**Objective:**

* design a warehouse database using star schema design
* load a data warehouse table using SQL against the production table

**Background**

Heather Sweeney Dodge is a home redesign company that specializes in home remodel. They give seminars around the country and sell books and video at the seminars. They track attendance and sales at the seminars in a database. They would like to analyze sales trends and find out which of their products is most popular and which of their important customers.

**Part 1: Create the HSD tables and load data**

Download files

* **HSD CreateTablesWithData.sql**, the production tables for the HSD (Heather Sweeney Dodge Company) and
* **HSDDW CreateTablesWithData.sql,** the data warehouse tables.

**Part 2: Create the HSDDW (HSD Data Warehouse) tables**

Execute the script HSD CreateTablesWithData script to create the production table and data.

Execute the script HSDDW CreateTablesWithData which create the warehouse tables and will loads the HSDDW tables with data from the HSD tables. Study the script carefully to understand how the data from HSD tables is copied and transformed and loaded into the HSDDW tables. This is known as ETL (Extract – Transform -Load). ETL may be done by sql scripts in simple cases (such as here). In more complex cases it needs special application programs to filter and “scrub” the data.

**Part 3: Modifying the HSD\_DW warehouse tables**

1. Examine the sql statements in the **HSDDW CreateTablesWithData.sql** What transformations of data were made when HSD-DW was loaded with data? [Identify all the transformations, showing the tables and columns of the HSD data and how they are mapped into the HSD-DW database.

***Copy your answer into hw5.sql file***

Create the SALEs\_FOR\_RFM table to the HSD-DW database using the create table statement below. RFM refers to “Recency, Frequency, Monetary Value” which are ways to identify important customers.

**create table sales\_for\_rfm (**

**TimeId int not null,**

**CustomerId int not null,**

**InvoiceNumber int not null,**

**PreTaxTotalSales Numeric(9,2) not null,**

**constraint sales\_for\_rfm\_pk**

**primary key(TimeId, CustomerId, InvoiceNumber),**

**constraint srfm\_timeline\_fk foreign key (TimeId)**

**references timeline(TimeId)**

**on update no action**

**on delete no action,**

**constraint srfm\_customer\_fk foreign key (CustomerId)**

**references customer(CustomerId)**

**on update no action**

**on delete no action**

**);**

1. What data will be used to load the SALES\_FOR\_RFM fact able? Write the complete set of SQL statements necessary to load the data. Then run the insert statement to populate the SALES\_FOR\_RFM table. Your INSERT statement will be similar to the load product sales INSERT statement on line 124 of HSDDW CreateTablesWithData.sql

***Copy your insert statement into hw5.sql file***

A query to summarize product units sold by Customer (CustomerName) , City, and Product(ProductName) and Year would be :

SELECT c.CustomerId, c.CustomerName, c.City,

p.ProductNumber, p.ProductName,

t.Year,t.QuarterText,

SUM(ps.Quantity) AS TotalQuantity

FROM customer c, product\_sales ps, product p,

timeline t

WHERE c.CustomerId = ps.CustomerID

AND p.ProductNumber = ps.ProductNumber

AND t.TimeId = ps.TimeID

GROUP BY c.CustomerId, c.CustomerName, c.City,

p.ProductNumber, p.ProductName,

t.QuarterText, t.Year

ORDER BY c.CustomerName, t.Year, t.QuarterText;

In the above query, product\_sales table is called the ***fact table***; customer, timeline and product tables are called ***dimension tables***.

1. Modify the above query to report the total dollar amount of sales instead of total quantity sold. Create an SQL View equivalent of the SQL query you wrote. Use your view and verify that the view returns the same number of rows in the same order as your sql SELECT.

***Copy your create view statement to hw5.sql***

Define a PAYMENT\_TYPE dimension table as

**create table hsddw.payment\_type (**

**payment\_type\_id int not null primary key,**

**payment\_type varchar(35) not null**

**);**

and insert the following values

**insert into payment\_type values**

**(1, 'VISA'),**

**(2, 'MasterCard'),**

**(3, 'Cash'),**

**(4, 'American Express'),**

**(5, 'PayPal'),**

**(6, 'Check');**

1. Modify the file HSDDW CreateTablesWithData.sql
   1. add a column to the create product\_sales on line 34 for payment\_type\_id.
   2. modify the INSERT statement on line 124 to populate the product\_sales table including the new payment\_type\_id column.
   3. rerun the HSDDW CreateTablesWithData.sql script and verify that payment\_type\_id has been populated. You should have 48 rows in the product\_sales table.

***Copy your modified insert statement to hw5.sql***

**What to submit for this assignment?**

The modified hw5.sql file.