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CIS 310-02

A10

Dr. Guan

**Part #1:**

CREATE TABLE AIRCRAFT (

AC\_NUMBER varchar(5) NOT NULL,

MOD\_CODE varchar(10),

AC\_TTAF float(8),

AC\_TTEL float(8),

AC\_TTER float(8)

);

INSERT INTO AIRCRAFT VALUES('1484P','PA23-250','1833.1','1833.1','101.8');

INSERT INTO AIRCRAFT VALUES('2289L','C-90A','4243.8','768.9','1123.4');

INSERT INTO AIRCRAFT VALUES('2778V','PA31-350','7992.9','1513.1','789.5');

INSERT INTO AIRCRAFT VALUES('4278Y','PA31-350','2147.3','622.1','243.2');

/\* -- \*/

CREATE TABLE CHARTER (

CHAR\_TRIP int NOT NULL,

CHAR\_DATE datetime,

AC\_NUMBER varchar(5),

CHAR\_DESTINATION varchar(3),

CHAR\_DISTANCE float(8),

CHAR\_HOURS\_FLOWN float(8),

CHAR\_HOURS\_WAIT float(8),

CHAR\_FUEL\_GALLONS float(8),

CHAR\_OIL\_QTS integer,

CUS\_CODE int

);

INSERT INTO CHARTER

VALUES('10001','2/5/2016','2289L','ATL','936','5.1','2.2','354.1','1','10011');

INSERT INTO CHARTER

VALUES('10002','2/5/2016','2778V','BNA','320','1.6','0','72.6','0','10016');

INSERT INTO CHARTER

VALUES('10003','2/5/2016','4278Y','GNV','1574','7.8','0','339.8','2','10014');

INSERT INTO CHARTER

VALUES('10004','2/6/2016','1484P','STL','472','2.9','4.9','97.2','1','10019');

INSERT INTO CHARTER

VALUES('10005','2/6/2016','2289L','ATL','1023','5.7','3.5','397.7','2','10011');

INSERT INTO CHARTER

VALUES('10006','2/6/2016','4278Y','STL','472','2.6','5.2','117.1','0','10017');

INSERT INTO CHARTER

VALUES('10007','2/6/2016','2778V','GNV','1574','7.9','0','348.4','2','10012');

INSERT INTO CHARTER

VALUES('10008','2/7/2016','1484P','TYS','644','4.1','0','140.6','1','10014');

INSERT INTO CHARTER

VALUES('10009','2/7/2016','2289L','GNV','1574','6.6','23.4','459.9','0','10017');

INSERT INTO CHARTER

VALUES('10010','2/7/2016','4278Y','ATL','998','6.2','3.2','279.7','0','10016');

INSERT INTO CHARTER

VALUES('10011','2/7/2016','1484P','BNA','352','1.9','5.3','66.4','1','10012');

INSERT INTO CHARTER

VALUES('10012','2/8/2016','2778V','MOB','884','4.8','4.2','215.1','0','10010');

INSERT INTO CHARTER

VALUES('10013','2/8/2016','4278Y','TYS','644','3.9','4.5','174.3','1','10011');

INSERT INTO CHARTER

VALUES('10014','2/9/2016','4278Y','ATL','936','6.1','2.1','302.6','0','10017');

INSERT INTO CHARTER

VALUES('10015','2/9/2016','2289L','GNV','1645','6.7','0','459.5','2','10016');

INSERT INTO CHARTER

VALUES('10016','2/9/2016','2778V','MQY','312','1.5','0','67.2','0','10011');

INSERT INTO CHARTER

VALUES('10017','2/10/2016','1484P','STL','508','3.1','0','105.5','0','10014');

INSERT INTO CHARTER

VALUES('10018','2/10/2016','4278Y','TYS','644','3.8','4.5','167.4','0','10017');

/\* -- \*/

CREATE TABLE CREW (

CHAR\_TRIP int NOT NULL,

EMP\_NUM int NOT NULL,

CREW\_JOB varchar(20)

);

INSERT INTO CREW VALUES('10001','104','Pilot');

INSERT INTO CREW VALUES('10002','101','Pilot');

INSERT INTO CREW VALUES('10003','105','Pilot');

