In this assignment you will use the Robcor database as described in Exercise 4 on page 642.

Part 0. Use the given Access database to create the Robcor database on SQL Server. Then define the PKs and create the relationships. Save a copy of the ERD in SQL Server and name it A10P0.jpeg.

Part 1. Design a star schema database in Crow's Foot. Make sure you have all the appropriate dimensions, attributes, and facts. Consider only the facts fuel used, distance, and revenue. Revenue is defined as char\_fuel\_gallons \* mod\_chg\_mile. Save the ERD in the file named A10P1.

Part 2. Create a database to implement the design in Part 1 above. You must use Create table statements with Alter table statements to add all the constraints. Save the script in a file named A10P2.sql.

Part 3. Write a stored procedure to populate the star schema database with the transaction data in the provided database. Save the stored procedure in a file named A10P3.sql. The stored procedure should be such that it can be rerun/tested whether or not the star schema database is populated.

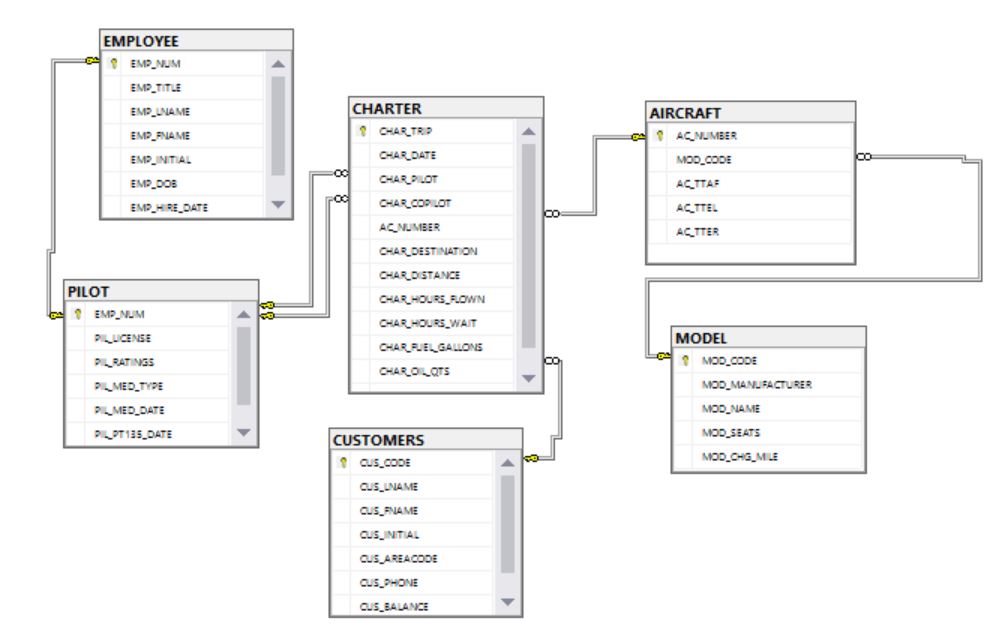
Part 4. Write a query for each of the following and save the queries in A10P4.sql.

List the names of pilots who have flown the most miles.

