16,206,801.99	$ 8,725,836.92	$ 3,303,831.86	$ 4,766,748.89	$ 6,156,452.34	$ 18,609,070.60	$ 3,792,123.00	$ 6,636,306.09	$ 2,469,299.27	$ 16,133,051.76	$ 4,570,311.16
		4	$ 34,139,054.49	$ 20,445,110.56	$ 16,503,101.77	$ 8,872,805.06	$ 3,537,396.80	$ 5,443,443.07	$ 6,470,104.03	$ 16,951,505.22	$ 4,541,040.69	$ 6,757,914.34	$ 2,345,138.84	$ 16,523,480.29	$ 4,806,279.71
		8	$ 33,177,201.72	$ 20,362,037.70	$ 16,061,162.78	$ 8,158,112.27	$ 3,493,708.50	$ 5,230,616.76	$ 5,770,389.51	$ 21,220,519.91	$ 4,068,866.95	$ 6,618,604.33	$ 2,307,443.74	$ 17,294,994.62	$ 4,117,562.08
		15	$ 33,529,662.63	$ 20,725,631.35	$ 16,571,746.40	$ 9,425,217.62	$ 3,417,848.57	$ 4,457,366.63	$ 5,941,687.05	$ 18,672,174.66	$ 4,461,777.92	$ 6,252,258.98	$ 2,230,245.91	$ 16,703,710.42	$ 4,693,938.36
		18	$ 31,443,892.25	$ 21,529,530.80	$ 15,274,842.97	$ 9,210,773.77	$ 3,540,634.60	$ 5,100,272.24	$ 6,249,810.91	$ 18,786,093.01	$ 4,150,722.35	$ 6,954,210.58	$ 2,437,867.97	$ 19,673,582.19	$ 4,449,927.26
		21	$ 33,584,833.63	$ 19,345,768.35	$ 15,270,838.94	$ 9,306,026.51	$ 3,340,301.98	$ 4,680,704.38	$ 5,886,468.45	$ 19,760,879.76	$ 4,393,108.30	$ 6,915,810.43	$ 2,608,931.48	$ 18,001,793.34	$ 4,388,484.48
		25	$ 34,449,267.47	$ 20,341,554.41	$ 17,234,063.77	$ 9,630,323.43	$ 3,590,739.02	$ 4,854,954.43	$ 5,859,253.82	$ 19,121,743.45	$ 4,336,321.67	$ 6,250,603.97	$ 2,412,340.89	$ 17,874,417.31	$ 4,808,316.78
		26	$ 34,920,019.08	$ 19,543,415.05	$ 15,494,525.19	$ 8,450,907.98	$ 3,167,357.62	$ 4,875,856.38	$ 6,011,258.49	$ 18,697,401.10	$ 4,374,601.59	$ 6,737,553.25	$ 2,156,836.27	$ 18,870,954.86	$ 4,648,516.25
		29	$ 35,121,335.84	$ 20,195,517.39	$ 14,599,364.74	$ 7,896,209.93	$ 3,290,371.56	$ 5,173,470.58	$ 5,865,322.28	$ 18,801,561.24	$ 4,200,583.77	$ 6,575,615.33	$ 2,285,904.26	$ 18,272,761.17	$ 4,925,625.18
		30	$ 33,837,753.04	$ 19,396,816.15	$ 16,752,628.23	$ 9,083,809.26	$ 3,540,147.54	$ 4,957,646.47	$ 6,007,363.48	$ 18,648,245.50	$ 4,446,447.45	$ 6,651,260.00	$ 2,168,104.05	$ 17,150,211.97	$ 4,390,190.10
	September		$ 37,628,672.49	$ 20,517,377.90	$ 14,797,747.18	$ 9,103,961.62	$ 3,543,679.32	$ 4,851,107.14	$ 6,562,423.04	$ 18,556,363.88	$ 4,219,046.38	$ 6,735,732.03	$ 2,392,280.63	$ 18,331,481.50	$ 4,531,479.50
		1	$ 37,628,672.49	$ 20,517,377.90	$ 14,797,747.18	$ 9,103,961.62	$ 3,543,679.32	$ 4,851,107.14	$ 6,562,423.04	$ 18,556,363.88	$ 4,219,046.38	$ 6,735,732.03	$ 2,392,280.63	$ 18,331,481.50	$ 4,531,479.50

- Top 10 routes with the highest average price per person and their information (airline, origin and destination countries, average price and total of passengers)



Airline Name	Airport Origin Hierarchy/Country	Airport Destination Hierarchy/Country	Average Price	Passengers
Philippines Airlines	BELGIUM	MALDIVES	$ 264.24	520
United Arab Emirates	UNITED STATES	NIGERIA	$ 262.19	1,258
Afghanistan Airlines	DOMINICAN REPUBLIC	CONGO	$ 260.80	3,112
Slovakia Airlines	GERMANY	GERMANY	$ 260.32	1,646
Bolivia Airlines	UNITED STATES	BRAZIL	$ 260.08	883
Bhutan Airlines	CAPE VERDE	CHILE	$ 259.92	1,301
Pakistan Airlines	CANADA	BAHAMAS	$ 259.83	2,263
Kyrgyzstan Airlines	SENEGAL	UNITED STATES	$ 259.78	1,404
Sri Lanka Airlines	AFGHANISTAN	UNITED STATES	$ 259.75	1,007
Moldova Airlines	SPAIN	UNITED STATES	$ 259.58	1,723

95638 - Martim Santos
96839 - António Marques

Final Observations:

- We decided to create only one table for airports and time since we tried to minimize the data redundancy and optimize the Insert/Update operations.
- We noticed that if we took advantage of SQL statements in the Table Inputs (paragraph b.), the performance was enhanced quite significantly, especially on the larger databases. After trying different methods, the usage of too many PDI steps proved to negatively affect the efficiency.
- The larger databases were slower to load. The airports-large-extra took an average time of 38 minutes and 25 seconds to populate the Data Warehouse! The queries on both these larger Data Warehouse were also significantly slower, as shown in the screenshots.
- In the queries, we can observe that:
    - As expected, the revenue and numbers of passengers by airline and month change significantly with the size of the dataset (the bigger databases store more flights)
    - The revenue threshold that we established for the smaller dataset needed to be changed for the larger ones in order for the query to have meaning. Larger datasets have increased revenue.
    - The average price of the most expensive routes does not vary a lot while the total number of passengers/customers do.