INSERT INTO CREW VALUES('10003','109','Copilot');

INSERT INTO CREW VALUES('10004','106','Pilot');

INSERT INTO CREW VALUES('10005','101','Pilot');

INSERT INTO CREW VALUES('10006','109','Pilot');

INSERT INTO CREW VALUES('10007','104','Pilot');

INSERT INTO CREW VALUES('10007','105','Copilot');

INSERT INTO CREW VALUES('10008','106','Pilot');

INSERT INTO CREW VALUES('10009','105','Pilot');

INSERT INTO CREW VALUES('10010','108','Pilot');

INSERT INTO CREW VALUES('10011','101','Pilot');

INSERT INTO CREW VALUES('10011','104','Copilot');

INSERT INTO CREW VALUES('10012','101','Pilot');

INSERT INTO CREW VALUES('10013','105','Pilot');

INSERT INTO CREW VALUES('10014','106','Pilot');

INSERT INTO CREW VALUES('10015','101','Copilot');

INSERT INTO CREW VALUES('10015','104','Pilot');

INSERT INTO CREW VALUES('10016','105','Copilot');

INSERT INTO CREW VALUES('10016','109','Pilot');

INSERT INTO CREW VALUES('10017','101','Pilot');

INSERT INTO CREW VALUES('10018','104','Copilot');

INSERT INTO CREW VALUES('10018','105','Pilot');

/\* -- \*/

CREATE TABLE CUSTOMERS (

CUS\_CODE int NOT NULL,

CUS\_LNAME varchar(15),

CUS\_FNAME varchar(15),

CUS\_INITIAL varchar(1),

CUS\_AREACODE varchar(3),

CUS\_PHONE varchar(8),

CUS\_BALANCE float(8)

);

INSERT INTO CUSTOMERS VALUES('10010','Ramas','Alfred','A','615','844-2573','0');

INSERT INTO CUSTOMERS VALUES('10011','Dunne','Leona','K','713','894-1238','0');

INSERT INTO CUSTOMERS VALUES('10012','Smith','Kathy','W','615','894-2285','896.54');

INSERT INTO CUSTOMERS VALUES('10013','Olowski','Paul','F','615','894-2180','1285.19');

INSERT INTO CUSTOMERS VALUES('10014','Orlando','Myron','','615','222-1672','673.21');

INSERT INTO CUSTOMERS VALUES('10015','O''Brian','Amy','B','713','442-3381','1014.56');

INSERT INTO CUSTOMERS VALUES('10016','Brown','James','G','615','297-1228','0');

INSERT INTO CUSTOMERS VALUES('10017','Williams','George','','615','290-2556','0');

INSERT INTO CUSTOMERS VALUES('10018','Farriss','Anne','G','713','382-7185','0');

INSERT INTO CUSTOMERS VALUES('10019','Smith','Olette','K','615','297-3809','453.98');

/\* -- \*/

CREATE TABLE EARNEDRATING (

EMP\_NUM int NOT NULL,

RTG\_CODE varchar(5) NOT NULL,

EARNRTG\_DATE datetime

);

INSERT INTO EARNEDRATING VALUES('101','CFI','2/18/2004');

INSERT INTO EARNEDRATING VALUES('101','CFII','12/15/2011');

INSERT INTO EARNEDRATING VALUES('101','INSTR','11/8/1999');

INSERT INTO EARNEDRATING VALUES('101','MEL','6/23/2000');

INSERT INTO EARNEDRATING VALUES('101','SEL','4/21/1999');

INSERT INTO EARNEDRATING VALUES('104','INSTR','7/15/2002');

INSERT INTO EARNEDRATING VALUES('104','MEL','1/29/2003');

INSERT INTO EARNEDRATING VALUES('104','SEL','3/12/2001');

INSERT INTO EARNEDRATING VALUES('105','CFI','11/18/2003');

INSERT INTO EARNEDRATING VALUES('105','INSTR','4/17/2001');

INSERT INTO EARNEDRATING VALUES('105','MEL','8/12/2001');

INSERT INTO EARNEDRATING VALUES('105','SEL','9/23/2000');

INSERT INTO EARNEDRATING VALUES('106','INSTR','12/20/2001');

