Tutorial 4
Bridge Table Concepts

SOLUTIONS

Discuss the following questions (based on the Product-Sales Case Study):

1. What is **Bridge Table**? Why is a Bridge Table used? When is a Bridge table used? Can ProductDIM be a Bridge Table?

   A Bridge Table is a table (or a dimension) that links two other dimensions (say Dimensions *A* and *B*), in which one of these two dimensions (e.g. Dimension *A*) must be linked to the Fact.

   A bridge table is used when a dimension (say Dimension *B*) is desirable to be linked directly to the Fact, but can't, because the fact measure is not directly related to that dimension. Hence, Dimension *B* must go through a Bridge Table and Dimension *A*, because Dimension *A* has a direct link to the Fact. In other words, Dimension *B* is indirectly related to the Fact (it must go through Dimension *A*). A Bridge Table is used especially if the relationship between the two dimensions is a *many-to-many* relationship.

   ProductDIM cannot be a Bridge Table, because a product is directly to the fact measure, which is Total Sales, because the relationship between Product (Dimension) and Total Sales (Fact Measure) is 1-*to-many* relationship.

   On the other hand, the relationship between Supplier and Total Sales must go through Product, and the relationship between Product and Supplied is a many-to-many relationship.

2. Discuss the differences between the **three Snowflake Schemas** in the Product Sales case study.

   Snowflake Schema-1 is the most complete Snowflake schema because there is a SupplierDIM.
   Snowflake Schema-2 does not have the SupplierDIM, but still maintains the supplied quantity.
   Snowflake Schema-3 does not maintain the supplied quantity.

   All the three snowflake schemas use a Bridge Table to connect between Product and Supplier. Even when SupplierDIM is not used in the snowflake schemas (e.g. snowflake schemas 1 and 2), the Bridge Table is still used to indicate that a product has many "suppliers".

3. What is a **Temporal Dimension**? Why is the Bridge Table a Temporal Dimension?

   A temporal dimension is a dimension that maintains a temporality of an attribute. For example, in the Bridge Table, it has the supplied quantity for each product by each supplier. In other words, each product as a history of quantity supplied. Hence, the bridge table is a temporal dimension.

4. If a **Weight Factor** attribute is used in this case study, what does the Weight Factor attribute mean? In which dimension, the Weigh Factor attribute is going to be placed?

   The Weight Factor indicates the contribution of each supplier to each product. If a product has a weight factor of 0.5, this indicates that it has 2 suppliers, indicating that each supplier contributes half of the total sales for that particular product. This is an approximate value because there is no record about supplier that supplied that product during the product sales.

   The Weigh Factor attribute is to be placed in ProductDIM.