

Project Report

1. Data Warehouse SQL Instructions

```
DROP DATABASE IF EXISTS airports_dw;

CREATE DATABASE airports_dw;

USE airports_dw;

CREATE TABLE dim_airport_origin (
    airport_id INT,
    city varchar(50),
    country varchar(50),
    airport_name VARCHAR(255),
    PRIMARY KEY (airport_id)
);

CREATE TABLE dim_airport_destination (
    airport_id INT,
    city varchar(50),
    country varchar(50),
    airport_name VARCHAR(255),
    PRIMARY KEY (airport_id)
);

CREATE TABLE dim_departure_date (
    departure_id DATETIME,
    year_id INT,
    month_id INT,
    month_name VARCHAR(255),
    departure_day INT,
```

```

        PRIMARY KEY (departure_id)
);

CREATE TABLE dim_arrival_date (
    arrival_id DATETIME,
    year_id INT,
    month_id INT,
    month_name VARCHAR(255),
    arrival_day INT,
    PRIMARY KEY (arrival_id)
);

CREATE TABLE dim_airline (
    airline_id INT,
    airline_name VARCHAR(255),
    PRIMARY KEY (airline_id)
);

CREATE TABLE dim_airplane (
    airplane_id INT,
    type_id INT,
    PRIMARY KEY (airplane_id)
);

CREATE TABLE fact_flight (
    flight_id INT,
    from_airport INT,
    to_airport INT,
    departure_id DATETIME,
    arrival_id DATETIME,
    airline_id INT,
    airplane_id INT,
    total_passengers INT,
    revenue DOUBLE,
    PRIMARY KEY (flight_id),
    FOREIGN KEY (from_airport) REFERENCES dim_airport_origin (airport_id),
    FOREIGN KEY (to_airport) REFERENCES dim_airport_destination (airport_id),
    FOREIGN KEY (departure_id) REFERENCES dim_departure_date (departure_id),
    FOREIGN KEY (arrival_id) REFERENCES dim_arrival_date (arrival_id),
    FOREIGN KEY (airline_id) REFERENCES dim_airline (airline_id),
    FOREIGN KEY (airplane_id) REFERENCES dim_airplane (airplane_id)
);

```

2. Transformations Developed in PDI

dim_airline transformation

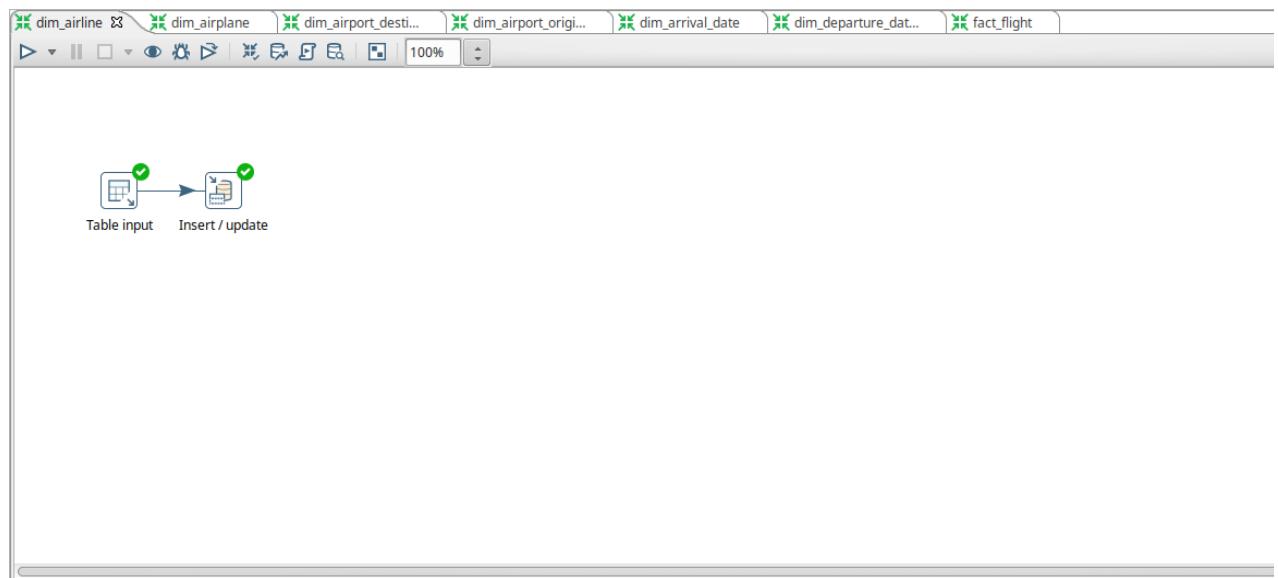


Image 1. Screenshot of entire Transformation

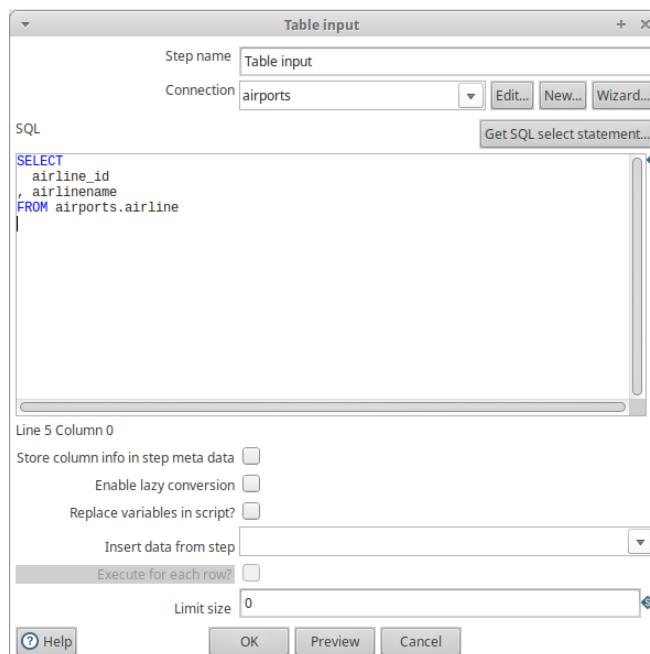


Image 2. Configuration window of Table Input

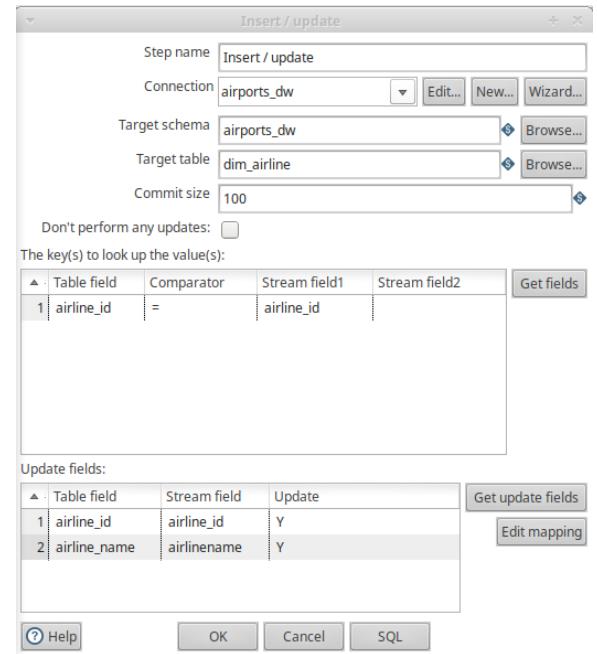


Image 3. Configuration window of Insert/Update

Examine preview data

Rows of step: Table input (14 rows)

	airline_id	airlinename
1	13	Bulgaria Airlines
2	18	Croatia Airlines
3	20	Cyprus Airlines
4	21	Czech Airlines
5	23	Denmark Airlines
6	31	Estonia Airlines
7	35	France Airlines
8	40	Greece Airlines
9	44	Hungary Airlines
10	49	Italy Airlines
11	63	Luxembourg Airlines
12	77	Poland Airlines
13	87	Slovakia Airlines
14	89	Spain Airlines

Close

Image 4. Preview window of Table Input

Examine preview data

Rows of step: Insert / update (14 rows)

	airline_id	airlinename
1	13	Bulgaria Airlines
2	18	Croatia Airlines
3	20	Cyprus Airlines
4	21	Czech Airlines
5	23	Denmark Airlines
6	31	Estonia Airlines
7	35	France Airlines
8	40	Greece Airlines
9	44	Hungary Airlines
10	49	Italy Airlines
11	63	Luxembourg Airlines
12	77	Poland Airlines
13	87	Slovakia Airlines
14	89	Spain Airlines

Close

Image 5. Preview window of Insert/Update

dim_airplane transformation

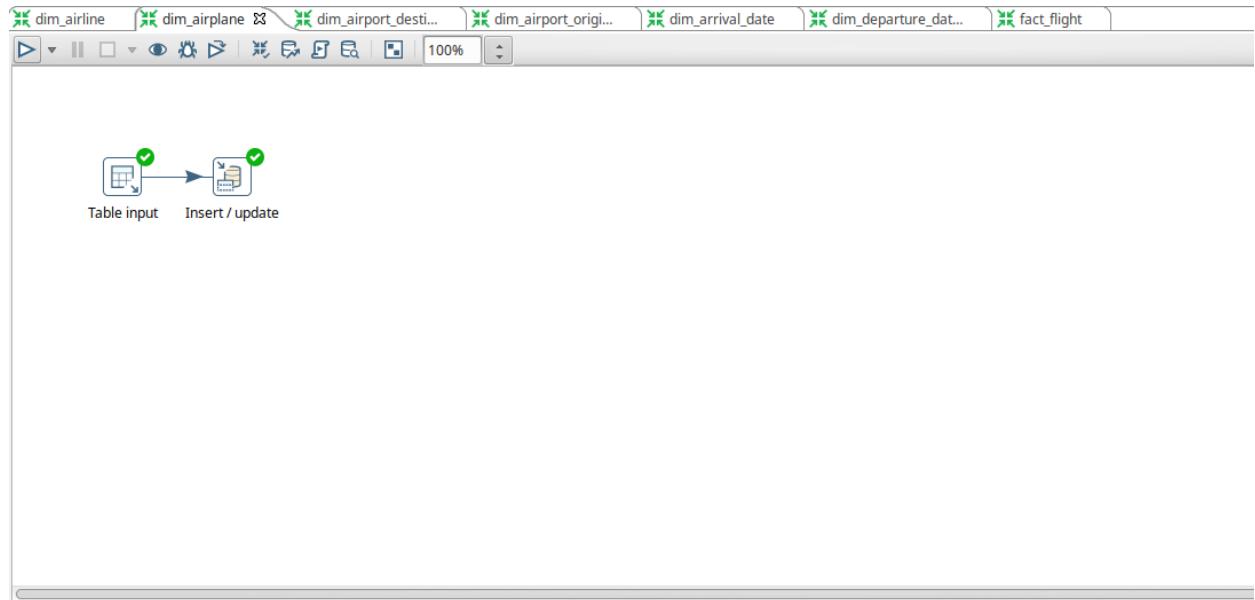


Image 6. Screenshot of entire Transformation

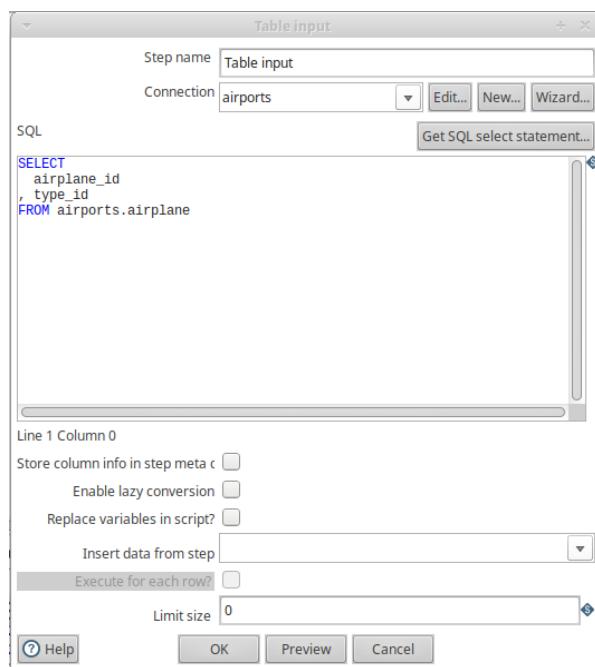


Image 7. Configuration window of Table Input

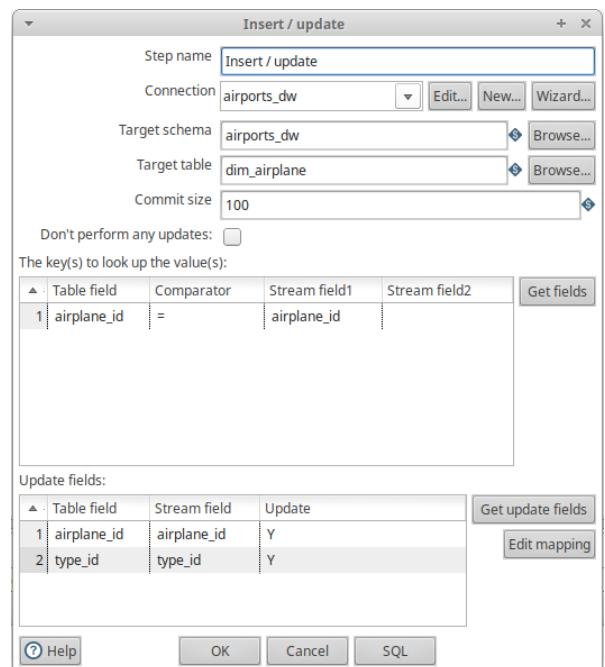


Image 8. Configuration window of Insert/Update

Rows of step: Table input (410 rows)		Close
▲	airplane_id	type_id
1	1	228
2	2	38
3	3	60
4	4	232
5	5	21
6	6	48
7	7	41
8	9	40
9	10	41
10	11	60
11	12	6
12	13	232
13	14	232
14	15	21
15	17	316
16	18	232
17	19	228
18	93	21
19	94	40
20	96	60
21	97	228
22	103	40
23	105	6
24	106	75
25	108	228
26	111	6
27	112	228

Image 9. Preview window of Table Input

Rows of step: Insert / update (410 rows)		Close
▲	airplane_id	type_id
1	1	228
2	2	38
3	3	60
4	4	232
5	5	21
6	6	48
7	7	41
8	9	40
9	10	41
10	11	60
11	12	6
12	13	232
13	14	232
14	15	21
15	17	316
16	18	232
17	19	228
18	93	21
19	94	40
20	96	60
21	97	228
22	103	40
23	105	6
24	106	75
25	108	228
26	111	6
27	112	228