INSERT INTO EARNEDRATING VALUES('106','MEL','4/2/2002');

INSERT INTO EARNEDRATING VALUES('106','SEL','3/10/2000');

INSERT INTO EARNEDRATING VALUES('109','CFI','11/5/2004');

INSERT INTO EARNEDRATING VALUES('109','CFII','6/21/2009');

INSERT INTO EARNEDRATING VALUES('109','INSTR','7/23/2002');

INSERT INTO EARNEDRATING VALUES('109','MEL','3/15/2003');

INSERT INTO EARNEDRATING VALUES('109','SEL','2/5/2002');

INSERT INTO EARNEDRATING VALUES('109','SES','5/12/2002');

/\* -- \*/

CREATE TABLE EMPLOYEE (

EMP\_NUM int NOT NULL,

EMP\_TITLE varchar(4),

EMP\_LNAME varchar(15),

EMP\_FNAME varchar(15),

EMP\_INITIAL varchar(1),

EMP\_DOB datetime,

EMP\_HIRE\_DATE datetime

);

INSERT INTO EMPLOYEE VALUES('100','Mr.','Kolmycz','George','D','6/15/1952','3/15/2007');

INSERT INTO EMPLOYEE VALUES('101','Ms.','Lewis','Rhonda','G','3/19/1975','4/25/2008');

INSERT INTO EMPLOYEE VALUES('102','Mr.','VanDam','Rhett','','11/14/1968','12/20/2012');

INSERT INTO EMPLOYEE VALUES('103','Ms.','Jones','Anne','M','10/16/1984','8/28/2015');

INSERT INTO EMPLOYEE VALUES('104','Mr.','Lange','John','P','11/8/1981','10/20/2006');

INSERT INTO EMPLOYEE VALUES('105','Mr.','Williams','Robert','D','3/14/1985','1/8/2015');

INSERT INTO EMPLOYEE VALUES('106','Mrs.','Duzak','Jeanine','K','2/12/1978','1/5/2011');

INSERT INTO EMPLOYEE VALUES('107','Mr.','Diante','Jorge','D','8/21/1984','7/2/2006');

INSERT INTO EMPLOYEE VALUES('108','Mr.','Wiesenbach','Paul','R','2/14/1976','11/18/2014');

INSERT INTO EMPLOYEE VALUES('109','Ms.','Travis','Elizabeth','K','6/18/1971','4/14/2011');

INSERT INTO EMPLOYEE VALUES('110','Mrs.','Genkazi','Leighla','W','5/19/1980','12/1/2012');

/\* -- \*/

CREATE TABLE MODEL (

MOD\_CODE varchar(10) NOT NULL,

MOD\_MANUFACTURER varchar(15),

MOD\_NAME varchar(20),

MOD\_SEATS float(8),

MOD\_CHG\_MILE float(8)

);

INSERT INTO MODEL VALUES('C-90A','Beechcraft','KingAir','8','2.67');

INSERT INTO MODEL VALUES('PA23-250','Piper','Aztec','6','1.93');

INSERT INTO MODEL VALUES('PA31-350','Piper','Navajo Chieftain','10','2.35');

/\* -- \*/

CREATE TABLE PILOT (

EMP\_NUM int NOT NULL,

PIL\_LICENSE varchar(25),

PIL\_RATINGS varchar(25),

PIL\_MED\_TYPE varchar(1),

PIL\_MED\_DATE datetime,

PIL\_PT135\_DATE datetime

);

INSERT INTO PILOT VALUES('101','ATP','SEL/MEL/Instr/CFII','1','4/12/2016','6/15/2015');

INSERT INTO PILOT VALUES('104','ATP','SEL/MEL/Instr','1','6/10/2015','3/23/2016');

INSERT INTO PILOT VALUES('105','COM','SEL/MEL/Instr/CFI','2','2/25/2016','2/12/2016');

INSERT INTO PILOT VALUES('106','COM','SEL/MEL/Instr','2','4/2/2016','12/24/2015');

INSERT INTO PILOT VALUES('109','COM','SEL/MEL/SES/Instr/CFII','1','4/14/2016','4/21/2016');

