

# I2B2 DATA MART

The i2b2 data mart is a data warehouse modeled on the star schema structure first proposed by Ralph Kimball. The database schema looks like a star, with one central fact table surrounded by one or more dimension tables. The most important concept regarding the construction of a star schema is identifying what constitutes a fact.

In healthcare, a logical fact is an observation on a patient. It is important to note that an observation may not represent the onset or date of the condition or event being described, but instead is simply a recording or a notation of something. For example, the observation of 'diabetes' recorded in the database as a 'fact' at a particular time does not mean that the condition of diabetes began exactly at that time, only that a diagnosis was recorded at that time (there may be many diagnoses of diabetes for this patient over time).

The fact table contains the basic attributes about the observation, such as the patient and provider numbers, a concept code for the concept observed, a start and end date, and other parameters described in this document. In the i2b2, the fact table is called *OBSERVATION\_FACT*.

Dimension tables contain further descriptive and analytical information about attributes in the fact table. A dimension table may contain information about how certain data is organized, such as a hierarchy that can be used to categorize or summarize the data. In the i2b2 data mart, there are four dimension tables that provide additional information about fields in the fact table.

1. PATIENT\_DIMENSION
2. CONCEPT\_DIMENSION
3. VISIT\_DIMENSION
4. PROVIDER\_DIMENSION
5. MODIFIER\_DIMENSION