Image 10. Preview window of Insert/Update

dim_airport_destination transformation

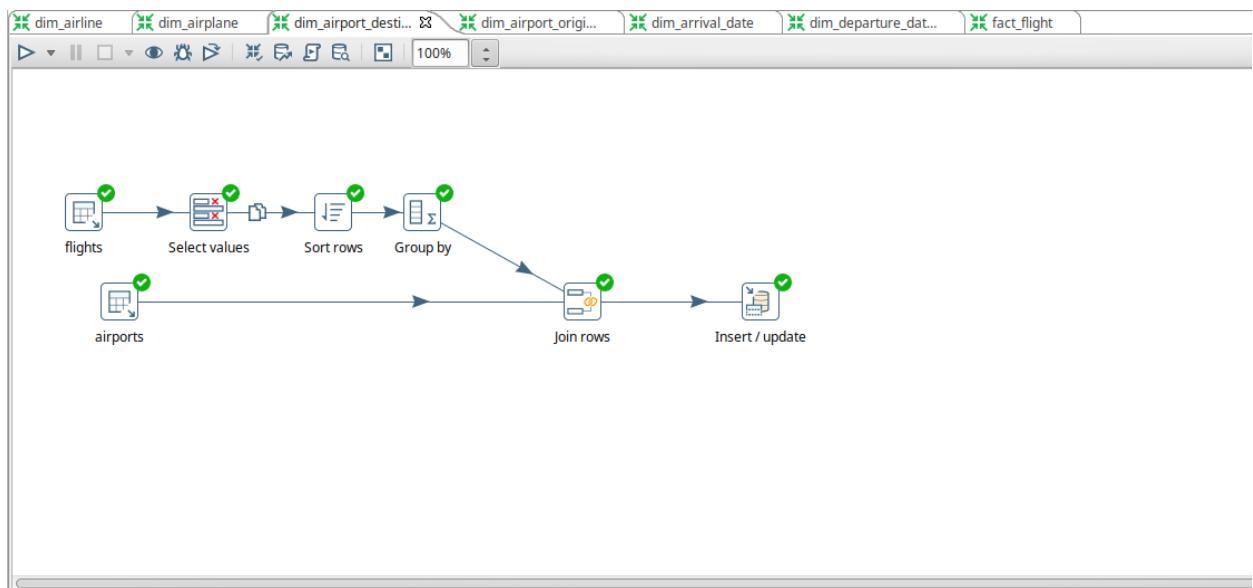


Image 11. Screenshot of entire Transformation

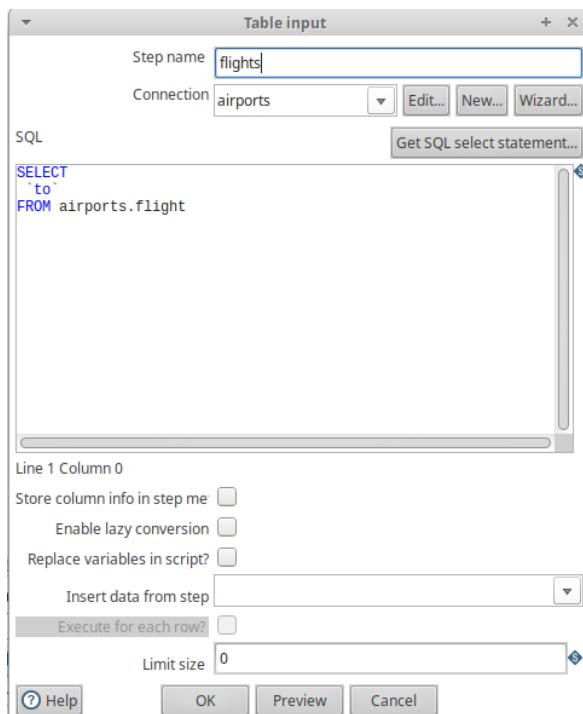


Image 12. Configuration window of Table Input flights

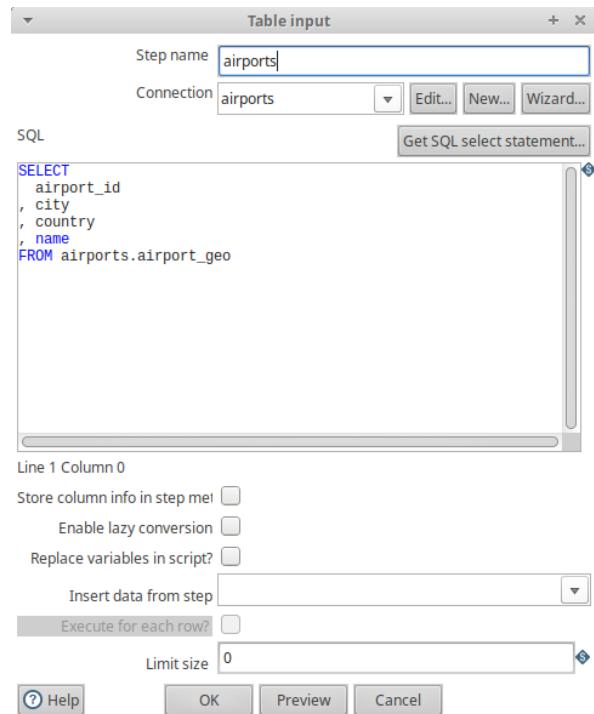


Image 13. Configuration window of Table Input airports

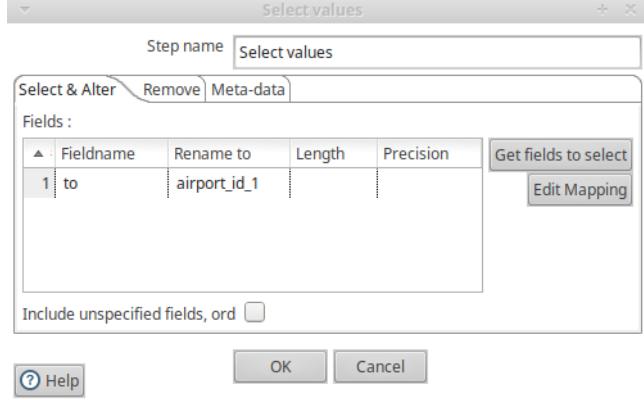


Image 14. Configuration window of Select Values

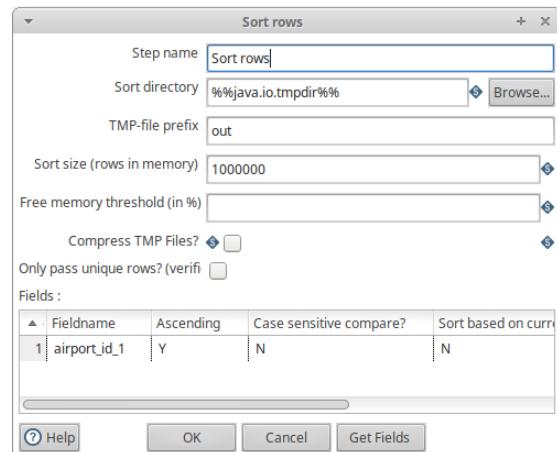


Image 15. Configuration window of Sort Rows

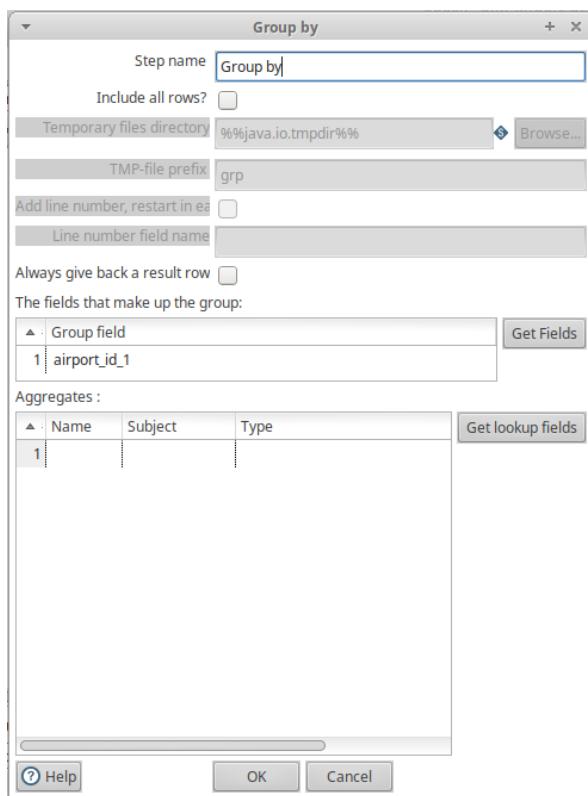


Image 16. Configuration window of Group By

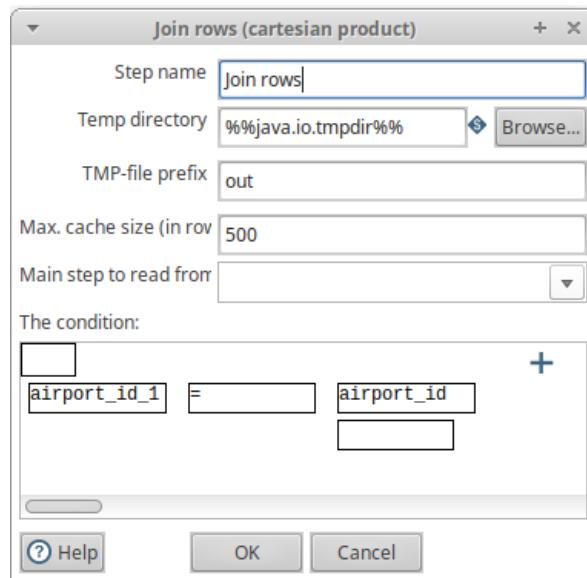


Image 17. Configuration window of Join Rows

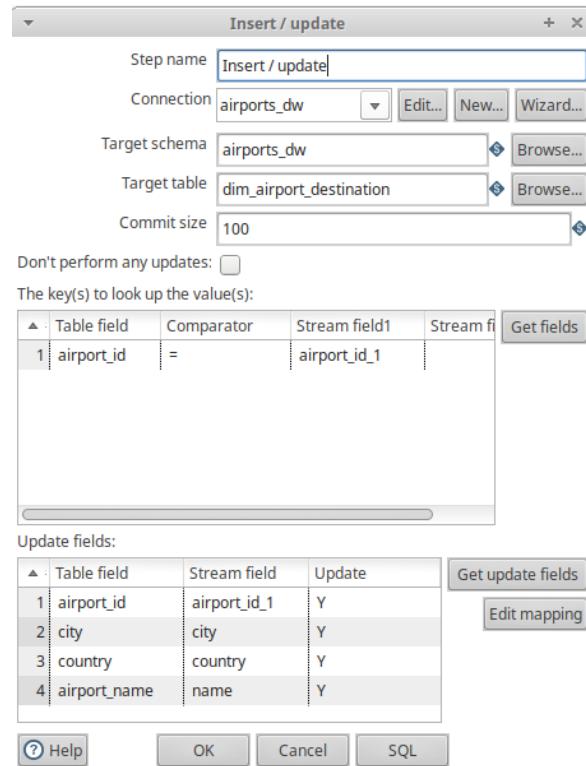


Image 18. Configuration window of Insert/Update

Rows of step: flights (1000 rows)		Examine preview data
1		to 23
2		23
3		23
4		23
5		23
6		23
7		23
8		23
9		23
10		748
11		748
12		748
13		748
14		748
15		748
16		748
17		748
18		748
19		748
20		748
21		748
22		748
23		748
24		748
25		748
26		748
27		748

Image 19. Preview window of Table Input flights

Rows of step: airports (105 rows)

	airport_id	city	country	name
1	1	A CORUNA	SPAIN	A CORUNA
2	7	AALBORG	DENMARK	AALBORG
3	23	ABBEYSHRULE	IRELAND	ABBEYSHRULE
4	111	AGRINION	GREECE	AGRINION AB
5	146	CHAMBERY	FRANCE	ADX-LES-BAINS
6	168	AKROTIRI	CYPRUS	AKROTIRI AB
7	197	ALBENGA	ITALY	ALBENGA
8	319	ALVERCA	PORUGAL	ALVERCA AB
9	732	ZIELONA GORA	POLAND	BABIMOST
10	748	BAD DURKHEIM	GERMANY	BAD DURKHEIM
11	815	SARMELLEK	HUNGARY	BALATON
12	1085	ST AFRIQUE	FRANCE	BELMONT
13	1241	BIRR	IRELAND	BIRR
14	1286	BLAUBEUREN	GERMANY	BLAUBEUREN
15	1343	BOHUNOVICE	CZECH	BOHUNOVICE
16	1508	BRASSCHAAT	BELGIUM	BRASSCHAAT ARMY
17	1552	BRILON/ HOCHSAUERLAND	GERMANY	BRILON/ HOCHSAUERLAND
18	1572	LYON	FRANCE	BRON
19	1595	BROUMOV	CZECH	BROUMOV
20	1624	BUCKEBURG	GERMANY	BUCKEBURG ARMY
21	1674	BURGAS	BULGARIA	BURGAS
22	1810	CAMERI	ITALY	CAMERI MIL
23	1978	CARPI BUDRIONE	ITALY	CARPI BUDRIONE
24	2163	REIMS	FRANCE	CHAMPAGNE AB
25	2373	DUBROVNIK	CROATIA	CILIP
26	2556	ST FLOUR	FRANCE	COLTINES
27	3708	COTTBUS	GERMANY	COTTBUS ARMY

Image 20. Preview window of Table Input airports

Rows of step: Select values (1000 rows)

	airport_id_1
1	23
2	23
3	23
4	23
5	23
6	23
7	23
8	23
9	23
10	748
11	748
12	748
13	748
14	748
15	748
16	748
17	748
18	748
19	748
20	748
21	748
22	748
23	748
24	748
25	748
26	748
27	748

Image 21. Preview window of Select Values

Rows of step: Sort rows (1000 rows)	
▲	airport_id_1
1	23
2	23
3	23
4	23
5	23
6	23
7	23
8	23
9	23
10	748
11	748
12	748
13	748
14	748
15	748
16	748
17	748
18	748
19	748
20	748
21	748
22	748
23	748
24	748
25	748
26	748
..	748

[Close](#) [Stop](#) [Get more rows](#)

Image 22. Preview window of Sort Rows

Rows of step: Group by (46 rows)	
▲	airport_id_1
1	23
2	748
3	1241
4	1286
5	1343
6	1508
7	1552
8	1810
9	2163
10	2867
11	3074
12	3796
13	3805
14	4430
15	5024
16	6002
17	6258
18	6405
19	6429
20	6537
21	6751
22	6866
23	6908
24	6973
25	7908
26	8143
..	9766

[Close](#)

Image 23. Preview window of Group By

	airport_id	city	country	name	airport_id_1
1	23	ABBEYSHRULE	IRELAND	ABBEYSHRULE	23
2	748	BAD DURKHEIM	GERMANY	BAD DURKHEIM	748
3	1241	BIRR	IRELAND	BIRR	1241
4	1286	BLAUBEUREN	GERMANY	BLAUBEUREN	1286
5	1343	BOHUNOVICE	CZECH	BOHUNOVICE	1343
6	1508	BRASSCHAAT	BELGIUM	BRASCHAAT ARMY	1508
7	1552	BRILON/ HOCHSAUERLAND	GERMANY	BRILON/ HOCHSAUERLAND	1552
8	1810	CAMERI	ITALY	CAMERI MIL	1810
9	2163	REIMS	FRANCE	CHAMPAGNE AB	2163
10	2867	DACHAU-GROBENRIED	GERMANY	DACHAU-GROBENRIED	2867
11	3074	DESSAU	GERMANY	DESSAU	3074
12	3796	FARO	PORTUGAL	FARO	3796
13	3805	FAYENCE	FRANCE	FAYENCE	3805
14	4430	RIESA	GERMANY	GOHLIS	4430
15	5024	HEIDELBERG	GERMANY	HEIDELBERG AAF	5024
16	6002	KATRINEHOLM	SWEDEN	KATRINEHOLM	6002
17	6258	KIVIJARVI	FINLAND	KIVIJARVI	6258
18	6405	KUOPPIO	FINLAND	KUOPPIO	6405
19	6429	KYRITZ	GERMANY	KYRITZ	6429
20	6537	LAESO	DENMARK	LAESO	6537
21	6751	LE LUC	FRANCE	LE CANNET ARMY	6751
22	6866	NANGIS	FRANCE	LES LOGES	6866
23	6908	LIBEREC	CZECH	LIBEREC	6908
24	6973	GRIMBERGEN	BELGIUM	LINT	6973
25	7908	OSTROW WIELKOPOLSKI	POLAND	MICHALKOW	7908
26	8143	MONTDIDIÉ	FRANCE	MONTDIDIÉ	8143
27	9266	MORTAGNE AU PERCHE	FRANCE	MORTAGNE AU PERCHE	9266

Close

Image 24. Preview window of Join Rows

	airport_id	city	country	name	airport_id_1
1	23	ABBEYSHRULE	IRELAND	ABBEYSHRULE	23
2	748	BAD DURKHEIM	GERMANY	BAD DURKHEIM	748
3	1241	BIRR	IRELAND	BIRR	1241
4	1286	BLAUBEUREN	GERMANY	BLAUBEUREN	1286
5	1343	BOHUNOVICE	CZECH	BOHUNOVICE	1343
6	1508	BRASSCHAAT	BELGIUM	BRASCHAAT ARMY	1508
7	1552	BRILON/ HOCHSAUERLAND	GERMANY	BRILON/ HOCHSAUERLAND	1552
8	1810	CAMERI	ITALY	CAMERI MIL	1810
9	2163	REIMS	FRANCE	CHAMPAGNE AB	2163
10	2867	DACHAU-GROBENRIED	GERMANY	DACHAU-GROBENRIED	2867
11	3074	DESSAU	GERMANY	DESSAU	3074
12	3796	FARO	PORTUGAL	FARO	3796
13	3805	FAYENCE	FRANCE	FAYENCE	3805
14	4430	RIESA	GERMANY	GOHLIS	4430
15	5024	HEIDELBERG	GERMANY	HEIDELBERG AAF	5024
16	6002	KATRINEHOLM	SWEDEN	KATRINEHOLM	6002
17	6258	KIVIJARVI	FINLAND	KIVIJARVI	6258
18	6405	KUOPPIO	FINLAND	KUOPPIO	6405
19	6429	KYRITZ	GERMANY	KYRITZ	6429
20	6537	LAESO	DENMARK	LAESO	6537
21	6751	LE LUC	FRANCE	LE CANNET ARMY	6751
22	6866	NANGIS	FRANCE	LES LOGES	6866
23	6908	LIBEREC	CZECH	LIBEREC	6908
24	6973	GRIMBERGEN	BELGIUM	LINT	6973
25	7908	OSTROW WIELKOPOLSKI	POLAND	MICHALKOW	7908
26	8143	MONTDIDIÉ	FRANCE	MONTDIDIÉ	8143
27	9266	MORTAGNE AU PERCHE	FRANCE	MORTAGNE AU PERCHE	9266