/\* -- \*/

CREATE TABLE RATING (

RTG\_CODE varchar(5) NOT NULL,

RTG\_NAME varchar(50)

);

INSERT INTO RATING VALUES('CFI','Certified Flight Instructor');

INSERT INTO RATING VALUES('CFII','Certified Flight Instructor, Instrument');

INSERT INTO RATING VALUES('INSTR','Instrument');

INSERT INTO RATING VALUES('MEL','Multiengine Land');

INSERT INTO RATING VALUES('SEL','Single Engine, Land');

INSERT INTO RATING VALUES('SES','Single Engine, Sea');

/\* -- \*/

ALTER TABLE AIRCRAFT

ADD CONSTRAINT PK\_AC\_NUMBER PRIMARY KEY (AC\_NUMBER);

ALTER TABLE CHARTER

ADD CONSTRAINT PK\_CHAR\_TRIP PRIMARY KEY (CHAR\_TRIP);

ALTER TABLE CREW

ADD CONSTRAINT PK\_CHAR\_TRIP\_EMP\_NUM PRIMARY KEY (CHAR\_TRIP, EMP\_NUM);

ALTER TABLE CUSTOMERS

ADD CONSTRAINT PK\_CUS\_CODE PRIMARY KEY (CUS\_CODE);

ALTER TABLE EARNEDRATING

ADD CONSTRAINT PK\_EMP\_NUM\_RTG\_CODE PRIMARY KEY (EMP\_NUM, RTG\_CODE);

ALTER TABLE EMPLOYEE

ADD CONSTRAINT PK\_EMP\_NUM PRIMARY KEY (EMP\_NUM);

ALTER TABLE MODEL

ADD CONSTRAINT PK\_MOD\_CODE PRIMARY KEY (MOD\_CODE);

ALTER TABLE PILOT

ADD CONSTRAINT PK\_PILOT\_EMP\_NUM PRIMARY KEY (EMP\_NUM);

ALTER TABLE RATING

ADD CONSTRAINT PK\_RTG\_CODE PRIMARY KEY (RTG\_CODE);

ALTER TABLE AIRCRAFT

ADD CONSTRAINT FK\_MOD\_CODE FOREIGN KEY (MOD\_CODE) REFERENCES MODEL(MOD\_CODE);

ALTER TABLE CHARTER

ADD CONSTRAINT FK\_AC\_NUMBER FOREIGN KEY (AC\_NUMBER) REFERENCES AIRCRAFT(AC\_NUMBER);

ALTER TABLE CHARTER

ADD CONSTRAINT FK\_CUS\_CODE FOREIGN KEY (CUS\_CODE) REFERENCES CUSTOMERS(CUS\_CODE);

ALTER TABLE CREW

ADD CONSTRAINT FK\_CHAR\_TRIP FOREIGN KEY (CHAR\_TRIP) REFERENCES CHARTER(CHAR\_TRIP);

ALTER TABLE CREW

ADD CONSTRAINT FK\_EMP\_NUM FOREIGN KEY (EMP\_NUM) REFERENCES EMPLOYEE(EMP\_NUM);

ALTER TABLE EARNEDRATING

ADD CONSTRAINT FK\_EARNEDRATING\_EMP\_NUM FOREIGN KEY (EMP\_NUM) REFERENCES PILOT(EMP\_NUM);

ALTER TABLE EARNEDRATING

ADD CONSTRAINT FK\_RTG\_CODE FOREIGN KEY (RTG\_CODE) REFERENCES RATING(RTG\_CODE);

ALTER TABLE PILOT

ADD CONSTRAINT FK\_PILOT\_EMP\_NUM FOREIGN KEY (EMP\_NUM) REFERENCES EMPLOYEE(EMP\_NUM);

--CREATE DIMENSION TABLES AND FACT TABLE

CREATE TABLE TIMEDIM (

TIME\_ID INT IDENTITY,

CHAR\_DATE DATE,

MONTH INT,

YEAR INT);

