CIS 310

Assignment 10B Due 12/6/17

Jessica Hoffman

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--A10BA

--Create the Dimension tables

USE CIS31034

CREATE TABLE PRODUCT\_DIM

(

PRODUCTID INT IDENTITY(1,1) NOT NULL,

PROD\_SKU VARCHAR(15) NOT NULL,

PROD\_DESCRIPT VARCHAR(255),

PROD\_TYPE VARCHAR(255),

BRAND\_ID NUMERIC(4,0),

BRAND\_NAME VARCHAR(100),

BRAND\_TYPE VARCHAR(20)

)

CREATE TABLE EMPLOYEE\_DIM

(

EMPLOYEEID INT IDENTITY(1,1) NOT NULL,

EMP\_NUM NUMERIC(6,0) NOT NULL,

EMP\_FNAME VARCHAR(20),

EMP\_LNAME VARCHAR(25),

EMP\_TITLE VARCHAR(45),

DEPT\_NUM NUMERIC(5,0),

DEPT\_NAME VARCHAR(50)

)

CREATE TABLE CUSTOMER\_DIM

(

CUSTOMERID INT IDENTITY(1,1) NOT NULL,

CUST\_CODE NUMERIC(38,0) NOT NULL,

CUST\_LNAME VARCHAR(20),

CUST\_FNAME VARCHAR(20),

CUST\_STREET VARCHAR(70),

CUST\_CITY VARCHAR(50),

CUST\_STATE CHAR(2),

CUST\_ZIP CHAR(5)

)

CREATE TABLE TIME\_DIM

(

TIMEID INT IDENTITY(1,1) NOT NULL,

INV\_DATE DATE,

YEAR\_NUM INT,

MONTH\_NUM INT,

QUARTER\_NUM INT

)

--Add constraints to the Dimension tables

ALTER TABLE PRODUCT\_DIM

ADD CONSTRAINT [PK\_PRODUCT\_DIM] PRIMARY KEY (PRODUCTID)

ALTER TABLE CUSTOMER\_DIM

ADD CONSTRAINT [PK\_CUSTOMER\_DIM] PRIMARY KEY (CUSTOMERID)

ALTER TABLE EMPLOYEE\_DIM

ADD CONSTRAINT [PK\_EMPLOYEE\_DIM] PRIMARY KEY (EMPLOYEEID)

ALTER TABLE TIME\_DIM

ADD CONSTRAINT [PK\_TIME\_DIM] PRIMARY KEY (TIMEID)

--Create the Fact table

CREATE TABLE FACT\_TABLE

(

PRODUCTID INT NOT NULL,

CUSTOMERID INT NOT NULL,

EMPLOYEEID INT NOT NULL,

TIMEID INT NOT NULL,

LINE\_QTY NUMERIC(18,0),

LINE\_PRICE NUMERIC(8,2)

)

--Add constraints to the Fact table

ALTER TABLE FACT\_TABLE

ADD CONSTRAINT FK\_PRODUCT FOREIGN KEY (PRODUCTID) REFERENCES PRODUCT\_DIM,

CONSTRAINT FK\_CUSTOMER FOREIGN KEY (CUSTOMERID) REFERENCES CUSTOMER\_DIM,

CONSTRAINT FK\_EMPLOYEE FOREIGN KEY (EMPLOYEEID) REFERENCES EMPLOYEE\_DIM,

CONSTRAINT FK\_TIME FOREIGN KEY (TIMEID) REFERENCES TIME\_DIM

ALTER TABLE FACT\_TABLE

ADD PRIMARY KEY (PRODUCTID, CUSTOMERID, EMPLOYEEID, TIMEID)

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--A10BB Stored Procedure

CREATE PROCEDURE A10BB

AS

BEGIN

SET NOCOUNT ON;