Close

Image 25. Preview window of Insert/Update

dim_airport_origin transformation

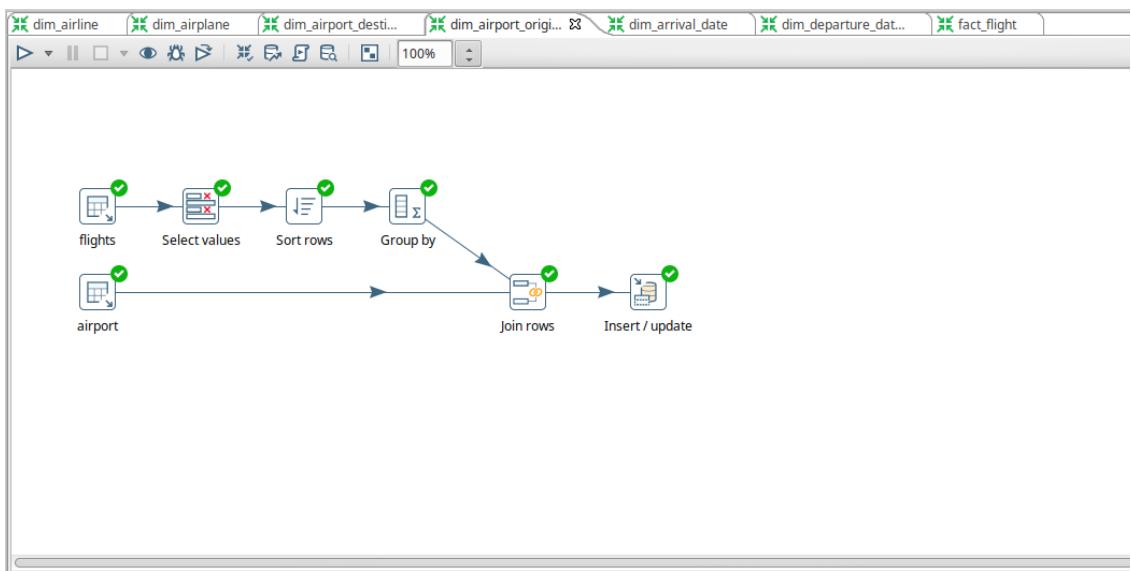


Image 26. Screenshot of entire Transformation

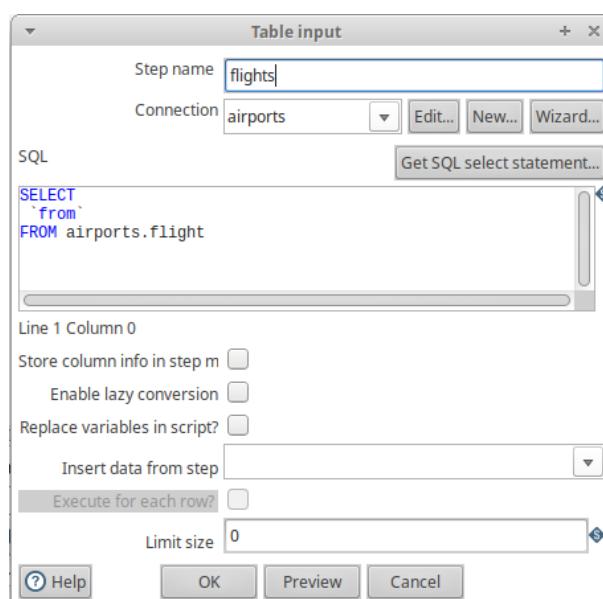


Image 27. Configuration window of Table Input flights

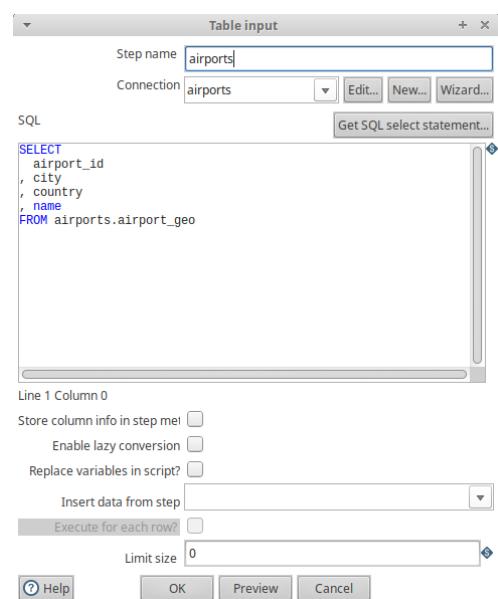


Image 28. Configuration window of Table Input airport

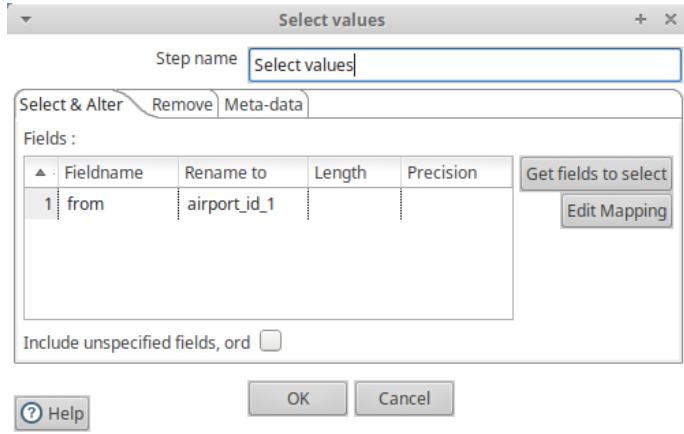


Image 29. Configuration window of Table Select Values

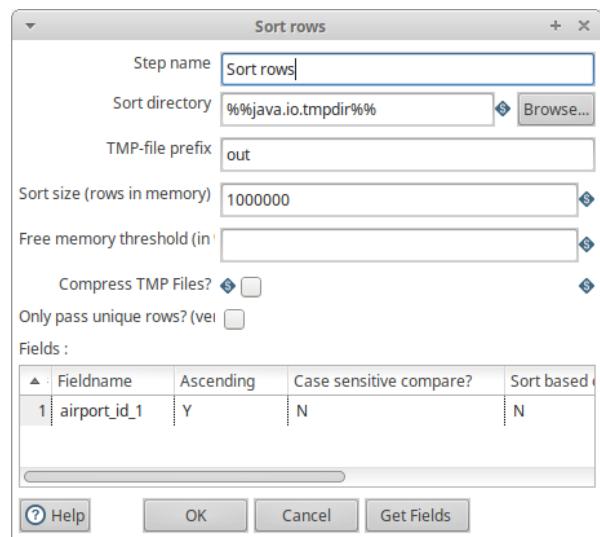


Image 30. Configuration window of Sort Rows

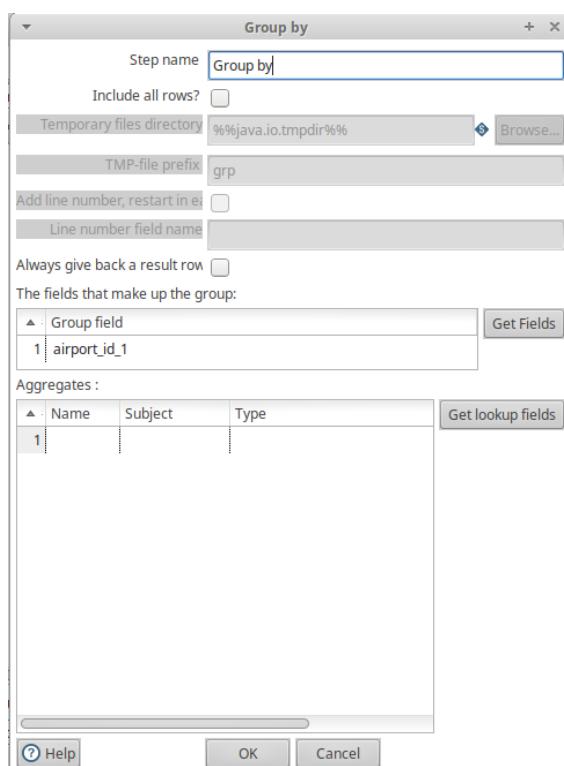


Image 31. Configuration window of Group By

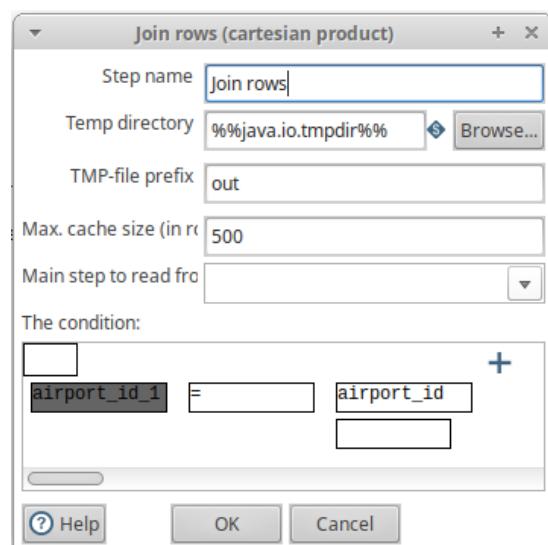


Image 32. Configuration window of Join Rows

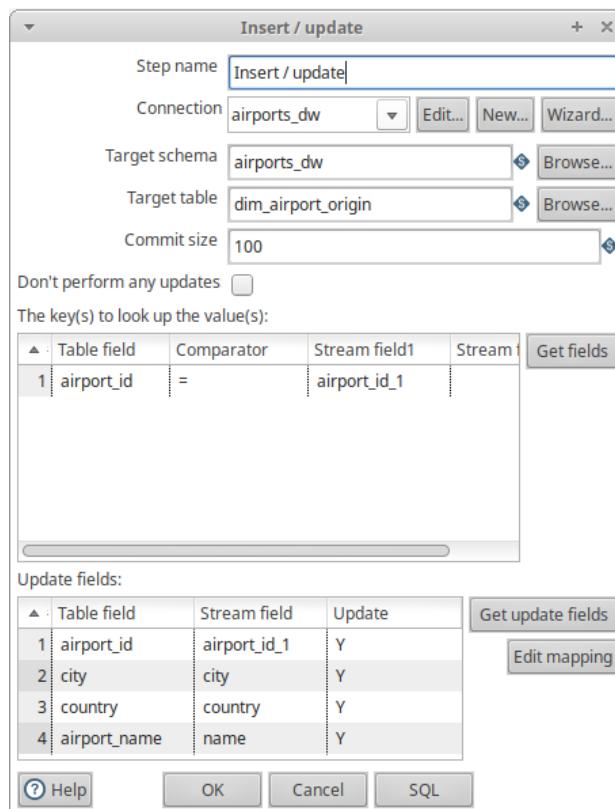


Image 33. Configuration window of Insert/Update

Rows of step: flights (1000 rows)	
1	from 319
2	319
3	319
4	319
5	319
6	319
7	319
8	319
9	319
10	319
11	319
12	319
13	319
14	319
15	319
16	319
17	319
18	319
19	319
20	319
21	319
22	319
23	319
24	319
25	319
26	319
77	319

Image 34. Preview window of Table Input flights

Rows of step: airport (105 rows)

	airport_id	city	country	name
1	1	A CORUNA	SPAIN	A CORUNA
2	7	AALBORG	DENMARK	AALBORG
3	23	ABBEYSHRULE	IRELAND	ABBEYSHRULE
4	111	AGRINION	GREECE	AGRINION AB
5	146	CHAMBERY	FRANCE	AIX-LES-BAINS
6	168	AKROTIRI	CYPRUS	AKROTIRI AB
7	197	ALBENGA	ITALY	ALENGA
8	319	ALVERCA	PORUGAL	ALVERCA AB
9	732	ZIELONA GORA	POLAND	BABIMOST
10	748	BAD DURKHEIM	GERMANY	BAD DURKHEIM
11	815	SARMELEK	HUNGARY	BALATON
12	1085	ST AFRIQUE	FRANCE	BELMONT
13	1241	BIRR	IRELAND	BIRR
14	1286	BLAUBEUREN	GERMANY	BLAUBEUREN
15	1343	BOHUNOVICE	CZECH	BOHUNOVICE
16	1508	BRASSCHAAT	BELGIUM	BRASSCHAAT ARMY
17	1552	BRILON/ HOCHSAUERLAND	GERMANY	BRILON/ HOCHSAUERLAND
18	1572	LYON	FRANCE	BRON
19	1595	BROUMOV	CZECH	BROUMOV
20	1624	BUCKEBURG	GERMANY	BUCKEBURG ARMY
21	1674	BURGAS	BULGARIA	BURGAS
22	1810	CAMERI	ITALY	CAMERI MIL
23	1978	CARPI BUDRONE	ITALY	CARPI BUDRONE
24	2163	REIMS	FRANCE	CHAMPAGNE AB
25	2373	DUBROVNIK	CROATIA	CILIP
26	2556	ST FLOUR	FRANCE	COLTINES
27	2709	COTTBUS	GERMANY	COTTBUS ARMY

Image 35. Preview window of Table Input airports

Rows of step: Select values (1000 rows)

	airport_id_1
1	319
2	319
3	319
4	319
5	319
6	319
7	319
8	319
9	319
10	319
11	319
12	319
13	319
14	319
15	319
16	319
17	319
18	319
19	319
20	319
21	319
22	319
23	319
24	319
25	319
26	319

Image 36. Preview window of Select Values

Rows of step: Sort rows (1000 rows)	
1	319
2	319
3	319
4	319
5	319
6	319
7	319
8	319
9	319
10	319
11	319
12	319
13	319
14	319
15	319
16	319
17	319
18	319
19	319
20	319
21	319
22	319
23	319
24	319
25	319
26	319
27	319

Image 37. Preview window of Sort Rows

Rows of step: Group by (47 rows)	
1	319
2	1085
3	1572
4	1595
5	1624
6	1978
7	2556
8	2708
9	3420
10	3574
11	3764
12	3887
13	4725
14	4762
15	5164
16	5985
17	6213
18	6372
19	6379
20	6482
21	6537
22	6558
23	6750
24	6850
25	7232
26	7611
27	7954

Image 38. Preview window of Group By

Rows of step: Join rows (47 rows)				airport_id_1	
	airport_id	city	country	name	airport_id_1
1	319	ALVERCA	PORTUGAL	ALVERCA AB	319
2	1085	ST AFRIQUE	FRANCE	BELMONT	1085
3	1572	LYON	FRANCE	BRON	1572
4	1595	BROUMOV	CZECH	BROUMOV	1595
5	1624	BUCKEBURG	GERMANY	BUCKEBURG ARMY	1624
6	1978	CARPI BUDRIONE	ITALY	CARPI BUDRIONE	1978
7	2556	ST FLOUR	FRANCE	COLTINES	2556
8	2708	COTTBUS	GERMANY	COTTBUS ARMY	2708
9	3420	EICHSTATT	GERMANY	EICHSTATT	3420
10	3574	ELZ	GERMANY	ELZ	3574
11	3764	FALKOPING	SWEDEN	FALKOPING	3764
12	3887	ROME	ITALY	FIUMICINO	3887
13	4725	GUIDONIA	ITALY	GUIDONIA MIL	4725
14	4762	GUTTIN	GERMANY	GUTTIN	4762
15	5164	HOF-PLAUE	GERMANY	HOF-PLAUE	5164
16	5985	KASTELORIZO	GREECE	KASTELORIZO	5985
17	6213	KIRCHDORF/INN	GERMANY	KIRCHDORF/INN	6213
18	6372	KROMERIZ	CZECH	KROMERIZ	6372
19	6379	WLOCLAWEK	POLAND	KRUSZYN	6379
20	6482	LA MONTAGNE NOIRE	FRANCE	LA MONTAGNE NOIRE	6482
21	6537	LAESO	DENMARK	LAESO	6537
22	6558	LAICHINGEN	GERMANY	LAICHINGEN	6558
23	6750	ISSOIRE	FRANCE	LE BROC	6750
24	6850	LEON	SPAIN	LEON	6850
25	7232	CONSTANTA	ROMANIA	M. KOGALNICEANU	7232
26	7611	KIELCE	POLAND	MASLOW	7611
27	7854	BORDEAUX	FRANCE	MEDIGNAAC	7854

Close

Image 39. Preview window of Join Rows

Rows of step: Insert / update (47 rows)					
	airport_id	city	country	name	airport_id_1
1	319	ALVERCA	PORTUGAL	ALVERCA AB	319
2	1085	ST AFRIQUE	FRANCE	BELMONT	1085
3	1572	LYON	FRANCE	BRON	1572
4	1595	BROUMOV	CZECH	BROUMOV	1595
5	1624	BUCKEBURG	GERMANY	BUCKEBURG ARMY	1624
6	1978	CARPI BUDRIONE	ITALY	CARPI BUDRIONE	1978
7	2556	ST FLOUR	FRANCE	COLTINES	2556
8	2708	COTTBUS	GERMANY	COTTBUS ARMY	2708
9	3420	EICHSTATT	GERMANY	EICHSTATT	3420
10	3574	ELZ	GERMANY	ELZ	3574
11	3764	FALKOPING	SWEDEN	FALKOPING	3764
12	3887	ROME	ITALY	FIUMICINO	3887
13	4725	GUIDONIA	ITALY	GUIDONIA MIL	4725
14	4762	GUTTIN	GERMANY	GUTTIN	4762
15	5164	HOF-PLAUE	GERMANY	HOF-PLAUE	5164
16	5985	KASTELORIZO	GREECE	KASTELORIZO	5985
17	6213	KIRCHDORF/INN	GERMANY	KIRCHDORF/INN	6213
18	6372	KROMERIZ	CZECH	KROMERIZ	6372
19	6379	WLOCLAWEK	POLAND	KRUSZYN	6379
20	6482	LA MONTAGNE NOIRE	FRANCE	LA MONTAGNE NOIRE	6482
21	6537	LAESO	DENMARK	LAESO	6537
22	6558	LAICHINGEN	GERMANY	LAICHINGEN	6558
23	6750	ISSOIRE	FRANCE	LE BROC	6750
24	6850	LEON	SPAIN	LEON	6850
25	7232	CONSTANTA	ROMANIA	M. KOGALNICEANU	7232
26	7611	KIELCE	POLAND	MASLOW	7611
27	7854	BORDEAUX	FRANCE	MEDIGNAAC	7854