CREATE TABLE PILOTDIM(

PILOT\_ID INT IDENTITY,

EMP\_NUM INT,

EMP\_LNAME VARCHAR (25),

EMP\_FNAME VARCHAR (25),

PIL\_LICENSE VARCHAR (25),

PIL\_RATINGS VARCHAR (25),

PIL\_MED\_TYPE VARCHAR (1),

PIL\_MED\_DATE DATETIME,

PIL\_PT135\_DATE DATETIME);

CREATE TABLE AIRCRAFTDIM(

AIRCRAFT\_ID INT IDENTITY,

AC\_NUMBER VARCHAR(20),

MOD\_CODE VARCHAR(20),

AC\_TTAF FLOAT (8),

AC\_TTEL FLOAT (8),

AC\_TTER FLOAT (8));

CREATE TABLE FACT\_TABLE(

PILOT\_ID INT,

AIRCRAFT\_ID INT,

TIME\_ID INT,

FUEL\_USED FLOAT (8),

DISTANCE FLOAT (8),

REVENUE FLOAT (8));

--ADD CONSTRAINTS

ALTER TABLE TIMEDIM

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

ALTER TABLE PILOTDIM

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

ALTER TABLE AIRCRAFTDIM

ADD CONSTRAINT PK\_AIRCRAFTDIM PRIMARY KEY (AIRCRAFT\_ID);

ALTER TABLE FACT\_TABLE

ADD CONSTRAINT FK\_FACT\_PILOTDIM FOREIGN KEY (PILOT\_ID) REFERENCES PILOTDIM (PILOT\_ID);

ALTER TABLE FACT\_TABLE

ADD CONSTRAINT FK\_FACT\_AIRCRAFTDIM FOREIGN KEY (AIRCRAFT\_ID) REFERENCES AIRCRAFTDIM (AIRCRAFT\_ID);

ALTER TABLE FACT\_TABLE

ADD CONSTRAINT FK\_FACT\_TIMEDIM FOREIGN KEY (TIME\_ID) REFERENCES TIMEDIM (TIME\_ID);

--STAGING TABLE

CREATE TABLE STAGING(

PILOT\_ID INT,

EMP\_NUM INT,

EMP\_LNAME VARCHAR(20),

EMP\_FNAME VARCHAR(20),

AIRCRAFT\_ID INT,

MOD\_CODE VARCHAR (10),

AC\_NUMBER VARCHAR (25),

TIME\_ID INT,

CHAR\_DATE DATE,

FUEL\_USED FLOAT (8),

DISTANCE FLOAT (8),

REVENUE FLOAT (8));

**![A screenshot of a cell phone

Description generated with high confidence]()Part #2:**

**Part #3:**

CREATE PROCEDURE A10

AS

BEGIN

--DROP FOREIGN KEYS

ALTER TABLE FACT\_TABLE DROP CONSTRAINT FK\_FACT\_PILOTDIM

ALTER TABLE FACT\_TABLE DROP CONSTRAINT FK\_FACT\_AIRCRAFTDIM

ALTER TABLE FACT\_TABLE DROP CONSTRAINT FK\_FACT\_TIMEDIM

--TRUNCATE TABLES

TRUNCATE TABLE FACT\_TABLE

TRUNCATE TABLE PILOTDIM

TRUNCATE TABLE AIRCRAFTDIM

TRUNCATE TABLE TIMEDIM

TRUNCATE TABLE STAGING

--REINSERT FOREIGN KEYS

ALTER TABLE FACT\_TABLE

ADD CONSTRAINT FK\_FACT\_PILOTDIM FOREIGN KEY (PILOT\_ID) REFERENCES PILOTDIM (PILOT\_ID);

ALTER TABLE FACT\_TABLE

ADD CONSTRAINT FK\_FACT\_AIRCRAFTDIM FOREIGN KEY (AIRCRAFT\_ID) REFERENCES AIRCRAFTDIM (AIRCRAFT\_ID);

ALTER TABLE FACT\_TABLE

ADD CONSTRAINT FK\_FACT\_TIMEDIM FOREIGN KEY (TIME\_ID) REFERENCES TIMEDIM (TIME\_ID);

--POPULATE DIMENSION AND STAGING TABLES

INSERT INTO PILOTDIM (EMP\_NUM, EMP\_LNAME, EMP\_FNAME, PIL\_LICENSE, PIL\_RATINGS, PIL\_MED\_TYPE, PIL\_MED\_DATE, PIL\_PT135\_DATE)