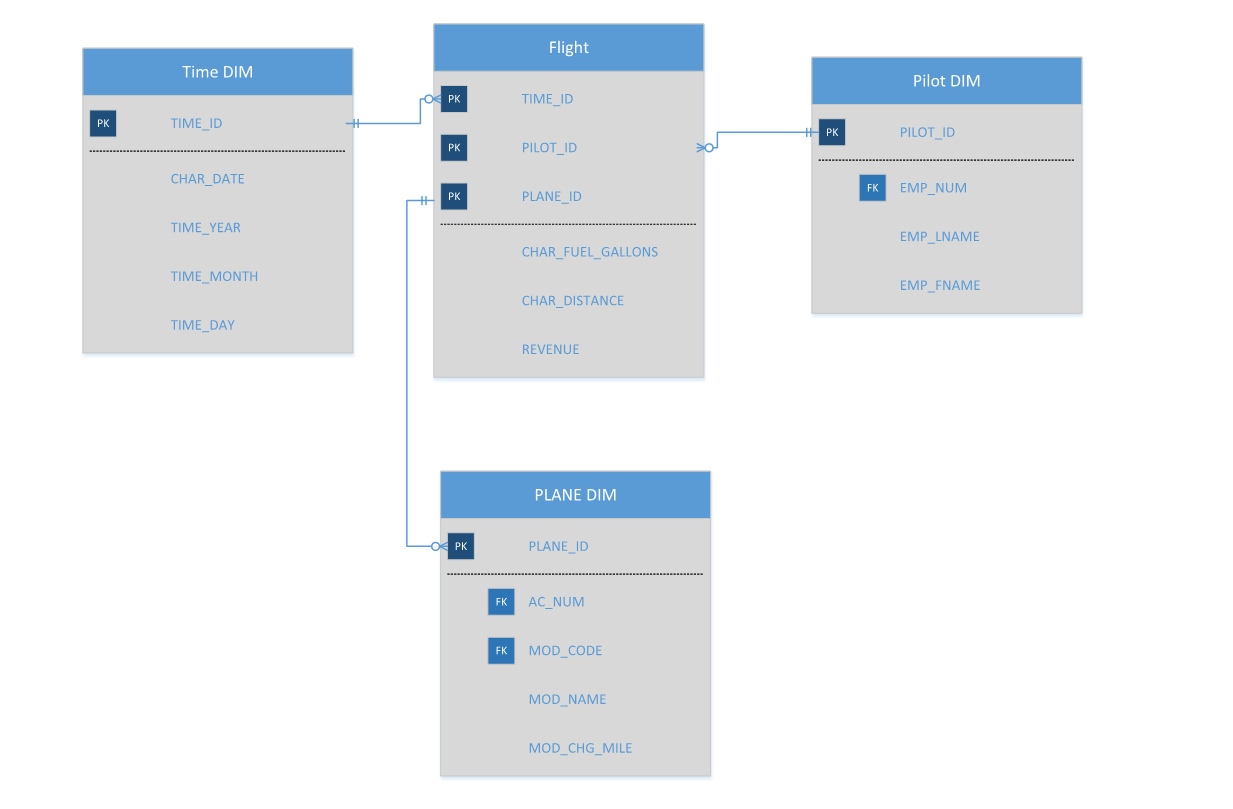
List the revenue by model and month in ascending order.

Submit all the files on Blackboard and a printed copy in class.

0)



1)



2)

CREATE TABLE PILOT\_DIM

(

PILOT\_ID INT IDENTITY NOT NULL,

EMP\_NUM CHAR(3),

EMP\_LNAME VARCHAR (20),

EMP\_FNAME VARCHAR(20)

);

CREATE TABLE PLANE\_DIM

(

PLANE\_ID INT IDENTITY NOT NULL,

AC\_NUM NVARCHAR(5),

MOD\_CODE VARCHAR(10),

MOD\_NAME VARCHAR (30),

MOD\_CHG\_MILE DECIMAL

);

CREATE TABLE TIME\_DIM

(

TIME\_ID INT IDENTITY NOT NULL,

CHAR\_DATE DATE,

TIME\_YEAR CHAR(4),

TIME\_MONTH CHAR(2),

TIME\_DAY CHAR(2)

);

CREATE TABLE FLIGHT

(

TIME\_ID INT NOT NULL,

PILOT\_ID INT NOT NULL,

PLANE\_ID INT NOT NULL,

CHAR\_FUEL\_GALLONS DECIMAL,

CHAR\_DISTANCE DECIMAL,

REVENUE DECIMAL

);