Close

Image 40. Preview window of Insert/Update

dim_arrival_date transformation

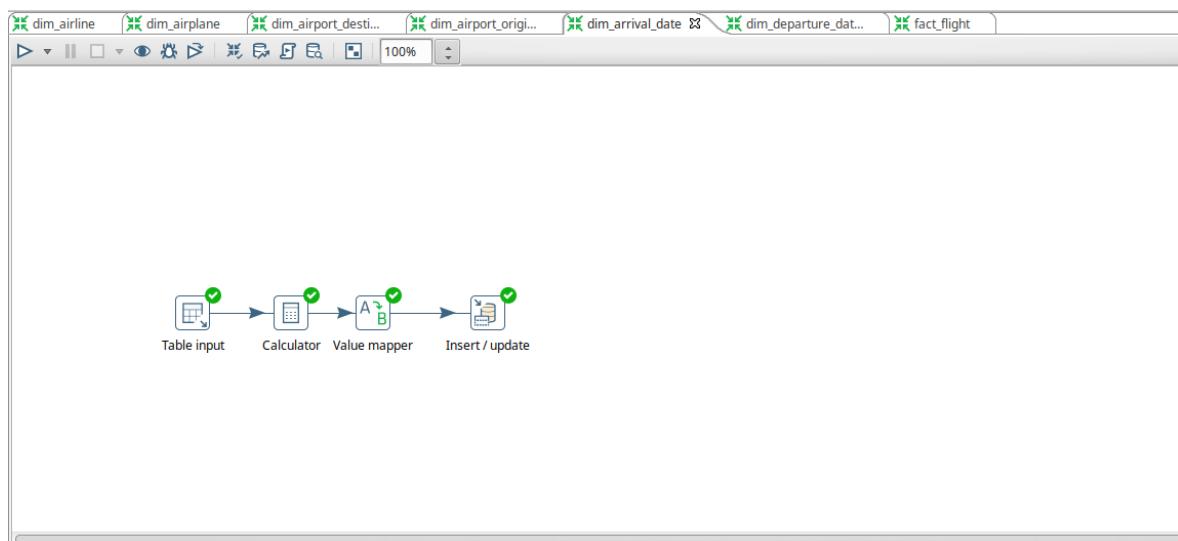


Image 41. Screenshot of entire Transformation

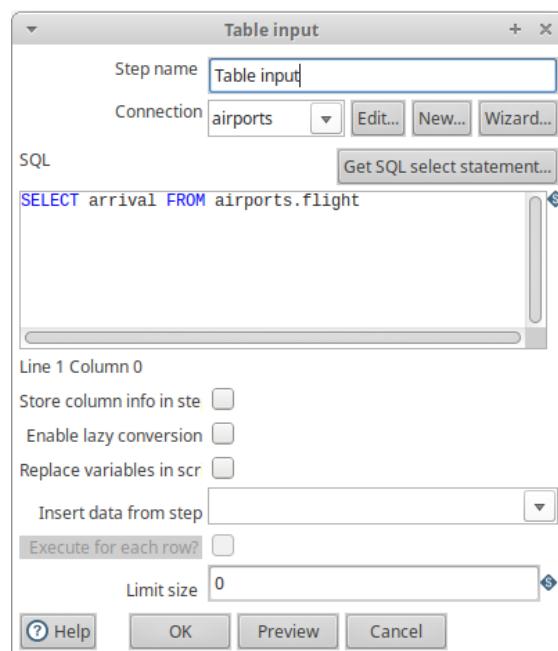


Image 42. Configuration window of Table Input

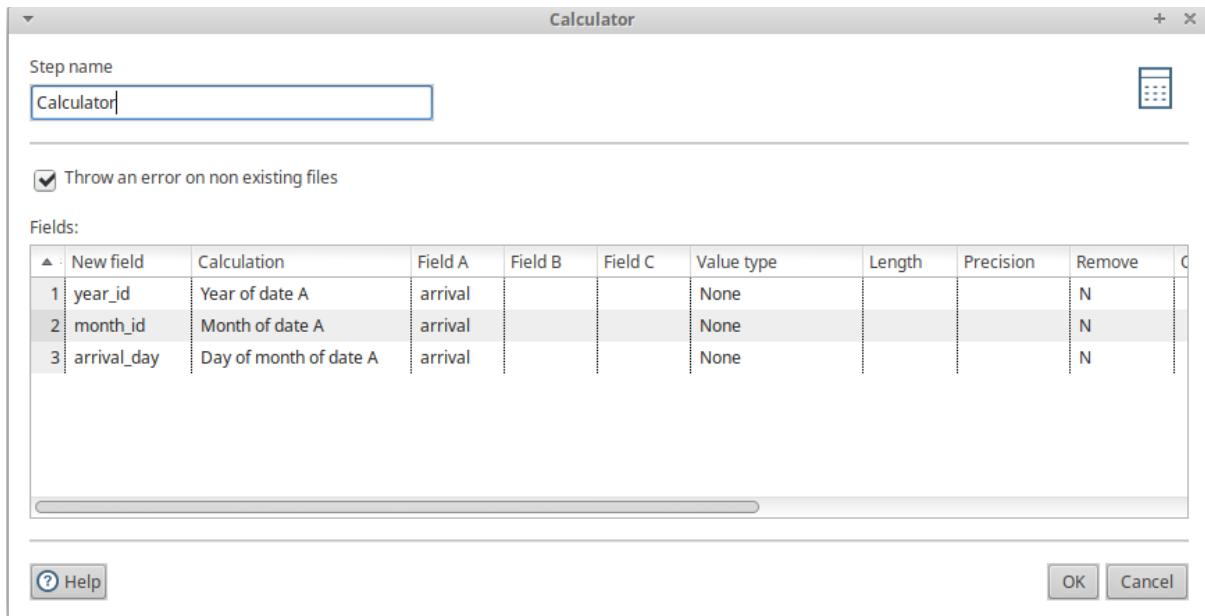


Image 43. Configuration window of Calculator

Value mapper: Step name is 'Value mapper'. Fieldname to use is 'month_id'. Target field name is 'month_name'. The 'Field values' table maps month IDs to names:

Source value	Target value
1	Jan
2	Feb
3	Mar
4	Apr
5	May
6	Jun
7	Jul
8	Aug
9	Sep
10	Oct
11	Nov
12	Dec

Insert / update: Step name is 'Insert / update'. Connection is 'airports_dw'. Target schema is 'airports_dw'. Target table is 'dim_arrival_date'. Commit size is 100. The 'The key(s) to look up the value(s):' table shows a mapping for 'arrival_id':

Table field	Comparator	Stream field1	Stream field2	Get fields
arrival_id	=	arrival		

The 'Update fields' table lists fields to be updated:

Table field	Stream field	Update	Get update fields
arrival_id	arrival	Y	
year_id	year_id	Y	
month_id	month_id	Y	
arrival_day	arrival_day	Y	
month_name	month_name	Y	

Image 44. Configuration window of Value Mapper

Image 45. Configuration window of Insert/Update

Rows of step: Table input (1000 rows)	
▲	arrival
1	2015/06/01 03:19:00.000000000
2	2015/06/01 03:23:00.000000000
3	2015/06/01 04:56:00.000000000
4	2015/06/01 08:16:00.000000000
5	2015/06/01 08:22:00.000000000
6	2015/06/01 08:59:00.000000000
7	2015/06/01 09:11:00.000000000
8	2015/06/01 14:11:00.000000000
9	2015/06/01 16:41:00.000000000
10	2015/06/01 17:39:00.000000000
11	2015/06/01 19:09:00.000000000
12	2015/06/01 19:27:00.000000000
13	2015/06/01 21:18:00.000000000
14	2015/06/01 22:20:00.000000000
15	2015/06/01 22:26:00.000000000
16	2015/06/02 01:24:00.000000000
17	2015/06/02 02:57:00.000000000
18	2015/06/02 03:19:00.000000000
19	2015/06/02 03:23:00.000000000
20	2015/06/02 08:14:00.000000000
21	2015/06/02 08:16:00.000000000
22	2015/06/02 08:22:00.000000000
23	2015/06/02 08:41:00.000000000
24	2015/06/02 10:25:00.000000000
25	2015/06/02 10:49:00.000000000
26	2015/06/02 11:24:00.000000000
77	2015/06/02 11:38:00.000000000

Image 46. Preview window of Table Input

Rows of step: Calculator (1000 rows)				
	arrival	year_id	month_id	arrival_day
1	2015/06/01 03:19:00.000000000	2015	6	1
2	2015/06/01 03:23:00.000000000	2015	6	1
3	2015/06/01 04:56:00.000000000	2015	6	1
4	2015/06/01 08:16:00.000000000	2015	6	1
5	2015/06/01 08:22:00.000000000	2015	6	1
6	2015/06/01 08:59:00.000000000	2015	6	1
7	2015/06/01 09:11:00.000000000	2015	6	1
8	2015/06/01 14:11:00.000000000	2015	6	1
9	2015/06/01 16:41:00.000000000	2015	6	1
10	2015/06/01 17:39:00.000000000	2015	6	1
11	2015/06/01 19:09:00.000000000	2015	6	1
12	2015/06/01 19:27:00.000000000	2015	6	1
13	2015/06/01 21:18:00.000000000	2015	6	1
14	2015/06/01 22:20:00.000000000	2015	6	1
15	2015/06/01 22:26:00.000000000	2015	6	1
16	2015/06/02 01:24:00.000000000	2015	6	2
17	2015/06/02 02:57:00.000000000	2015	6	2
18	2015/06/02 03:19:00.000000000	2015	6	2
19	2015/06/02 03:23:00.000000000	2015	6	2
20	2015/06/02 08:14:00.000000000	2015	6	2
21	2015/06/02 08:16:00.000000000	2015	6	2
22	2015/06/02 08:22:00.000000000	2015	6	2
23	2015/06/02 08:41:00.000000000	2015	6	2
24	2015/06/02 10:25:00.000000000	2015	6	2
25	2015/06/02 10:49:00.000000000	2015	6	2
26	2015/06/02 11:24:00.000000000	2015	6	2
77	2015/06/02 11:38:00.000000000	2015	6	2

Image 47. Preview window of Calculator

Rows of step: Value mapper (1000 rows)				
▲ arrival	year_id	month_id	arrival_day	month_name
1 2015/06/01 03:19:00.000000000	2015	6	1	Jun
2 2015/06/01 03:23:00.000000000	2015	6	1	Jun
3 2015/06/01 04:56:00.000000000	2015	6	1	Jun
4 2015/06/01 08:16:00.000000000	2015	6	1	Jun
5 2015/06/01 08:22:00.000000000	2015	6	1	Jun
6 2015/06/01 08:59:00.000000000	2015	6	1	Jun
7 2015/06/01 09:11:00.000000000	2015	6	1	Jun
8 2015/06/01 14:11:00.000000000	2015	6	1	Jun
9 2015/06/01 16:41:00.000000000	2015	6	1	Jun
10 2015/06/01 17:39:00.000000000	2015	6	1	Jun
11 2015/06/01 19:09:00.000000000	2015	6	1	Jun
12 2015/06/01 19:27:00.000000000	2015	6	1	Jun
13 2015/06/01 21:18:00.000000000	2015	6	1	Jun
14 2015/06/01 22:20:00.000000000	2015	6	1	Jun
15 2015/06/01 22:26:00.000000000	2015	6	1	Jun
16 2015/06/02 01:24:00.000000000	2015	6	2	Jun
17 2015/06/02 02:57:00.000000000	2015	6	2	Jun
18 2015/06/02 03:19:00.000000000	2015	6	2	Jun
19 2015/06/02 03:23:00.000000000	2015	6	2	Jun
20 2015/06/02 08:14:00.000000000	2015	6	2	Jun
21 2015/06/02 08:16:00.000000000	2015	6	2	Jun
22 2015/06/02 08:22:00.000000000	2015	6	2	Jun
23 2015/06/02 08:41:00.000000000	2015	6	2	Jun
24 2015/06/02 10:25:00.000000000	2015	6	2	Jun
25 2015/06/02 10:49:00.000000000	2015	6	2	Jun
26 2015/06/02 11:24:00.000000000	2015	6	2	Jun
27 2015/06/02 11:29:00.000000000	2015	6	2	Jun

Image 48. Preview window of Value Mapper

Rows of step: Insert / update (1000 rows)				
▲ arrival	year_id	month_id	arrival_day	month_name
1 2015/06/01 03:19:00.000000000	2015	6	1	Jun
2 2015/06/01 03:23:00.000000000	2015	6	1	Jun
3 2015/06/01 04:56:00.000000000	2015	6	1	Jun
4 2015/06/01 08:16:00.000000000	2015	6	1	Jun
5 2015/06/01 08:22:00.000000000	2015	6	1	Jun
6 2015/06/01 08:59:00.000000000	2015	6	1	Jun
7 2015/06/01 09:11:00.000000000	2015	6	1	Jun
8 2015/06/01 14:11:00.000000000	2015	6	1	Jun
9 2015/06/01 16:41:00.000000000	2015	6	1	Jun
10 2015/06/01 17:39:00.000000000	2015	6	1	Jun
11 2015/06/01 19:09:00.000000000	2015	6	1	Jun
12 2015/06/01 19:27:00.000000000	2015	6	1	Jun
13 2015/06/01 21:18:00.000000000	2015	6	1	Jun
14 2015/06/01 22:20:00.000000000	2015	6	1	Jun
15 2015/06/01 22:26:00.000000000	2015	6	1	Jun
16 2015/06/02 01:24:00.000000000	2015	6	2	Jun
17 2015/06/02 02:57:00.000000000	2015	6	2	Jun
18 2015/06/02 03:19:00.000000000	2015	6	2	Jun
19 2015/06/02 03:23:00.000000000	2015	6	2	Jun
20 2015/06/02 08:14:00.000000000	2015	6	2	Jun
21 2015/06/02 08:16:00.000000000	2015	6	2	Jun
22 2015/06/02 08:22:00.000000000	2015	6	2	Jun
23 2015/06/02 08:41:00.000000000	2015	6	2	Jun
24 2015/06/02 10:25:00.000000000	2015	6	2	Jun
25 2015/06/02 10:49:00.000000000	2015	6	2	Jun
26 2015/06/02 11:24:00.000000000	2015	6	2	Jun
27 2015/06/02 11:29:00.000000000	2015	6	2	Jun

