Star Schema Design Explanation

Star schema[1] has long and slim Fact table at the center attached to short but wide dimension tables attached to it.

The requirements are:

1. To create a diagram that shows a star schema in a single fact table that starts with a prefix FACT_ and dimension tables that start with DIM_. The only required fields are those requested by the data analyst which are shown in table below.

Order details	price, quantity, discount, date
Product	name, quantity per unit, unit price
Product supplier	company name, region, country, active date
Product category	category name
Customer	company name, region, and country
Order shipper	Company name
Order employee	name, title, country

Solution:

To create the star schema, I have consolidated all the required fields into a single fact table which links to seven-dimension tables to provide more details. The fact table captures the most important high-level data, while the dimension tables provide detailed information if one wants to drill down. Each of these dimension tables are linked to the fact table via foreign keys.

2. The second requirement is to enable Type-2 slowly changing dimension (SCD[2]) on the Supplier's Dimension table.

Solution: Type-2 slowly changing dimension retains historical records. To create a Type-2 SCD, used existing *ActiveDate* column and added an *EndDate* column to suppliers dimension table.

Example: When the same company, with same SupplierID supplies again, the previous record EndDate will be updated to current time and a new record with active date will be created indicating the current supplier information (EndDate being NULL again).

SupID	Company	Region	Country	ActiveDate	EndDate
123	SONY	North America	USA	2000-01-01T00:00:00	2004-12-22T00:00:00
…	…	…	…	…	…
123	SONY	Asia	Japan	2004-12-22T00:00:00	NULL

This will effectively enable to keep track of historical changes of supplier records and enables support for analysis of historical records of suppliers.

[1] https://en.wikipedia.org/wiki/Star_schema
[2] https://en.wikipedia.org/wiki/Slowly_changing_dimension