SELECT P.EMP\_NUM, EMP\_LNAME, EMP\_FNAME, PIL\_LICENSE, PIL\_RATINGS, PIL\_MED\_TYPE, PIL\_MED\_DATE, PIL\_PT135\_DATE

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

INSERT INTO TIMEDIM (CHAR\_DATE, MONTH, YEAR)

SELECT CHAR\_DATE, MONTH(CHAR\_DATE) AS MONTH, YEAR(CHAR\_DATE) AS YEAR

FROM CHARTER

INSERT INTO AIRCRAFTDIM (MOD\_CODE, AC\_NUMBER, AC\_TTAF, AC\_TTEL, AC\_TTER)

SELECT MOD\_CODE, AC\_NUMBER, AC\_TTAF, AC\_TTEL, AC\_TTER

FROM AIRCRAFT

INSERT INTO STAGING (EMP\_NUM, EMP\_LNAME, EMP\_FNAME, MOD\_CODE, AC\_NUMBER, CHAR\_DATE,

FUEL\_USED, DISTANCE, REVENUE)

SELECT P.EMP\_NUM, E.EMP\_LNAME, E.EMP\_FNAME, M.MOD\_CODE, M.MOD\_NAME, C.CHAR\_DATE,

C.CHAR\_FUEL\_GALLONS, C.CHAR\_DISTANCE, SUM(C.CHAR\_FUEL\_GALLONS \* M.MOD\_CHG\_MILE) AS

REVENUE

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

INNER JOIN CREW CW ON CW.EMP\_NUM = E.EMP\_NUM

INNER JOIN CHARTER C ON C.CHAR\_TRIP = CW.CHAR\_TRIP

INNER JOIN AIRCRAFT A ON A.AC\_NUMBER = C.AC\_NUMBER

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

GROUP BY P.EMP\_NUM, E.EMP\_LNAME, E.EMP\_FNAME, M.MOD\_CODE, M.MOD\_NAME, C.CHAR\_DATE,

C.CHAR\_FUEL\_GALLONS, C.CHAR\_DISTANCE

--UPDATE DW KEYS

UPDATE STAGING

SET PILOT\_ID = P.PILOT\_ID

FROM STAGING S INNER JOIN PILOTDIM P ON S.EMP\_NUM = P.EMP\_NUM

UPDATE STAGING

SET AIRCRAFT\_ID = T.AIRCRAFT\_ID

FROM STAGING S INNER JOIN AIRCRAFTDIM T ON S.MOD\_CODE = T.MOD\_CODE

UPDATE STAGING

SET TIME\_ID = T.TIME\_ID

FROM STAGING S INNER JOIN TIMEDIM T ON S.CHAR\_DATE = T.CHAR\_DATE

--POPULATE FACT TABLE

INSERT INTO FACT\_TABLE (PILOT\_ID, AIRCRAFT\_ID, TIME\_ID, FUEL\_USED, DISTANCE, REVENUE)

SELECT PILOT\_ID, AIRCRAFT\_ID, TIME\_ID, FUEL\_USED, DISTANCE, REVENUE

FROM STAGING

END

EXEC A10

**Part #4:**

**--1 List the names of pilots who have flown the most miles.**

SELECT EMP\_FNAME, EMP\_LNAME

FROM FACT\_TABLE F INNER JOIN PILOTDIM P ON F.PILOT\_ID = P.PILOT\_ID

WHERE F.DISTANCE = (SELECT MAX (DISTANCE) FROM FACT\_TABLE)

**--2 List the revenue by model and month in ascending order.**

SELECT A.MOD\_CODE, A.AC\_NUMBER, MONTH(TD.CHAR\_DATE) AS MONTH, ROUND(SUM(REVENUE), 2) AS REVENUE

FROM FACT\_TABLE F INNER JOIN AIRCRAFTDIM A ON F.AIRCRAFT\_ID = A.AIRCRAFT\_ID

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

GROUP BY MOD\_CODE, AC\_NUMBER, MONTH(TD.CHAR\_DATE)

ORDER BY SUM(REVENUE) ASC