Image 49. Preview window of Insert/Update

dim_departure_date transformation

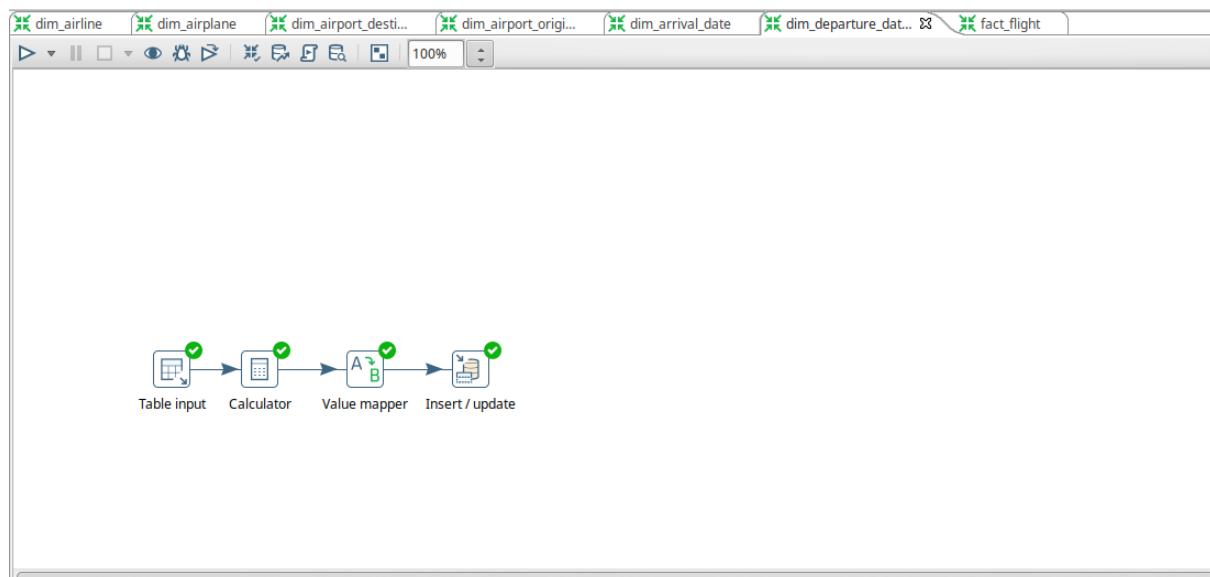


Image 50. Screenshot of entire Transformation

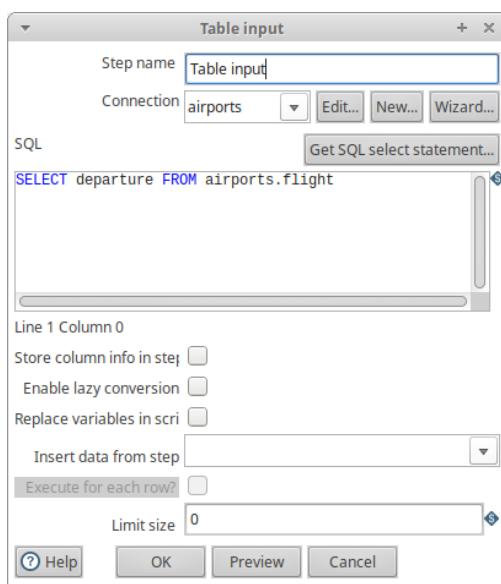


Image 51. Configuration window of Table Input

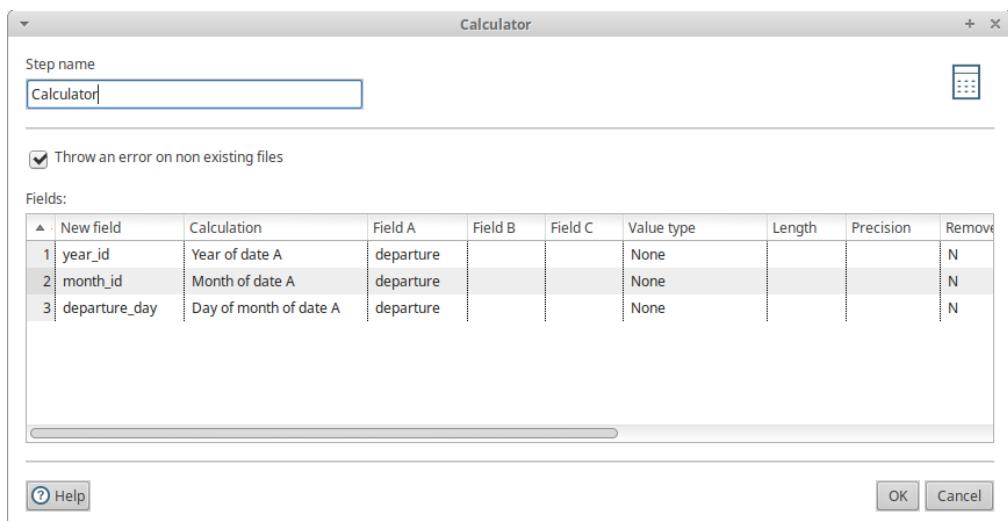


Image 52. Configuration window of Calculator

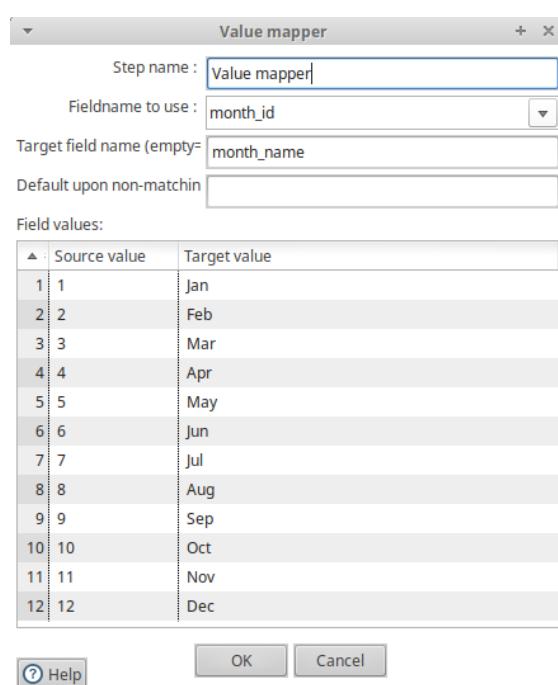


Image 53. Configuration window of Value Mapper

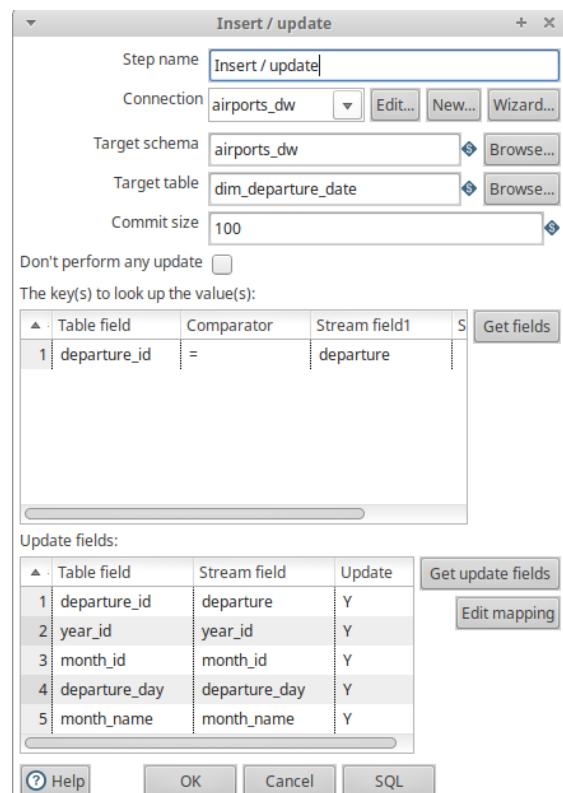


Image 54. Configuration window of Insert/Update

Rows of step: Table input (1000 rows)	
▲	departure
1	2015/06/01 01:26:00.000000000
2	2015/06/01 03:04:00.000000000
3	2015/06/01 03:04:00.000000000
4	2015/06/01 07:26:00.000000000
5	2015/06/01 07:35:00.000000000
6	2015/06/01 08:02:00.000000000
7	2015/06/01 08:44:00.000000000
8	2015/06/01 13:35:00.000000000
9	2015/06/01 14:23:00.000000000
10	2015/06/01 15:28:00.000000000
11	2015/06/01 17:31:00.000000000
12	2015/06/01 18:45:00.000000000
13	2015/06/01 19:51:00.000000000
14	2015/06/01 20:23:00.000000000
15	2015/06/01 21:16:00.000000000
16	2015/06/01 22:50:00.000000000
17	2015/06/02 01:16:00.000000000
18	2015/06/02 01:26:00.000000000
19	2015/06/02 03:04:00.000000000
20	2015/06/02 06:05:00.000000000
21	2015/06/02 07:15:00.000000000
22	2015/06/02 08:02:00.000000000
23	2015/06/02 08:06:00.000000000
24	2015/06/02 08:15:00.000000000
25	2015/06/02 08:20:00.000000000
26	2015/06/02 08:44:00.000000000
77	2015/06/03 10:37:00.000000000

Image 55. Preview window of Table Input

Rows of step: Calculator (1000 rows)				
	departure	year_id	month_id	departure_day
1	2015/06/01 01:26:00.000000000	2015	6	1
2	2015/06/01 03:04:00.000000000	2015	6	1
3	2015/06/01 03:04:00.000000000	2015	6	1
4	2015/06/01 07:26:00.000000000	2015	6	1
5	2015/06/01 07:35:00.000000000	2015	6	1
6	2015/06/01 08:02:00.000000000	2015	6	1
7	2015/06/01 08:44:00.000000000	2015	6	1
8	2015/06/01 13:35:00.000000000	2015	6	1
9	2015/06/01 14:23:00.000000000	2015	6	1
10	2015/06/01 15:28:00.000000000	2015	6	1
11	2015/06/01 17:31:00.000000000	2015	6	1
12	2015/06/01 18:45:00.000000000	2015	6	1
13	2015/06/01 19:51:00.000000000	2015	6	1
14	2015/06/01 20:23:00.000000000	2015	6	1
15	2015/06/01 21:16:00.000000000	2015	6	1
16	2015/06/01 22:50:00.000000000	2015	6	1
17	2015/06/02 01:16:00.000000000	2015	6	2
18	2015/06/02 01:26:00.000000000	2015	6	2
19	2015/06/02 03:04:00.000000000	2015	6	2
20	2015/06/02 06:05:00.000000000	2015	6	2
21	2015/06/02 07:15:00.000000000	2015	6	2
22	2015/06/02 08:02:00.000000000	2015	6	2
23	2015/06/02 08:06:00.000000000	2015	6	2
24	2015/06/02 08:15:00.000000000	2015	6	2
25	2015/06/02 08:20:00.000000000	2015	6	2
26	2015/06/02 08:44:00.000000000	2015	6	2
77	2015/06/03 10:37:00.000000000	2015	6	2

Image 56. Preview window of Calculator

Rows of step: Value mapper (1000 rows)				
▲ departure	year_id	month_id	departure_day	month_name
1 2015/06/01 01:26:00.000000000	2015	6	1 Jun	
2 2015/06/01 03:04:00.000000000	2015	6	1 Jun	
3 2015/06/01 03:04:00.000000000	2015	6	1 Jun	
4 2015/06/01 07:26:00.000000000	2015	6	1 Jun	
5 2015/06/01 07:35:00.000000000	2015	6	1 Jun	
6 2015/06/01 08:02:00.000000000	2015	6	1 Jun	
7 2015/06/01 08:44:00.000000000	2015	6	1 Jun	
8 2015/06/01 13:35:00.000000000	2015	6	1 Jun	
9 2015/06/01 14:23:00.000000000	2015	6	1 Jun	
10 2015/06/01 15:28:00.000000000	2015	6	1 Jun	
11 2015/06/01 17:31:00.000000000	2015	6	1 Jun	
12 2015/06/01 18:45:00.000000000	2015	6	1 Jun	
13 2015/06/01 19:51:00.000000000	2015	6	1 Jun	
14 2015/06/01 20:23:00.000000000	2015	6	1 Jun	
15 2015/06/01 21:16:00.000000000	2015	6	1 Jun	
16 2015/06/01 22:50:00.000000000	2015	6	1 Jun	
17 2015/06/02 01:16:00.000000000	2015	6	2 Jun	
18 2015/06/02 01:26:00.000000000	2015	6	2 Jun	
19 2015/06/02 03:04:00.000000000	2015	6	2 Jun	
20 2015/06/02 06:05:00.000000000	2015	6	2 Jun	
21 2015/06/02 07:15:00.000000000	2015	6	2 Jun	
22 2015/06/02 08:02:00.000000000	2015	6	2 Jun	
23 2015/06/02 08:06:00.000000000	2015	6	2 Jun	
24 2015/06/02 08:15:00.000000000	2015	6	2 Jun	
25 2015/06/02 08:20:00.000000000	2015	6	2 Jun	
26 2015/06/02 08:44:00.000000000	2015	6	2 Jun	
27 2015/06/02 10:27:00.000000000	2015	6	2 Jun	

Image 57. Preview window of Value Mapper

Rows of step: Insert / update (1000 rows)				
▲ departure	year_id	month_id	departure_day	month_name
1 2015/06/01 01:26:00.000000000	2015	6	1 Jun	
2 2015/06/01 03:04:00.000000000	2015	6	1 Jun	
3 2015/06/01 03:04:00.000000000	2015	6	1 Jun	
4 2015/06/01 07:26:00.000000000	2015	6	1 Jun	
5 2015/06/01 07:35:00.000000000	2015	6	1 Jun	
6 2015/06/01 08:02:00.000000000	2015	6	1 Jun	
7 2015/06/01 08:44:00.000000000	2015	6	1 Jun	
8 2015/06/01 13:35:00.000000000	2015	6	1 Jun	
9 2015/06/01 14:23:00.000000000	2015	6	1 Jun	
10 2015/06/01 15:28:00.000000000	2015	6	1 Jun	
11 2015/06/01 17:31:00.000000000	2015	6	1 Jun	
12 2015/06/01 18:45:00.000000000	2015	6	1 Jun	
13 2015/06/01 19:51:00.000000000	2015	6	1 Jun	
14 2015/06/01 20:23:00.000000000	2015	6	1 Jun	
15 2015/06/01 21:16:00.000000000	2015	6	1 Jun	
16 2015/06/01 22:50:00.000000000	2015	6	1 Jun	
17 2015/06/02 01:16:00.000000000	2015	6	2 Jun	
18 2015/06/02 01:26:00.000000000	2015	6	2 Jun	
19 2015/06/02 03:04:00.000000000	2015	6	2 Jun	
20 2015/06/02 06:05:00.000000000	2015	6	2 Jun	
21 2015/06/02 07:15:00.000000000	2015	6	2 Jun	
22 2015/06/02 08:02:00.000000000	2015	6	2 Jun	
23 2015/06/02 08:06:00.000000000	2015	6	2 Jun	
24 2015/06/02 08:15:00.000000000	2015	6	2 Jun	
25 2015/06/02 08:20:00.000000000	2015	6	2 Jun	
26 2015/06/02 08:44:00.000000000	2015	6	2 Jun	
27 2015/06/02 10:27:00.000000000	2015	6	2 Jun	