CREATE TABLE STAGING

(

TIME\_ID INT NOT NULL,

PILOT\_ID INT NOT NULL,

PLANE\_ID INT NOT NULL,

EMP\_NUM CHAR(3),

EMP\_LNAME VARCHAR (20),

EMP\_FNAME VARCHAR(20),

CHAR\_DATE DATE,

TIME\_YEAR CHAR(4),

TIME\_MONTH CHAR(2),

TIME\_DAY CHAR(2),

MOD\_CODE VARCHAR(10),

MOD\_NAME VARCHAR (30),

CHAR\_FUEL\_GALLONS DECIMAL,

CHAR\_DISTANCE DECIMAL,

MOD\_CHG\_MILE DECIMAL,

AC\_NUMBER NVARCHAR(5)

);

ALTER TABLE PILOT\_DIM

ADD CONSTRAINT PK\_PILOTDIM PRIMARY KEY (PILOT\_ID)

ALTER TABLE PLANE\_DIM

ADD CONSTRAINT PK\_PLANEDIM PRIMARY KEY (PLANE\_ID)

ALTER TABLE TIME\_DIM

ADD CONSTRAINT PK\_TIMEDIM PRIMARY KEY (TIME\_ID)

ALTER TABLE FLIGHT

ADD CONSTRAINT PK\_FLIGHT PRIMARY KEY (PILOT\_ID,PLANE\_ID,TIME\_ID),

CONSTRAINT FK\_FLIGHTTIME FOREIGN KEY (TIME\_ID) REFERENCES TIME\_DIM,

CONSTRAINT FK\_FLIGHTPLANE FOREIGN KEY (PLANE\_ID) REFERENCES PLANE\_DIM,

CONSTRAINT FK\_FLIGHTPILOT FOREIGN KEY (PILOT\_ID) REFERENCES PILOT\_DIM

3) USE [CIS31030]

GO

/\*\*\*\*\*\* Object: StoredProcedure [dbo].[A10P3.SQL] Script Date: 12/4/2016 10:42:34 PM \*\*\*\*\*\*/

SET ANSI\_NULLS ON

GO

SET QUOTED\_IDENTIFIER ON

GO

-- =============================================

-- Author: TIM MAHAN

-- Create date: <Create Date,,>

-- Description: <Description,,>

-- =============================================

ALTER PROCEDURE [dbo].[A10P3.SQL]

AS

BEGIN

ALTER TABLE FLIGHT

DROP CONSTRAINT PK\_FLIGHT,

CONSTRAINT FK\_FLIGHTTIME,

CONSTRAINT FK\_FLIGHTPLANE,

CONSTRAINT FK\_FLIGHTPILOT

ALTER TABLE PILOT\_DIM

DROP CONSTRAINT PK\_PILOTDIM

ALTER TABLE PLANE\_DIM

DROP CONSTRAINT PK\_PLANEDIM

ALTER TABLE TIME\_DIM

DROP CONSTRAINT PK\_TIMEDIM

TRUNCATE TABLE FLIGHT

TRUNCATE TABLE PILOT\_DIM

TRUNCATE TABLE PLANE\_DIM

TRUNCATE TABLE TIME\_DIM

TRUNCATE TABLE STAGING

ALTER TABLE PILOT\_DIM

ADD CONSTRAINT PK\_PILOTDIM PRIMARY KEY (PILOT\_ID)

ALTER TABLE PLANE\_DIM

ADD CONSTRAINT PK\_PLANEDIM PRIMARY KEY (PLANE\_ID)

ALTER TABLE TIME\_DIM

ADD CONSTRAINT PK\_TIMEDIM PRIMARY KEY (TIME\_ID)