--Drop Constraints

ALTER TABLE FACT\_TABLE DROP CONSTRAINT FK\_CUSTOMER

ALTER TABLE FACT\_TABLE DROP CONSTRAINT FK\_EMPLOYEE

ALTER TABLE FACT\_TABLE DROP CONSTRAINT FK\_PRODUCT

ALTER TABLE FACT\_TABLE DROP CONSTRAINT FK\_TIME

--Truncate Tables

TRUNCATE TABLE FACT\_TABLE

TRUNCATE TABLE CUSTOMER\_DIM

TRUNCATE TABLE EMPLOYEE\_DIM

TRUNCATE TABLE PRODUCT\_DIM

TRUNCATE TABLE TIME\_DIM

--Add Constraints

ALTER TABLE FACT\_TABLE

ADD CONSTRAINT FK\_PRODUCT FOREIGN KEY (PRODUCTID) REFERENCES PRODUCT\_DIM,

CONSTRAINT FK\_CUSTOMER FOREIGN KEY (CUSTOMERID) REFERENCES CUSTOMER\_DIM,

CONSTRAINT FK\_EMPLOYEE FOREIGN KEY (EMPLOYEEID) REFERENCES EMPLOYEE\_DIM,

CONSTRAINT FK\_TIME FOREIGN KEY (TIMEID) REFERENCES TIME\_DIM

--Insert Data

--Populate Dimension tables

INSERT INTO CUSTOMER\_DIM

SELECT CUST\_CODE, CUST\_LNAME, CUST\_FNAME, CUST\_STREET, CUST\_CITY, CUST\_STATE, CUST\_ZIP

FROM LGCUSTOMER

INSERT INTO EMPLOYEE\_DIM

SELECT E.EMP\_NUM, E.EMP\_FNAME, E.EMP\_LNAME, E.EMP\_TITLE, E.DEPT\_NUM, D.DEPT\_NAME

FROM LGEMPLOYEE E INNER JOIN LGDEPARTMENT D ON E.DEPT\_NUM = D.DEPT\_NUM

INSERT INTO PRODUCT\_DIM

SELECT P.PROD\_SKU, P.PROD\_DESCRIPT, P.PROD\_TYPE, P.BRAND\_ID, B.BRAND\_NAME, B.BRAND\_TYPE

FROM LGPRODUCT P INNER JOIN LGBRAND B ON B.BRAND\_ID = P.BRAND\_ID

INSERT INTO TIME\_DIM (INV\_DATE, YEAR\_NUM, MONTH\_NUM, QUARTER\_NUM)

SELECT DISTINCT INV\_DATE, YEAR(INV\_DATE), MONTH(INV\_DATE), DATEPART(QUARTER, INV\_DATE)

FROM LGINVOICE

--Create Staging table

CREATE TABLE STAGING

(

PRODUCTID INT,

CUSTOMERID INT,

EMPLOYEEID INT,

TIMEID INT,

PROD\_SKU VARCHAR(15),

EMP\_NUM NUMERIC(6,0),

CUST\_CODE NUMERIC(38,0),

INV\_DATE DATE,

LINE\_QTY NUMERIC(18,0),

LINE\_PRICE NUMERIC(8,2),

INV\_TOTAL NUMERIC(11,2)

)

--Populate Staging table

INSERT INTO STAGING (PROD\_SKU, EMP\_NUM, CUST\_CODE, INV\_DATE, LINE\_QTY, LINE\_PRICE, INV\_TOTAL)