Image 58. Preview window of Insert/Update

fact_flight transformation

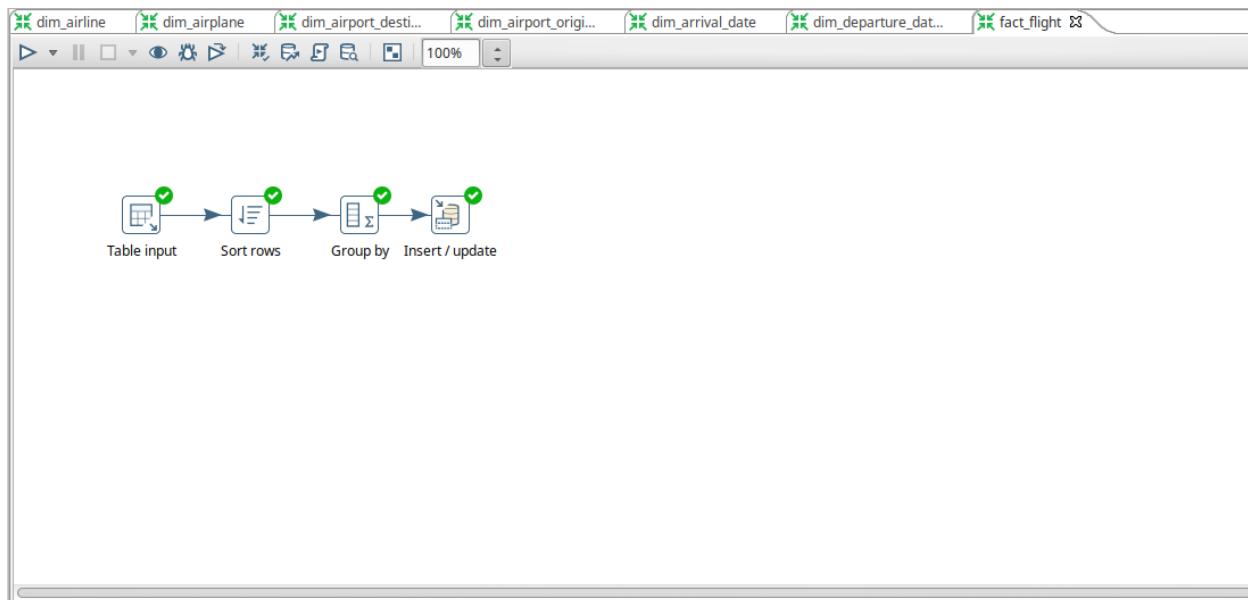


Image 59 . Screenshot of entire Transformation

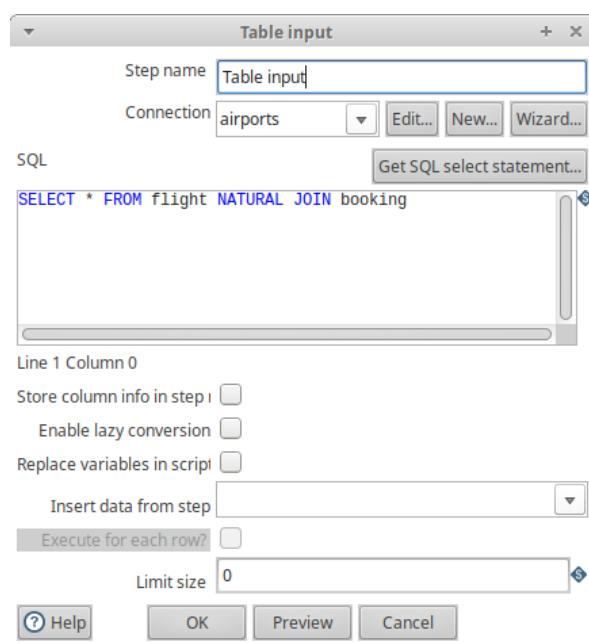


Image 60. Configuration window of Table Input

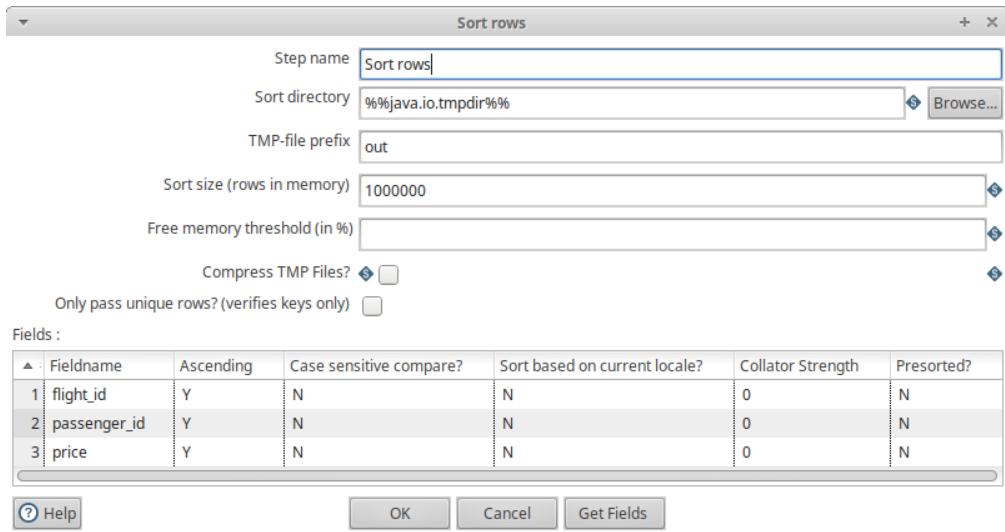


Image 61. Configuration window of Sort Rows

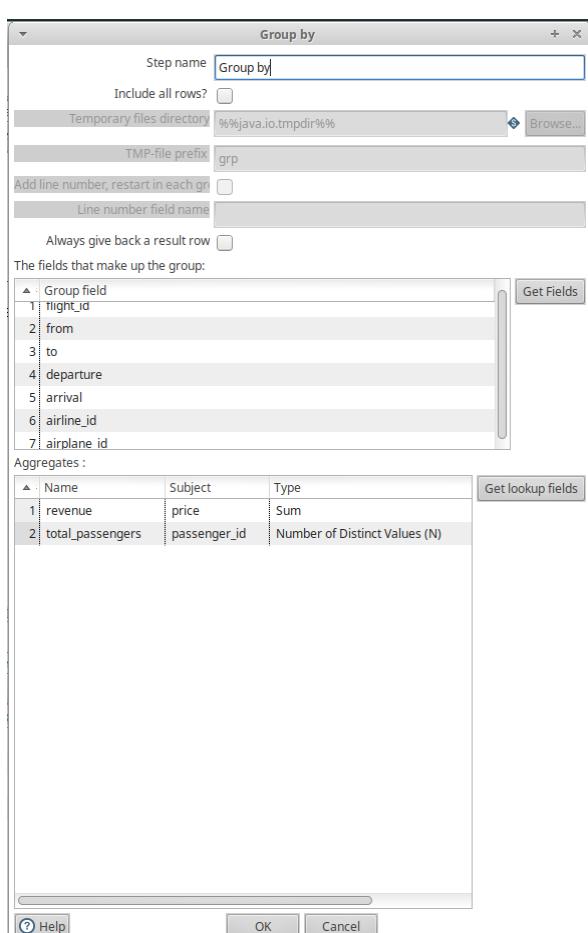


Image 62 . Configuration window of Group By

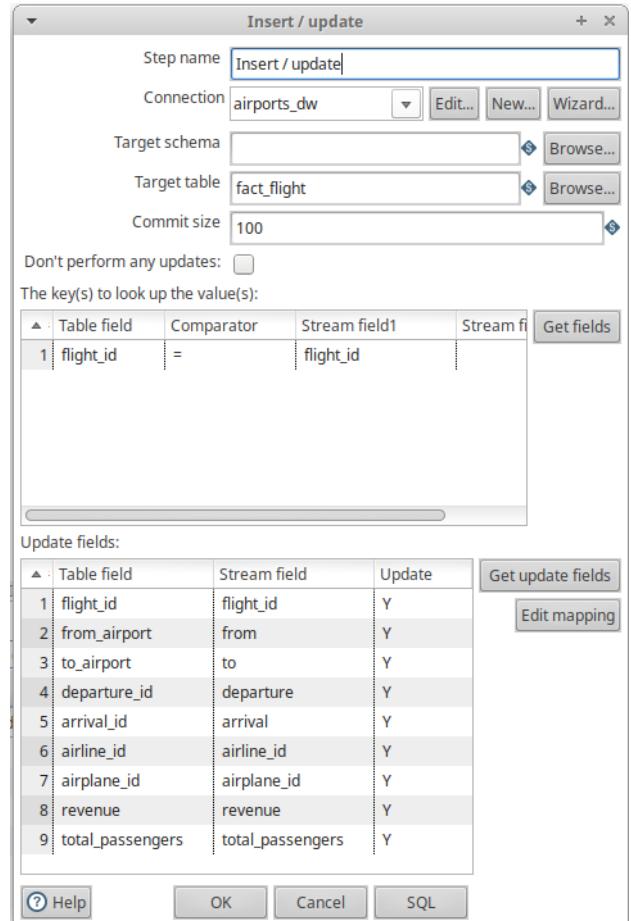


Image 63 . Configuration window of Insert/Update

Rows of step: Table input (1000 rows)												
▲	flight_id	flightno	from	to	departure	arrival	airline_id	airplane_id	booking_id	seat	passenger_id	price
1	750	CR1934	12624	8266	2015/06/01 14:23:00.000000000	2015/06/01 16:41:00.000000000	18	3938	38481060	11D	15125	91.3
2	750	CR1934	12624	8266	2015/06/01 14:23:00.000000000	2015/06/01 16:41:00.000000000	18	3938	38481090	15H	24251	278.48
3	750	CR1934	12624	8266	2015/06/01 14:23:00.000000000	2015/06/01 16:41:00.000000000	18	3938	38481080	17E	24863	458.24
4	750	CR1934	12624	8266	2015/06/01 14:23:00.000000000	2015/06/01 16:41:00.000000000	18	3938	38481060	24E	2562	444.72
5	750	CR1934	12624	8266	2015/06/01 14:23:00.000000000	2015/06/01 16:41:00.000000000	18	3938	38481130	2E	31762	299.42
6	750	CR1934	12624	8266	2015/06/01 14:23:00.000000000	2015/06/01 16:41:00.000000000	18	3938	38481120	5C	35597	185.77
7	899	CZ3787	4762	9633	2015/06/01 03:04:00.000000000	2015/06/01 04:56:00.000000000	21	4326	43519680	11C	4495	307.97
8	899	CZ3787	4762	9633	2015/06/01 03:04:00.000000000	2015/06/01 04:56:00.000000000	21	4326	43519670	15H	7083	210.59
9	899	CZ3787	4762	9633	2015/06/01 03:04:00.000000000	2015/06/01 04:56:00.000000000	21	4326	43519660	18E	16696	391.95
10	899	CZ3787	4762	9633	2015/06/01 03:04:00.000000000	2015/06/01 04:56:00.000000000	21	4326	43519710	1H	16351	302.96
11	899	CZ3787	4762	9633	2015/06/01 03:04:00.000000000	2015/06/01 04:56:00.000000000	21	4326	43519700	5B	15022	469.29
12	899	CZ3787	4762	9633	2015/06/01 03:04:00.000000000	2015/06/01 04:56:00.000000000	21	4326	43519690	8G	2342	111.39
13	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8423020	10A	5015	477.98
14	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8423010	12B	35490	213.8
15	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8423000	16H	17233	258.74
16	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422990	21F	770	120.37
17	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422980	25G	11590	333.88
18	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422970	28G	29730	408.45
19	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422960	30E	14	231.19
20	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422950	34B	29503	64.11
21	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422940	37D	26812	101.71
22	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8423040	3C	14957	255.16
23	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422930	40C	32121	318.78
24	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422920	43B	31647	137.79
25	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422910	46D	13496	150.35
26	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422900	49F	12097	399.23
27	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422900	53F	21647	137.70

Image 64. Preview window of Table Input

Rows of step: Sort rows (1000 rows)												
▲	flight_id	flightno	from	to	departure	arrival	airline_id	airplane_id	booking_id	seat	passenger_id	price
1	750	CR1934	12624	8266	2015/06/01 14:23:00.000000000	2015/06/01 16:41:00.000000000	18	3938	38481060	24E	2562	444.72
2	750	CR1934	12624	8266	2015/06/01 14:23:00.000000000	2015/06/01 16:41:00.000000000	18	3938	38481100	11D	15125	91.3
3	750	CR1934	12624	8266	2015/06/01 14:23:00.000000000	2015/06/01 16:41:00.000000000	18	3938	38481090	15H	24251	278.48
4	750	CR1934	12624	8266	2015/06/01 14:23:00.000000000	2015/06/01 16:41:00.000000000	18	3938	38481080	17E	24863	458.24
5	750	CR1934	12624	8266	2015/06/01 14:23:00.000000000	2015/06/01 16:41:00.000000000	18	3938	38481130	2E	31762	299.42
6	750	CR1934	12624	8266	2015/06/01 14:23:00.000000000	2015/06/01 16:41:00.000000000	18	3938	38481120	5C	35597	185.77
7	899	CZ3787	4762	9633	2015/06/01 03:04:00.000000000	2015/06/01 04:56:00.000000000	21	4326	43519690	8G	2342	111.39
8	899	CZ3787	4762	9633	2015/06/01 03:04:00.000000000	2015/06/01 04:56:00.000000000	21	4326	43519680	11C	4495	307.97
9	899	CZ3787	4762	9633	2015/06/01 03:04:00.000000000	2015/06/01 04:56:00.000000000	21	4326	43519670	15H	7083	210.59
10	899	CZ3787	4762	9633	2015/06/01 03:04:00.000000000	2015/06/01 04:56:00.000000000	21	4326	43519700	5B	15022	469.29
11	899	CZ3787	4762	9633	2015/06/01 03:04:00.000000000	2015/06/01 04:56:00.000000000	21	4326	43519710	1H	16351	302.96
12	899	CZ3787	4762	9633	2015/06/01 03:04:00.000000000	2015/06/01 04:56:00.000000000	21	4326	43519680	18E	16696	391.95
13	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422960	30E	14	231.19
14	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422990	21F	770	120.37
15	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8423020	10A	5015	477.98
16	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8423030	7C	7125	105.6
17	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422980	25G	11590	333.88
18	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422900	49F	12097	399.23
19	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422910	46D	13496	150.35
20	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8423040	3C	14957	255.16
21	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422870	61C	15992	200.01
22	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8423000	16H	17233	258.74
23	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422890	53F	23668	223.69
24	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422940	37D	26812	101.71
25	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422950	34B	29503	64.11
26	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422970	28G	29730	408.45
27	1511	FR1686	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	8422700	49P	21647	137.70

Image 65. Preview window of Sort Rows

Rows of step: Group by (1000 rows)									
	flight_id	from	to	departure	arrival	airline_id	airplane_id	revenue	total_passengers
1	750	12624	8266	2015/06/01 14:23:00.000000000	2015/06/01 16:41:00.000000000	18	3938	1757.93	6
2	899	4762	9633	2015/06/01 03:04:00.000000000	2015/06/01 04:56:00.000000000	21	4326	1794.15	6
3	1511	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	4166.23	18
4	1515	3420	748	2015/06/01 08:02:00.000000000	2015/06/01 08:22:00.000000000	35	902	651.13	4
5	1543	3887	10805	2015/06/01 20:23:00.000000000	2015/06/01 22:20:00.000000000	35	902	483.37	3
6	1871	1085	6973	2015/06/01 21:16:00.000000000	2015/06/01 22:26:00.000000000	44	2557	1544.67	5
7	1880	11812	6429	2015/06/01 01:26:00.000000000	2015/06/01 03:19:00.000000000	44	2564	3945.94	17
8	2117	1572	8829	2015/06/01 08:44:00.000000000	2015/06/01 09:11:00.000000000	49	1207	1347.69	4
9	2673	10564	6002	2015/06/01 22:50:00.000000000	2015/06/02 01:24:00.000000000	63	4869	4986.82	21
10	2703	4725	9838	2015/06/01 19:51:00.000000000	2015/06/01 21:18:00.000000000	63	4827	4490.16	17
11	2715	10904	2867	2015/06/01 17:31:00.000000000	2015/06/01 19:09:00.000000000	63	4840	1678.74	6
12	2717	8210	5024	2015/06/01 13:35:00.000000000	2015/06/01 14:11:00.000000000	63	4869	4245.1	20
13	3359	12159	3796	2015/06/01 15:28:00.000000000	2015/06/01 17:39:00.000000000	77	2255	4450.93	18
14	3367	10903	3074	2015/06/01 03:04:00.000000000	2015/06/01 03:23:00.000000000	77	2254	1469.83	5
15	3793	2556	4430	2015/06/01 07:26:00.000000000	2015/06/01 08:59:00.000000000	87	4593	783.94	4
16	3854	11019	9646	2015/06/01 07:35:00.000000000	2015/06/01 08:16:00.000000000	89	6	2170.66	6
17	8758	319	13522	2015/06/02 08:15:00.000000000	2015/06/02 10:49:00.000000000	13	3481	3555.31	16
18	8773	10635	10332	2015/06/02 19:06:00.000000000	2015/06/02 22:26:00.000000000	13	3479	3462.84	16
19	9117	2708	1508	2015/06/02 07:15:00.000000000	2015/06/02 08:14:00.000000000	20	987	5949.75	19
20	9544	6379	8143	2015/06/02 08:44:00.000000000	2015/06/02 10:25:00.000000000	31	4432	1705.73	6
21	9736	3420	748	2015/06/02 08:02:00.000000000	2015/06/02 08:22:00.000000000	35	933	2443.58	9
22	9755	3887	10805	2015/06/02 20:23:00.000000000	2015/06/02 22:20:00.000000000	35	920	5124.7	23
23	9759	7232	6258	2015/06/02 08:20:00.000000000	2015/06/02 11:24:00.000000000	35	904	1712.3	6
24	9970	9969	2163	2015/06/02 19:06:00.000000000	2015/06/02 21:14:00.000000000	40	814	1245.36	4
25	10111	11812	6429	2015/06/02 01:26:00.000000000	2015/06/02 03:19:00.000000000	44	2559	4497.91	18
26	10118	1595	6537	2015/06/02 18:12:00.000000000	2015/06/02 19:25:00.000000000	44	2561	1659.43	5
27	10131	11870	7009	2015/06/02 01:16:00.000000000	2015/06/02 03:47:00.000000000	44	2554	6230.02	23

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Image 66. Preview window of Group By

