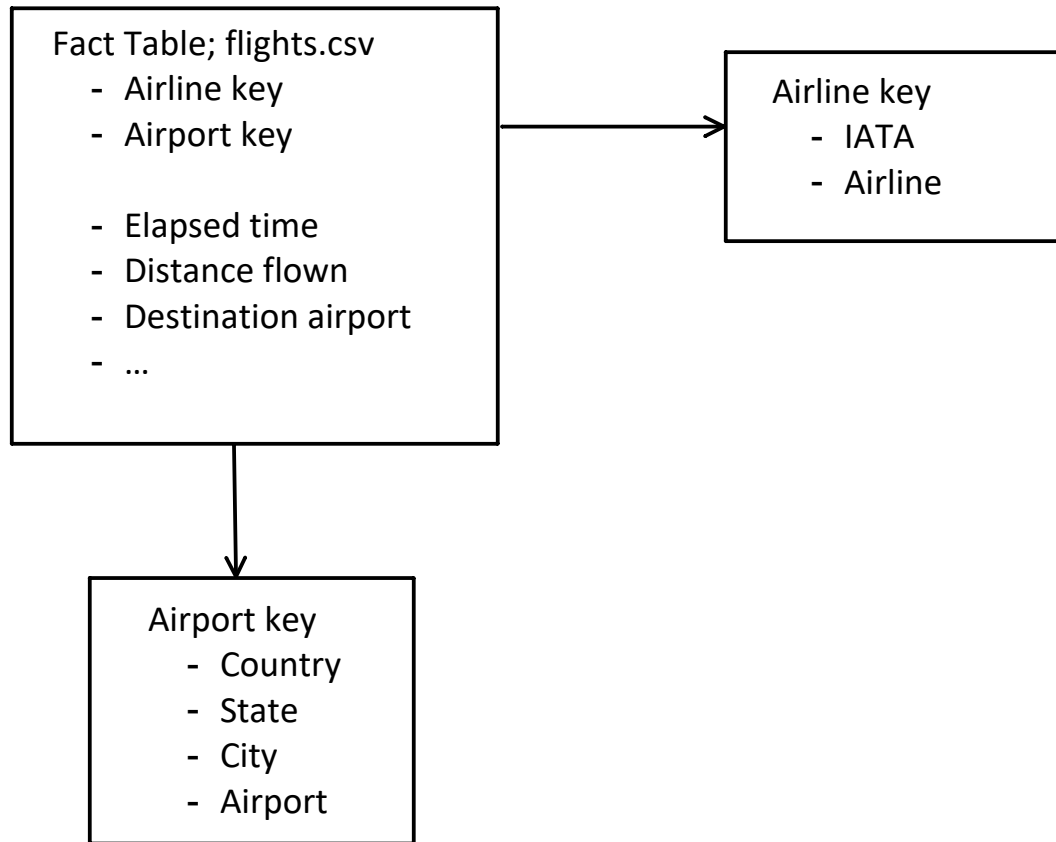


Assignment 1. Data Warehousing

Erling Fause Steen, Christian Oppegård Moen

1. Modeling



No assumptions were made other than not including columns in the fact table that is not needed for the reports.

Concept Hierarchies: (High to low granularity)

Time:

Day < month < quarter < year

Airport:

Airport < City < State < Country

2. OLAP operations

- Report 1: No sequence of OLAP operations required.
- Report 2: Drill-down from all in "Airline" to airline.

- Report 3: Drill-down from all in "Time" to month and slice on February.

4. Multi-Dimensional Expressions (MDX)

Reports

1. The longest duration of any flight in the air.

```
select
  [Measures].[Duration max] on 0
from [Cube]
```

	All
Duration max	690

2. Average elapsed time for each airline company.

```
select
  [Measures].[Elapsed Time Average] on 0
  [Airline].[Airline].[IATA] on 1
from
  [Cube]
```

	Elapsed Time ...
› UA	191.0209334133
› AA	171.6737130932
› US	151.4722267553
› F9	154.0158112624
› B6	170.5659478117
› OO	99.74338521129
› AS	179.2018823068
› NK	158.6128705440
› WN	121.2646701165
› DL	142.7027966363
› EV	98.60321864971
› HA	101.5481811044
› MQ	96.44852505328
› VX	208.2136130136

3. Total number of flights flown in February.

```

select
  [Measures].[Row Count] on 0
  [Time].[Time].[Month].&[2015-02-01] on 1
from
  [Cube]

```

	Row Count
➤ 2015 Feb	429191

4. Each months and the airport with the highest amount of arrival flights.

```

select
  [Measures].[Arrival Flight Count] on 0
  [Time].[Time].[Month]*order(
    existing([Airport].[Airport].[AirportIATA]),
    [Measures].[Arrival Flight Count], bdesc
  ).item(0) on 1
from
  [Cube]

```

		Arrival Flight C...
➤ 2015 Jan	ATL	29492
➤ 2015 Feb	ATL	27366
➤ 2015 Mar	ATL	32775
➤ 2015 Apr	ATL	3317

5. Descending list of all months by the amount of total distance flown each month.

```

select
  [Measures].[Distance sum] on 0
  order([Time].[Time].[Month], [Measures].[Distance sum], desc) on 1
from
  [Cube]

```

	Distance sum
➤ 2015 Mar	411546494
➤ 2015 Jan	377507097
➤ 2015 Feb	343689908
➤ 2015 Apr	41744774