SELECT P.PROD\_SKU, E.EMP\_NUM, C.CUST\_CODE, I.INV\_DATE, L.LINE\_QTY, L.LINE\_PRICE, I.INV\_TOTAL

FROM LGINVOICE I INNER JOIN LGEMPLOYEE E ON I.EMPLOYEE\_ID = E.EMP\_NUM

INNER JOIN LGCUSTOMER C ON C.CUST\_CODE = I.CUST\_CODE

INNER JOIN LGLINE L ON L.INV\_NUM = I.INV\_NUM

INNER JOIN LGPRODUCT P ON P.PROD\_SKU = L.PROD\_SKU

UPDATE STAGING

SET PRODUCTID = P.PRODUCTID

FROM STAGING S INNER JOIN PRODUCT\_DIM P ON S.PROD\_SKU = P.PROD\_SKU

UPDATE STAGING

SET CUSTOMERID = C.CUSTOMERID

FROM STAGING S INNER JOIN CUSTOMER\_DIM C ON S.CUST\_CODE = C.CUST\_CODE

UPDATE STAGING

SET EMPLOYEEID = E.EMPLOYEEID

FROM STAGING S INNER JOIN EMPLOYEE\_DIM E ON S.EMP\_NUM = E.EMP\_NUM

UPDATE STAGING

SET TIMEID = T.TIMEID

FROM STAGING S INNER JOIN TIME\_DIM T ON S.INV\_DATE = T.INV\_DATE

--Populate Fact table

INSERT INTO FACT\_TABLE

SELECT DISTINCT PRODUCTID, CUSTOMERID, EMPLOYEEID, TIMEID, SUM(LINE\_QTY), AVG(LINE\_PRICE)

FROM STAGING

GROUP BY PRODUCTID, CUSTOMERID, EMPLOYEEID, TIMEID

--Drop Staging table

DROP TABLE STAGING

END

GO

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--A10BC Queries

EXEC dbo.A10BB

--4. What are the top 5 products in terms of sales (total quantity \* price)?

SELECT TOP(5) P.PROD\_SKU, P.PROD\_DESCRIPT, F.LINE\_QTY, F.LINE\_PRICE, SUM(F.LINE\_QTY\*F.LINE\_PRICE) AS "TOTAL SALE AMT"

FROM FACT\_TABLE F INNER JOIN PRODUCT\_DIM P ON P.PRODUCTID = F.PRODUCTID

GROUP BY P.PROD\_SKU, P.PROD\_DESCRIPT, F.LINE\_QTY, F.LINE\_PRICE

ORDER BY SUM(F.LINE\_QTY\*F.LINE\_PRICE) DESC

--5. List the names of employees who have sold the most products in terms of amount of sales (total of quantity \* price).

SELECT TOP(5) E.EMP\_FNAME, E.EMP\_LNAME, COUNT(F.LINE\_QTY\*F.LINE\_PRICE) AS "TOTAL SALES", SUM(F.LINE\_QTY\*F.LINE\_PRICE) AS "TOTAL SALE AMT"

FROM FACT\_TABLE F INNER JOIN EMPLOYEE\_DIM E ON E.EMPLOYEEID = F.EMPLOYEEID

GROUP BY E.EMP\_FNAME, E.EMP\_LNAME

ORDER BY COUNT(F.LINE\_QTY\*F.LINE\_PRICE) DESC

--6. List the total amount of sales by customer city and brand name.

SELECT C.CUST\_CITY, P.BRAND\_NAME, COUNT(F.LINE\_QTY\*F.LINE\_PRICE) AS "TOTAL SALES", SUM(F.LINE\_QTY\*F.LINE\_PRICE) AS "TOTAL SALE AMT"

FROM FACT\_TABLE F INNER JOIN CUSTOMER\_DIM C ON C.CUSTOMERID = F.CUSTOMERID

INNER JOIN PRODUCT\_DIM P ON P.PRODUCTID = F.PRODUCTID

GROUP BY C.CUST\_CITY, P.BRAND\_NAME

--7. List the customer names of customers and the top 5 products each of these customers have bought.

SELECT C.CUST\_FNAME, C.CUST\_LNAME, P.PROD\_SKU, P.PROD\_DESCRIPT, SUM(F.LINE\_QTY) AS "QUANTITY"

FROM FACT\_TABLE F INNER JOIN CUSTOMER\_DIM C ON C.CUSTOMERID = F.CUSTOMERID

INNER JOIN PRODUCT\_DIM P ON P.PRODUCTID = F.PRODUCTID

WHERE EXISTS (SELECT TOP(5) C.CUST\_FNAME, F.PRODUCTID, SUM(F.LINE\_QTY) AS "QUANTITY"

FROM FACT\_TABLE F INNER JOIN CUSTOMER\_DIM C ON C.CUSTOMERID = F.CUSTOMERID

GROUP BY C.CUST\_FNAME, F.PRODUCTID

ORDER BY SUM(F.LINE\_QTY) DESC)

GROUP BY C.CUST\_FNAME, C.CUST\_LNAME, P.PROD\_SKU, P.PROD\_DESCRIPT

ORDER BY C.CUST\_LNAME, SUM(F.LINE\_QTY) DESC