Rows of step: Insert / update (1000 rows)									
	flight_id	from	to	departure	arrival	airline_id	airplane_id	revenue	total_passengers
1	750	12624	8266	2015/06/01 14:23:00.000000000	2015/06/01 16:41:00.000000000	18	3938	1757.93	6
2	899	4762	9633	2015/06/01 03:04:00.000000000	2015/06/01 04:56:00.000000000	21	4326	1794.15	6
3	1511	8591	1343	2015/06/01 18:45:00.000000000	2015/06/01 19:27:00.000000000	35	926	4166.23	18
4	1515	3420	748	2015/06/01 08:02:00.000000000	2015/06/01 08:22:00.000000000	35	902	651.13	4
5	1543	3887	10805	2015/06/01 20:23:00.000000000	2015/06/01 22:20:00.000000000	35	902	483.37	3
6	1871	1085	6973	2015/06/01 21:16:00.000000000	2015/06/01 22:26:00.000000000	44	2557	1544.67	5
7	1880	11812	6429	2015/06/01 01:26:00.000000000	2015/06/01 03:19:00.000000000	44	2564	3945.94	17
8	2117	1572	8829	2015/06/01 08:44:00.000000000	2015/06/01 09:11:00.000000000	49	1207	1347.69	4
9	2673	10564	6002	2015/06/01 22:50:00.000000000	2015/06/02 01:24:00.000000000	63	4869	4986.82	21
10	2703	4725	9838	2015/06/01 19:51:00.000000000	2015/06/01 21:18:00.000000000	63	4827	4490.16	17
11	2715	10904	2867	2015/06/01 17:31:00.000000000	2015/06/01 19:09:00.000000000	63	4840	1678.74	6
12	2717	8210	5024	2015/06/01 13:35:00.000000000	2015/06/01 14:11:00.000000000	63	4869	4245.1	20
13	3359	12159	3796	2015/06/01 15:28:00.000000000	2015/06/01 17:39:00.000000000	77	2255	4450.93	18
14	3367	10903	3074	2015/06/01 03:04:00.000000000	2015/06/01 03:23:00.000000000	77	2254	1469.83	5
15	3793	2556	4430	2015/06/01 07:26:00.000000000	2015/06/01 08:59:00.000000000	87	4593	783.94	4
16	3854	11019	9646	2015/06/01 07:35:00.000000000	2015/06/01 08:16:00.000000000	89	6	2170.66	6
17	8758	319	13522	2015/06/02 08:15:00.000000000	2015/06/02 10:49:00.000000000	13	3481	3555.31	16
18	8773	10635	10332	2015/06/02 19:06:00.000000000	2015/06/02 22:26:00.000000000	13	3479	3462.84	16
19	9117	2708	1508	2015/06/02 07:15:00.000000000	2015/06/02 08:14:00.000000000	20	987	5949.75	19
20	9544	6379	8143	2015/06/02 08:44:00.000000000	2015/06/02 10:25:00.000000000	31	4432	1705.73	6
21	9736	3420	748	2015/06/02 08:02:00.000000000	2015/06/02 08:22:00.000000000	35	933	2443.58	9
22	9755	3887	10805	2015/06/02 20:23:00.000000000	2015/06/02 22:20:00.000000000	35	920	5124.7	23
23	9759	7232	6258	2015/06/02 08:20:00.000000000	2015/06/02 11:24:00.000000000	35	904	1712.3	6
24	9970	9969	2163	2015/06/02 19:06:00.000000000	2015/06/02 21:14:00.000000000	40	814	1245.36	4
25	10111	11812	6429	2015/06/02 01:26:00.000000000	2015/06/02 03:19:00.000000000	44	2559	4497.91	18
26	10118	1595	6537	2015/06/02 18:12:00.000000000	2015/06/02 19:25:00.000000000	44	2561	1659.43	5
27	10131	11870	7009	2015/06/02 01:16:00.000000000	2015/06/02 03:47:00.000000000	44	2554	6230.02	23

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Image 67. Preview window of Insert/ Update

3. XML Code for the Cube Definition

```
<Schema name="airports_dw">
    <Cube name="Flights" visible="true" cache="true" enabled="true">
        <Table name="fact_flight">
        </Table>
        <Dimension type="StandardDimension" visible="true" foreignKey="from_airport"
highCardinality="false" name="Airport_Origin">
            <Hierarchy name="Airport Origin Hierarchy" visible="true" hasAll="true"
allMemberName="All Origin Airports" primaryKey="airport_id">
                <Table name="dim_airport_origin">
                </Table>
                <Level name="Origin Airport Name" visible="true" column="airport_name"
type="String" uniqueMembers="false" levelType="Regular" hideMemberIf="Never">
                    </Level>
                <Level name="Origin Airport City" visible="true" column="city" type="String"
uniqueMembers="false" levelType="Regular" hideMemberIf="Never">
                    </Level>
                <Level name="Origin Airport Country" visible="true" column="country"
type="String" uniqueMembers="false" levelType="Regular" hideMemberIf="Never">
                    </Level>
            </Hierarchy>
        </Dimension>
        <Dimension type="StandardDimension" visible="true" foreignKey="to_airport"
highCardinality="false" name="Airport_Destination">
            <Hierarchy name="Airport Destination Hierarchy" visible="true" hasAll="true"
allMemberName="All Destination Airports" primaryKey="airport_id">
                <Table name="dim_airport_destination">
                </Table>
                <Level name="Destination Airport Name" visible="true" column="airport_name"
type="String" uniqueMembers="false" levelType="Regular" hideMemberIf="Never">
                    </Level>
                <Level name="Destination Airport City" visible="true" column="city" type="String"
uniqueMembers="false" levelType="Regular" hideMemberIf="Never">
                    </Level>
                <Level name="Destination Airport Country" visible="true" column="country"
type="String" uniqueMembers="false" levelType="Regular" hideMemberIf="Never">
                    </Level>
            </Hierarchy>
        </Dimension>
        <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="departure_id"
highCardinality="false" name="Departure_Date">
    <Hierarchy name="Departure Date Hierarchy" visible="true" hasAll="true"
allMemberName="All Dates" primaryKey="departure_id">
        <Table name="dim_departure_date">
        </Table>
        <Level name="Departure Year" visible="true" column="year_id" type="Integer"
uniqueMembers="false" levelType="TimeYears" hideMemberIf="Never">
            </Level>
        <Level name="Departure Month" visible="true" column="month_name"
ordinalColumn="month_id" type="String" uniqueMembers="false" levelType="TimeMonths"
hideMemberIf="Never">
            </Level>
        <Level name="Departure Day" visible="true" column="departure_day" type="Integer"
uniqueMembers="false" levelType="TimeDays" hideMemberIf="Never">
            </Level>
        </Hierarchy>
    </Dimension>
    <Dimension type="TimeDimension" visible="true" foreignKey="arrival_id"
highCardinality="false" name="Arrival_Date">
        <Hierarchy name="Arrival Date Hierarchy" visible="true" hasAll="true"
allMemberName="All Dates" primaryKey="arrival_id">
            <Table name="dim_arrival_date">
            </Table>
            <Level name="Arrival Year" visible="true" column="year_id" type="Integer"
uniqueMembers="false" levelType="TimeYears" hideMemberIf="Never">
                </Level>
            <Level name="Arrival Month" visible="true" column="month_name"
ordinalColumn="month_id" type="String" uniqueMembers="false" levelType="TimeMonths"
hideMemberIf="Never">
                </Level>
            <Level name="Arrival Day" visible="true" column="arrival_day" type="Integer"
uniqueMembers="false" levelType="TimeDays" hideMemberIf="Never">
                </Level>
            </Hierarchy>
        </Dimension>
        <Measure name="Total Passangers" column="total_passengers" datatype="Integer"
aggregator="sum" visible="true">
        </Measure>
        <Measure name="Revenue" column="revenue" datatype="Numeric" formatString="$ #,###.00"
aggregator="sum" visible="true">
        </Measure>
    </Cube>
</Schema>

```

4. Analysis Query

Passengers and Revenue by airline and month

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Saiku Analytics

Cubes

Measures

Dimensions

Departure Month

Departure Month	Jun	Jul		
Airline Name	Revenue	Total Passangers	Revenue	Total Passangers
Bulgaria Airlines	\$ 110,113.24	448	\$ 154,437.99	587
Croatia Airlines	\$ 109,007.19	436	\$ 122,529.28	489
Cyprus Airlines	\$ 76,905.68	291	\$ 100,686.20	389
Czech Airlines	\$ 98,762.85	372	\$ 103,871.69	426
Denmark Airlines	\$ 46,222.46	187	\$ 55,558.29	236
Estonia Airlines	\$ 107,981.78	405	\$ 133,757.98	530
France Airlines	\$ 191,586.52	772	\$ 191,868.27	752
Greece Airlines	\$ 50,663.94	204	\$ 47,767.02	179
Hungary Airlines	\$ 274,893.57	1,088	\$ 286,874.33	1,143
Italy Airlines	\$ 42,343.58	165	\$ 56,486.71	210
Luxembourg Airlines	\$ 314,355.07	1,261	\$ 313,292.75	1,221
Poland Airlines	\$ 138,618.84	552	\$ 146,253.93	598
Slovakia Airlines	\$ 82,589.22	341	\$ 91,144.70	369
Spain Airlines	\$ 44,725.48	181	\$ 37,702.61	149

Image 68. Mandatory query on **airports.sql** database

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Measures

Dimensions

Departure Month

Departure Month	Jun	Jul	Aug	
Airline Name	Revenue	Total Passangers	Revenue	Total Passangers
Afghanistan Airlines	\$ 3,940,186.27	15,652	\$ 4,069,099.39	16,132
Albania Airlines	\$ 4,032,711.60	16,110	\$ 4,324,768.96	17,113
American Samoa Air	\$ 2,850,800.30	11,363	\$ 3,131,840.60	12,530
Angola Airlines	\$ 3,480,674.63	13,873	\$ 3,717,947.55	14,788
Argentina Airlines	\$ 4,015,917.94	15,940	\$ 4,308,636.15	17,084
Australia Airlines	\$ 3,748,919.22	14,959	\$ 3,989,694.33	15,883
Azerbaijan Airlines	\$ 2,940,651.19	11,823	\$ 3,139,565.77	12,466
Bahamas Airlines	\$ 4,246,802.80	16,918	\$ 4,474,399.82	17,738
Barbados Airlines	\$ 3,467,045.92	13,762	\$ 3,521,541.49	14,061
Bhutan Airlines	\$ 4,293,356.44	17,176	\$ 4,573,205.74	18,172
Bolivia Airlines	\$ 2,561,444.19	10,211	\$ 2,563,539.07	10,271
Brazil Airlines	\$ 4,633,629.23	18,438	\$ 4,721,266.14	18,765
Bulgaria Airlines	\$ 3,639,049.42	14,444	\$ 3,833,283.71	15,175
Caicos Is Airlines	\$ 3,548,404.75	14,075	\$ 3,391,137.51	13,669
Central African Rep	\$ 4,069,794.44	16,188	\$ 4,210,247.98	16,762
Chad Airlines	\$ 3,465,657.02	13,783	\$ 3,664,886.68	14,634
Colombia Airlines	\$ 3,433,198.85	13,668	\$ 3,635,316.61	14,374
Croatia Airlines	\$ 4,549,953.70	18,171	\$ 4,654,697.48	18,671
Cuba Airlines	\$ 3,615,179.78	14,447	\$ 3,679,529.04	14,686
Cyprus Airlines	\$ 4,622,870.34	18,447	\$ 4,865,299.86	19,316
Czech Airlines	\$ 3,665,044.63	14,625	\$ 3,943,585.06	15,630
Dakhla And Layaoune	\$ 3,636,004.82	14,462	\$ 3,669,491.21	14,620
Denmark Airlines	\$ 3,189,578.50	12,642	\$ 3,444,433.09	13,769
Djibouti Airlines	\$ 3,679,397.78	14,770	\$ 3,863,264.82	15,379
Dominica Airlines	\$ 2,950,122.14	11,762	\$ 2,887,926.44	11,511

Image 69. Mandatory query on **airports-large.sql** database

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Cubes

Flights

Measures

Total Passangers

Dimensions

- Airline** (All)
- Departure Date**

Measures

Departure Month Jun Jul Aug Sep

Airline Name	Total Passangers	Revenue	Total Passangers	Revenue	Total Passangers	Revenue	Total Passangers	Revenue
Afghanistan Airlines	156,192	\$ 39,242,860.06	161,036	\$ 40,506,591.08	160,960	\$ 40,611,189.62	5,997	\$ 1,501,204.48
Albania Airlines	160,492	\$ 40,317,887.11	170,764	\$ 42,962,087.82	169,279	\$ 42,733,218.77	7,081	\$ 1,798,014.84
American Samoa Airi	113,344	\$ 28,596,600.25	125,188	\$ 31,481,026.90	116,379	\$ 29,270,331.76	3,699	\$ 924,285.72
Angola Airlines	138,359	\$ 34,924,908.38	147,501	\$ 37,122,540.23	139,578	\$ 35,150,779.40	4,285	\$ 1,072,727.87
Argentina Airlines	159,157	\$ 40,140,247.36	170,494	\$ 42,907,244.28	157,384	\$ 39,626,874.64	5,217	\$ 1,304,331.30
Australia Airlines	149,230	\$ 37,496,872.70	158,340	\$ 39,792,355.19	153,187	\$ 38,515,357.81	5,799	\$ 1,465,376.56
Azerbaijan Airlines	118,032	\$ 29,632,834.91	124,394	\$ 31,378,851.08	123,617	\$ 31,122,498.15	5,228	\$ 1,303,263.75
Bahamas Airlines	168,936	\$ 42,449,030.51	177,112	\$ 44,579,334.98	170,187	\$ 42,820,015.56	6,913	\$ 1,752,649.99
Belarus Airlines	137,406	\$ 34,701,151.81	140,376	\$ 35,278,377.66	141,667	\$ 35,652,399.23	4,255	\$ 1,062,201.15
Bhutan Airlines	171,414	\$ 43,091,333.12	181,392	\$ 45,660,886.80	175,079	\$ 44,031,150.79	6,771	\$ 1,704,773.16
Bolivia Airlines	101,784	\$ 25,525,520.32	102,603	\$ 25,730,510.61	103,989	\$ 26,162,443.83	3,181	\$ 797,942.17
Brazil Airlines	183,970	\$ 46,264,971.33	187,044	\$ 47,022,488.48	187,154	\$ 47,092,561.44	5,598	\$ 1,393,179.05
Bulgaria Airlines	144,102	\$ 36,293,399.40	151,224	\$ 38,016,907.34	145,352	\$ 36,522,931.38	4,133	\$ 1,058,721.07
Caircos Is Airlines	140,584	\$ 35,380,784.35	136,459	\$ 34,295,968.15	135,851	\$ 34,130,988.28	5,200	\$ 1,305,820.85
Central African Rep	161,406	\$ 40,648,543.66	167,339	\$ 41,970,680.64	172,574	\$ 43,385,724.97	6,167	\$ 1,538,562.11
Chad Airlines	137,471	\$ 34,586,008.49	145,952	\$ 36,722,082.91	142,874	\$ 35,922,721.65	4,391	\$ 1,111,570.75
Colombia Airlines	136,318	\$ 34,278,338.31	143,451	\$ 36,036,949.39	145,052	\$ 36,434,318.41	5,086	\$ 1,297,314.23
Croatia Airlines	181,143	\$ 45,526,868.54	186,275	\$ 46,814,472.15	187,596	\$ 47,140,923.20	5,983	\$ 1,521,675.56
Cuba Airlines	144,243	\$ 36,251,779.07	146,722	\$ 36,942,088.08	147,395	\$ 37,056,179.11	6,089	\$ 1,520,635.52
Cyprus Airlines	184,036	\$ 46,354,435.93	192,943	\$ 48,628,782.41	190,035	\$ 49,857,031.56	6,642	\$ 1,668,716.02
Czech Airlines	146,173	\$ 36,763,901.01	155,573	\$ 39,181,501.27	150,944	\$ 38,053,130.50	5,315	\$ 1,334,362.65
Dakota And Laiyoune	144,431	\$ 36,525,922.47	145,771	\$ 36,703,311.65	153,646	\$ 38,670,043.86	4,395	\$ 1,097,533.75
Denmark Airlines	125,954	\$ 31,672,702.25	137,194	\$ 34,466,219.46	129,648	\$ 32,648,128.00	4,187	\$ 1,059,295.51
Djibouti Airlines	147,465	\$ 37,044,375.56	153,462	\$ 38,675,274.18	152,677	\$ 38,451,477.01	4,413	\$ 1,112,829.76
Dominica Airlines	117,526	\$ 29,686,751.27	114,691	\$ 28,834,943.70	120,639	\$ 30,430,554.27	4,224	\$ 1,058,793.71
Ecuador Airlines	156,749	\$ 39,407,966.32	159,292	\$ 39,991,811.19	165,734	\$ 41,682,273.76	5,624	\$ 1,405,683.41
Egypt Airlines	153,712	\$ 38,664,110.71	157,718	\$ 39,699,829.11	154,968	\$ 38,926,047.34	5,422	\$ 1,369,199.12

Image 70. Mandatory query on **airports-large-extra.sql** database

Passengers and Revenue by arrival month and airport of origin

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Flights

Measures

Total Passangers

Dimensions

- Airline** (All)
- Arrival Date**
-

Measures

Arrival Month Jun Jul Aug

Origin Airport Country	Total Passangers	Revenue	Total Passangers	Revenue	Total Passangers	Revenue
PORTUGAL	226	\$ 56,580.40	256	\$ 70,226.31	-	-
FRANCE	87	\$ 19,575.16	73	\$ 19,006.32	-	-
FRANCE	165	\$ 42,343.58	210	\$ 56,486.71	-	-
CZECH	237	\$ 61,609.82	284	\$ 68,494.16	-	-
GERMANY	52	\$ 11,624.55	59	\$ 14,917.66	-	-
ITALY	54	\$ 13,783.54	62	\$ 14,602.63	-	-
FRANCE	81	\$ 19,386.47	81	\$ 20,358.88	-	-
GERMANY	113	\$ 31,175.17	83	\$ 21,492.79	-	-
GERMANY	235	\$ 58,266.94	240	\$ 63,705.09	-	-
GERMANY	64	\$ 16,974.94	71	\$ 17,526.88	-	-
SWEDEN	34	\$ 8,667.36	49	\$ 13,498.71	-	-
ITALY	192	\$ 47,226.50	169	\$ 41,183.40	-	-
ITALY	223	\$ 54,348.96	176	\$ 45,445.32	-	-
GERMANY	242	\$ 63,594.11	204	\$ 51,330.34	-	-
GERMANY	216	\$ 52,822.38	189	\$ 48,496.28	-	-
GREECE	83	\$ 21,524.76	186	\$ 48,168.93	18	\$ 4,498.30
GERMANY	213	\$ 54,089.59	178	\$ 43,991.58	-	-
CZECH	79	\$ 19,424.17	107	\$ 24,580.17	-	-
POLAND	166	\$ 47,534.89	145	\$ 35,832.58	-	-
FRANCE	80	\$ 19,560.73	95	\$ 21,638.33	-	-
DENMARK	44	\$ 11,334.29	73	\$ 18,810.98	-	-
GERMANY	130	\$ 35,168.74	222	\$ 52,541.35	-	-
FRANCE	48	\$ 11,226.11	135	\$ 34,087.92	-	-
SPAIN	326	\$ 82,955.65	294	\$ 75,590.24	-	-
ROMANIA	138	\$ 33,968.80	176	\$ 46,176.43	-	-

