|  |
| --- |
|  |
|  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| REVISION HISTORY | | | | | |
| Ver. | Description of Change | Author | Date | Approved | |
| Name | Effective Date |
| 1.0 | Initial status | Hanna Klimovich | 09-NOV-2017 |  |  |

Contents (if needed)

[1. Create and populate time dimension 3](#_Toc443934660)

[1.1. Data source generation 3](#_Toc443934661)

[2. Analytical task 3](#_Toc443934662)

[3. Results 3](#_Toc443934663)

# Data source generation

Main data source (data from 2016 year will be enough or should I take more years?):

<https://www.transtats.bts.gov/DL_SelectFields.asp?Table_ID=236>

# Analytical task

Add a chapter with transforming your business into database with the dimensional design. Start with a 4-step process and continue with creating of needed entities (no need to think about exact physical structure for the moment).

* Dimensional layer of your business process.

Dimensions:

1. **Time Dim**   
   year, quarter, month, day of month, day of week, flight date(yyyymmdd)
2. **Airline Dim**  
   Unique Carrier Code, Airline ID, Carrier, Tail Number, Flight Number
3. **Origin Dim**  
   Origin Airport ID, Origin Airport Seq ID, Origin City Marke tID, Origin Airport, Origin City Name, Origin State Code, Origin State Name, Origin Airport World Area Code
4. **Destination Dim**

DestAirportID Destination Airport, Airport ID. An identification number assigned by US DOT to identify a unique airport. Use this field for airport analysis across a range of years because an airport can change its airport code and airport codes can be reused.

DestAirportSeqID Destination Airport, Airport Sequence ID. An identification number assigned by US DOT to identify a unique airport at a given point of time. Airport attributes, such as airport name or coordinates, may change over time.

DestCityMarketID Destination Airport, City Market ID. City Market ID is an identification number assigned by US DOT to identify a city market. Use this field to consolidate airports serving the same city market.

Dest Destination Airport

DestCityName Destination Airport, City Name

DestState Destination Airport, State Code

DestStateFips Destination Airport, State Fips

DestStateName Destination Airport, State Name

DestWac Destination Airport, World Area Code

1. **Departure Dim**

CRSDepTime (CRS Departure Time (local time: hhmm))

DepTime (Actual Departure Time (local time: hhmm))

DepDelay (Difference in minutes between scheduled and actual departure time. Early departures show negative numbers.)

DepDelayMinutes (Difference in minutes between scheduled and actual departure time. Early departures set to 0.)

DepDel15 (Departure Delay Indicator, 15 Minutes or More (1=Yes))

DepartureDelayGroups (Departure Delay intervals, every (15 minutes from <-15 to >180))

DepTimeBlk (CRS Departure Time Block, Hourly Intervals)

TaxiOut (Taxi Out Time, in Minutes)

WheelsOff (Wheels Off Time (local time: hhmm))

1. **Arrival Dim**

WheelsOn (Wheels On Time (local time: hhmm))

TaxiIn (Taxi In Time, in Minutes)

CRSArrTime (CRS Arrival Time (local time: hhmm))

ArrTime Actual Arrival Time (local time: hhmm)

ArrDelay (Difference in minutes between scheduled and actual arrival time. Early arrivals show negative numbers.)

ArrDelayMinutes (Difference in minutes between scheduled and actual arrival time. Early arrivals set to 0.)

ArrDel15 (Arrival Delay Indicator, 15 Minutes or More (1=Yes))

ArrivalDelayGroups (Arrival Delay intervals, every (15-minutes from <-15 to >180))

ArrTimeBlk (CRS Arrival Time Block, Hourly Intervals)

1. **Cancellations and Diversions**

Cancelled (Cancelled Flight Indicator (1=Yes)),

Cancellation Code (Specifies The Reason For Cancellation),

Diverted (Diverted Flight Indicator (1=Yes))

1. **Flight summaries** (or it can be as a part of fact table)

CRSElapsedTime CRS (Elapsed Time of Flight in Minutes),

ActualElapsedTime (Elapsed Time of Flight in Minutes),

Flight Time (in Minutes),

Number of Flights,

Distance,

Distance Group (Distance Intervals, every 250 Miles, for Flight Segment)

# Results

Result of this lab work should be:

* Description of the methods, rules and the process of generation of your source data.
* Chapter in document with the dimensional model and design process.