ALTER TABLE FLIGHT

ADD CONSTRAINT PK\_FLIGHT PRIMARY KEY (PILOT\_ID,PLANE\_ID,TIME\_ID),

CONSTRAINT FK\_FLIGHTTIME FOREIGN KEY (TIME\_ID) REFERENCES TIME\_DIM,

CONSTRAINT FK\_FLIGHTPLANE FOREIGN KEY (PLANE\_ID) REFERENCES PLANE\_DIM,

CONSTRAINT FK\_FLIGHTPILOT FOREIGN KEY (PILOT\_ID) REFERENCES PILOT\_DIM

INSERT INTO PILOT\_DIM

SELECT DISTINCT E.EMP\_NUM, E.EMP\_LNAME, E.EMP\_FNAME

FROM EMPLOYEE E

INNER JOIN PILOT P ON P.EMP\_NUM = E.EMP\_NUM

INNER JOIN CHARTER C ON P.EMP\_NUM = C.CHAR\_PILOT

INSERT INTO PLANE\_DIM

SELECT A.AC\_NUMBER, M.MOD\_CODE, M.MOD\_NAME, M.MOD\_CHG\_MILE

FROM MODEL M INNER JOIN AIRCRAFT A ON A.MOD\_CODE = M.MOD\_CODE

INSERT INTO TIME\_DIM

SELECT DISTINCT CHAR\_DATE, YEAR(CHAR\_DATE), MONTH(CHAR\_DATE), DAY(CHAR\_DATE)

FROM CHARTER

INSERT INTO STAGING

SELECT T.TIME\_ID, PILOT\_ID, PLANE\_ID, EMP\_NUM, EMP\_LNAME, EMP\_FNAME, T.CHAR\_DATE, T.TIME\_YEAR, T.TIME\_MONTH ,

T.TIME\_DAY, PD.MOD\_CODE, PD.MOD\_NAME, CHAR\_FUEL\_GALLONS, CHAR\_DISTANCE, PD.MOD\_CHG\_MILE, PD.AC\_NUM

FROM PILOT\_DIM P

INNER JOIN CHARTER C ON P.EMP\_NUM = C.CHAR\_PILOT

INNER JOIN TIME\_DIM T ON T.CHAR\_DATE = C.CHAR\_DATE

INNER JOIN PLANE\_DIM PD ON PD.AC\_NUM = C.AC\_NUMBER

UPDATE STAGING

SET STAGING.TIME\_ID = TIME\_DIM.TIME\_ID

FROM STAGING INNER JOIN TIME\_DIM

ON STAGING.TIME\_ID = TIME\_DIM.TIME\_ID

UPDATE STAGING

SET STAGING.PLANE\_ID = PLANE\_DIM.PLANE\_ID

FROM STAGING INNER JOIN PLANE\_DIM

ON STAGING.PLANE\_ID = PLANE\_DIM.PLANE\_ID

UPDATE STAGING

SET STAGING.PILOT\_ID = PILOT\_DIM.PILOT\_ID

FROM STAGING INNER JOIN PILOT\_DIM

ON STAGING.PILOT\_ID = PILOT\_DIM.PILOT\_ID

INSERT INTO FLIGHT

SELECT TIME\_ID, PILOT\_ID, PLANE\_ID, CHAR\_FUEL\_GALLONS, CHAR\_DISTANCE, (MOD\_CHG\_MILE \* CHAR\_FUEL\_GALLONS) AS 'REVENUE'

FROM STAGING

END

4)

--QUERY 1

SELECT PD.EMP\_FNAME, PD.EMP\_LNAME

FROM FLIGHT F INNER JOIN PILOT\_DIM PD

ON F.PILOT\_ID = PD.PILOT\_ID

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

HAVING SUM(CHAR\_DISTANCE) = (SELECT TOP 1 SUM(CHAR\_DISTANCE)

FROM FLIGHT F INNER JOIN PILOT\_DIM PD

ON F.PILOT\_ID = PD.PILOT\_ID

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

ORDER BY SUM(CHAR\_DISTANCE) DESC )

--QUERY 2

SELECT PD.MOD\_NAME, TD.TIME\_MONTH AS 'MONTH', SUM(F.REVENUE) AS 'MODEL\_REVENUE'

FROM PLANE\_DIM PD

INNER JOIN FLIGHT F ON PD.PLANE\_ID = F.PLANE\_ID

INNER JOIN TIME\_DIM TD ON TD.TIME\_ID = F.TIME\_ID

GROUP BY PD.MOD\_NAME, TD.TIME\_MONTH

ORDER BY TD.TIME\_MONTH ASC, MOD\_NAME