Image 71. Query of choice 1 on **airports.sql** database

File View Tools Help

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Cubes

Flights

Measures Add

- Total Passangers
- Revenue

Dimensions

- Airline (All)
- Airline Name
- Airplane (All)
- Airplane Type
- Airport_Destination
- Airport_Origin
 - Airport Origin Hierarchy (All)
 - Origin Airport Name
 - Origin Airport City
 - Origin Airport Country
- Arrival Date
 - Arrival Date Hierarchy (All)
 - Arrival Year
 - Arrival Month
 - Arrival Day
- Departure Date
 - Departure Date Hierarchy (All)

Measures

- Total Passangers
- Revenue

Columns

Arrival Month

Rows

Airport Origin Hierarchy

Origin Airport Country

Filter

Arrival Month	Jun	Jul	Aug	
Origin Airport Country	Total Passangers	Revenue	Total Passangers	
SPAIN	94	\$ 23,530.84	146	\$ 34,130.62
UNITED STATES	112	\$ 29,790.27	115	\$ 31,765.47
ALGERIA	198	\$ 50,988.53	167	\$ 46,397.17
ETHIOPIA	222	\$ 56,005.34	190	\$ 47,631.68
DENMARK	328	\$ 88,667.22	228	\$ 56,533.63
DENMARK	102	\$ 24,796.78	140	\$ 33,117.42
DENMARK	251	\$ 63,867.22	238	\$ 58,958.07
ETHIOPIA	518	\$ 131,806.65	560	\$ 142,428.05
IRAN	667	\$ 173,546.69	628	\$ 157,373.51
RUSSIA	153	\$ 40,705.14	186	\$ 48,366.90
IRELAND	168	\$ 42,013.51	225	\$ 55,384.91
YEMEN	245	\$ 62,195.75	325	\$ 79,477.54
INDONESIA	431	\$ 104,982.83	544	\$ 136,721.26
CUBA	337	\$ 81,270.48	297	\$ 74,990.31
IVORY COAST	30	\$ 8,174.67	59	\$ 14,607.14
UNITED KINGDOM	163	\$ 42,143.51	195	\$ 43,622.06
UNITED STATES	172	\$ 43,563.60	159	\$ 38,684.97
IVORY COAST	150	\$ 37,498.37	128	\$ 34,952.95
CAMEROON	141	\$ 37,072.55	266	\$ 68,299.67
SAUDI ARABIA	130	\$ 31,846.39	118	\$ 30,444.38
MEXICO	279	\$ 66,484.31	343	\$ 84,343.30
UNITED ARAB EMIRATES	151	\$ 38,921.06	255	\$ 64,887.01
EGYPT	327	\$ 78,503.95	318	\$ 76,616.01
CONGO	392	\$ 97,370.31	329	\$ 84,426.26
IRAN	303	\$ 79,341.67	301	\$ 72,212.89
			21	\$ 4,773.69

Image 72. Query of choice 1 on airports-large.sql database

File View Tools Help

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Saiku Analytics

Cubes

Flights

Measures Add

- Revenue
- Total Passangers

Dimensions

- Airline (All)
- Airline Name
- Airplane (All)
- Airplane Type
- Airport_Destination
- Airport_Origin
 - Airport Origin Hierarchy (All)
 - Origin Airport Name
 - Origin Airport City
 - Origin Airport Country
- Arrival Date
 - Arrival Date Hierarchy (All)
 - Arrival Year
 - Arrival Month
 - Arrival Day
- Departure Date
 - Departure Date Hierarchy (All)

Measures

- Revenue
- Total Passangers

Columns

Arrival Month

Rows

Airport Origin Hierarchy

Origin Airport Country

Filter

Arrival Month	Jun	Jul	Aug	Sep				
Origin Airport Country	Revenue	Total Passangers	Revenue	Total Passangers				
SPAIN	\$ 233,798.00	943	\$ 358,564.34	1,436	\$ 317,180.53	1,278	-	-
UNITED STATES	\$ 268,701.16	1,087	\$ 293,574.70	1,168	\$ 252,054.92	992	\$ 10,313.44	40
ALGERIA	\$ 505,787.19	1,984	\$ 413,146.06	1,627	\$ 371,321.63	1,465	\$ 9,447.11	35
ETHIOPIA	\$ 567,859.21	2,231	\$ 486,916.84	1,922	\$ 476,353.56	1,829	\$ 38,455.98	154
DENMARK	\$ 839,370.13	3,276	\$ 576,512.38	2,270	\$ 501,705.69	1,993	\$ 75,821.49	311
DENMARK	\$ 259,830.68	1,011	\$ 342,865.78	1,386	\$ 269,706.77	1,069	-	-
DENMARK	\$ 638,092.25	2,555	\$ 598,387.68	2,386	\$ 966,091.38	3,832	-	-
ETHIOPIA	\$ 1,306,788.97	5,152	\$ 1,408,354.04	5,555	\$ 1,256,996.05	4,988	\$ 15,687.06	58
IRAN	\$ 1,880,134.73	6,650	\$ 1,563,138.39	6,184	\$ 1,501,563.06	5,968	\$ 68,527.03	285
RUSSIA	\$ 392,208.01	1,952	\$ 478,489.34	1,910	\$ 468,394.17	1,832	\$ 16,244.17	62
IRELAND	\$ 408,665.40	1,686	\$ 555,978.96	2,225	\$ 587,096.27	2,331	\$ 12,815.97	42
YEMEN	\$ 612,937.24	2,417	\$ 810,502.22	3,256	\$ 760,164.28	2,991	\$ 13,130.78	46
INDONESIA	\$ 1,081,799.56	4,297	\$ 1,384,959.89	5,444	\$ 1,252,076.98	4,939	\$ 82,411.48	335
CUBA	\$ 847,323.90	3,340	\$ 761,698.33	2,965	\$ 588,815.15	2,351	\$ 13,208.66	59
IVORY COAST	\$ 70,266.49	273	\$ 148,249.37	561	\$ 110,130.19	444	-	-
UNITED KINGDOM	\$ 404,120.61	1,601	\$ 464,802.70	1,840	\$ 431,666.58	1,701	\$ 14,040.10	54
UNITED STATES	\$ 442,780.47	1,744	\$ 399,206.22	1,608	\$ 568,045.30	2,246	-	-
IVORY COAST	\$ 374,041.94	1,505	\$ 327,086.63	1,287	\$ 421,296.61	1,652	-	-
CAMEROON	\$ 358,407.26	1,420	\$ 651,632.45	2,618	\$ 304,272.51	1,236	\$ 6,466.76	30
SAUDI ARABIA	\$ 325,422.04	1,307	\$ 311,463.03	1,222	\$ 200,875.21	814	\$ 52,289.29	198
MEXICO	\$ 689,809.85	2,788	\$ 850,841.32	3,427	\$ 686,883.85	2,778	-	-
UNITED ARAB EMIRATES	\$ 384,180.85	1,516	\$ 648,338.92	2,530	\$ 590,362.04	2,340	\$ 68,359.89	272
EGYPT	\$ 807,314.75	3,207	\$ 798,389.13	3,150	\$ 871,827.63	3,449	\$ 58,241.18	225
CONGO	\$ 993,545.67	3,901	\$ 810,833.71	3,247	\$ 888,961.19	3,516	\$ 29,245.34	112
IRAN	\$ 753,196.05	3,022	\$ 764,421.34	3,012	\$ 613,941.49	2,509	\$ 4,789.47	376
BRAZIL	\$ 236,020.61	912	\$ 241,196.81	961	\$ 238,382.88	930	\$ 13,596.83	61
UNITED STATES	\$ 343,211.31	1,350	\$ 304,194.31	1,219	\$ 296,835.74	1,199	\$ 43,281.56	172

Image 73. Query of choice 1 on airports-large-extra.sql database

Revenue by arrival month, airport of origin and destination country WHERE airplane type = 6 or 316 AND departure month = Jun

Info: 20:37 / 3 x 34 / 0.06s

Arrival Month	Jun	
Origin Airport Country	Destination Airport Country	Revenue
FRANCE	BELGIUM	\$12,278.53
	ITALY	\$8,564.30
CZECH	DENMARK	\$28,691.49
GERMANY	BELGIUM	\$9,125.84
	GERMANY	\$8,965.97
	FRANCE	\$893.52
ITALY	SPAIN	\$10,062.03
	GERMANY	\$10,448.03
GERMANY	GERMANY	\$9,990.80
GREECE	ITALY	\$2,063.48
GERMANY	DENMARK	\$8,337.95
CZECH	GERMANY	\$9,245.28
POLAND	FRANCE	\$22,088.09
DENMARK	ITALY	\$9,062.86
SPAIN	GERMANY	\$49,005.92
ROMANIA	FINLAND	\$1,303.70
POLAND	IRELAND	\$3,201.63
BELGIUM	GERMANY	\$13,501.00
GERMANY	CZECH	\$28,283.50
FRANCE	FRANCE	\$7,783.14
CZECH	FRANCE	\$8,904.99
ITALY	FRANCE	\$1,517.25
FRANCE	SWEDEN	\$28,827.67
CZECH	GERMANY	\$25,500.67
FRANCE	GERMANY	\$17,292.49

Image 74. Query of choice 2 on **airports.sql** database

Info: 20:57 / 4 x 8041 / 0.97s

Arrival Month	Jun	Jul
Origin Airport Country	Destination Airport Country	Revenue
SPAIN	UNITED STATES	\$7,157.12
UNITED STATES	CANADA	\$18,182.55
DENMARK	CANADA	\$41,757.58
	CAPE VERDE	\$9,035.53
	SUDAN	\$1,202.55
	LUXEMBOURG	\$1,494.57
ETHIOPIA	CONGO	\$17,511.13
	BRAZIL	\$31,365.53
	KENYA	\$10,575.43
IRAN	SPAIN	\$97,942.13
	FINLAND	\$1,692.21
IRELAND	UNITED STATES	\$9,487.87
YEMEN	SPAIN	\$8,763.47
INDONESIA	FRANCE	\$10,075.76
	ALGERIA	\$12,913.23
CUBA	JORDAN	\$28,892.39
IVORY COAST	UNITED STATES	\$22,920.42
UNITED KINGDOM	BRAZIL	\$2,096.49
IVORY COAST	AUSTRALIA	\$6,808.01
CAMEROON	CANADA	\$17,147.15
SAUDI ARABIA	MYANMAR	\$12,175.52
MEXICO	CROATIA	\$7,936.38
	UNITED KINGDOM	\$2,304.00
	UNITED STATES	\$9,571.74
UNITED ARAB EMIRATES	MOROCCO	\$6,114.41

Image 75. Query of choice 2 on **airports-large.sql** database

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Measures

Total Passengers
Revenue

Dimensions

- Airline (All) Airline Name
- Airplane (All) Airplane Type
- Airport_Destination
 - Airport Destination Hierarchy (All)
 - Destination Airport Name
 - Destination Airport City
 - Destination Airport Country
- Airport_Origin
 - Airport Origin Hierarchy (All)
 - Origin Airport Name
 - Origin Airport City
 - Origin Airport Country
- Arrival Date
 - Arrival Date Hierarchy (All)
 - Arrival Year
 - Arrival Month
 - Arrival Day
- Departure Date
 - Departure Date Hierarchy (All)
 - Departure Year
 - Departure Month
 - Departure Day

Info: 21:12 / 4 x 8041 / 0.83s

Origin Airport Country	Destination Airport Country	Arrival Month	Jun	Jul
SPAIN	UNITED STATES	Revenue	\$ 71,996.89	-
UNITED STATES	CANADA	Revenue	\$ 155,313.78	-
DENMARK	CANADA	Revenue	\$ 414,183.66	-
	CAPE VERDE	Revenue	\$ 16,842.26	-
	SUDAN	Revenue	\$ 12,443.46	-
	LUXEMBOURG	Revenue	\$ 14,102.30	-
	ETHIOPIA	Revenue	\$ 160,853.28	-
	CONGO	Revenue	\$ 330,058.34	-
	BRAZIL	Revenue	\$ 105,749.71	-
	KENYA	Revenue	\$ 961,542.26	-
	IRAN	Revenue	\$ 14,409.64	-
	FINLAND	Revenue	\$ 85,409.64	-
	IRELAND	Revenue	\$ 70,429.30	-
	YEMEN	Revenue	\$ 92,727.96	-
	FRANCE	Revenue	\$ 112,556.34	-
	INDONESIA	Revenue	\$ 312,909.72	-
	ALGERIA	Revenue	\$ 231,757.49	-
	JORDAN	Revenue	\$ 16,193.66	-
	CUBA	Revenue	\$ 73,675.21	-
	UNITED KINGDOM	Revenue	\$ 162,115.92	-
	IVORY COAST	Revenue	\$ 115,680.01	-
	CAMEROON	Revenue	\$ 86,909.55	-
	SAUDI ARABIA	Revenue	\$ 26,923.10	-
	MEXICO	Revenue	\$ 92,167.90	-
	UNITED STATES	Revenue	\$ 59,017.26	-
	UNITED ARAB EMIRATES	Revenue	\$ 36,604.52	-
	EGYPT	Revenue	\$ 165,466.05	-

Image 76. Query of choice 2 on airports-large-extra.sql database

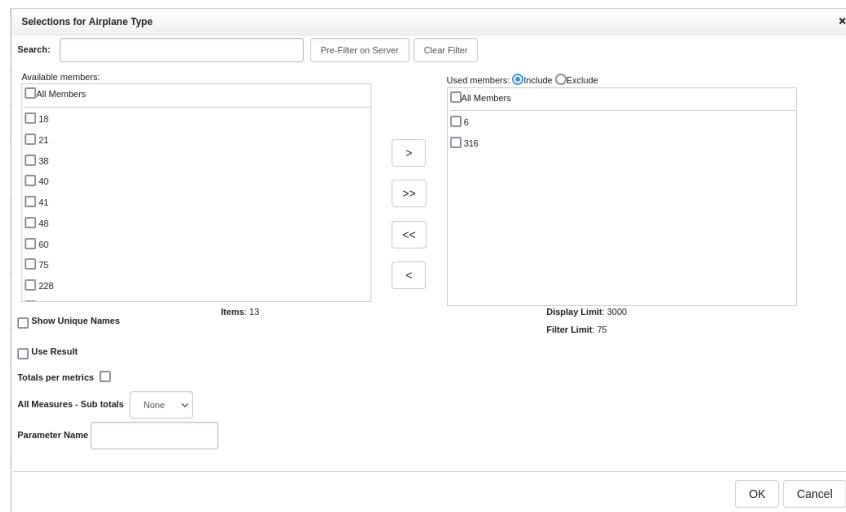


Image 77. Filter by airplane type

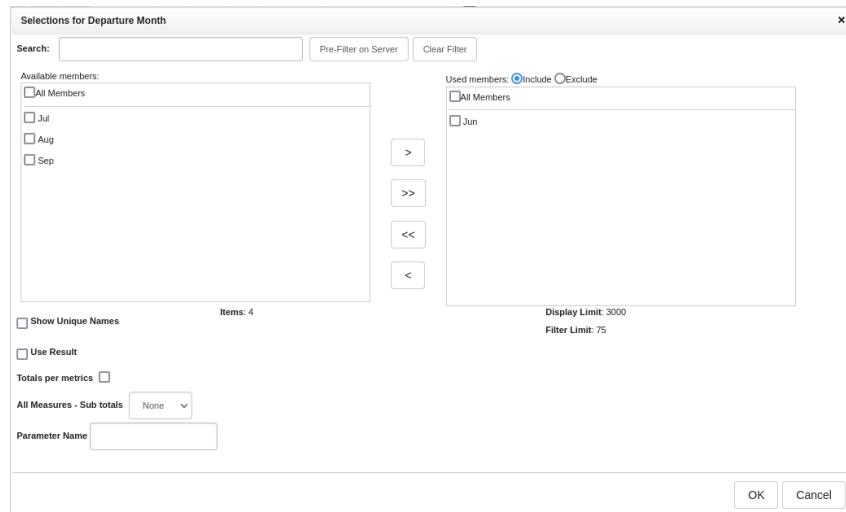


Image 78. Filter by departure month