CSC 355 Database Systems 402
Assignment 1 (9/16)

Due 11:59:00pm, Monday 9/23.

Reading: (1) The posted Lecture 1 and Lecture 2 Slides; (2) Ullman/Widom Sections 1.1-1.3 and 2.1-2.2; (3) the posted CDM Oracle Tutorial handout; (4) the posted course syllabus; (5) DePaul's Academic Integrity Policy (link in syllabus). [Next week: Ullman/Widom Sections 2.3 and 6.1.]

Problems:

If you are not working in a CDM lab, first download and install SQLDeveloper from Oracle – use the link posted on the course web site.

1. As I demonstrated in class, create a new connection to acadoradbprd01.dpu.depaul.edu named ***YOURLASTNAME*355** – that is, use your last name in place of mine. Download the script file university.sql from the course web site, and run it in SQLDeveloper to create the set of five tables I created in class. Open some table in the database and display its data (not its columns/schema) in the center window.

Take a single screen shot showing your open connection, the set of tables you have created, and the table of data in the center window, and include it in your solutions.

2. For some table other than the one you just displayed, run the SQL statement SELECT * FROM *TABLENAME* ; in the center window so that the table contents are displayed under "Query Result".

Take a single screen shot showing the SQL statement and all rows of the result, and include it in your solutions.

3. Answer the questions below for the following relational database schema and relational database instance containing four relations.

Database Schema:

TRAVELER (TID, Name, Phone)

RESERVATION (CruiseID, TravelerID, Date)

CRUISE (CID, ShipID, Length, Cost)

SHIP (SID, Name, Port)

Database Instance:

TRAVELER

TID	Name	Phone
111	Walsh	5551111
202	McKay	5552345
336	Taylor	5551985
400	Martin	5550077
598	Sanders	5550210

RESERVATION

CruiseID	TravelerID	Date
02	111	15-JUL-19
02	336	15-JUL-19
03	598	30-AUG-19
04	598	15-SEP-19
01	400	01-OCT-19

CRUISE

CID	ShipID	Length	Cost
01	A1	5	2000
02	A2	7	3000
03	A2	14	5000
04	B1	7	2500

SHIP

SID	Name	Port
A1	Breakaway	Miami
A2	Getaway	New York
A3	Oneway	Los Angeles
B1	Escape	NewYork
B2	Jewel	Miami

a. List the attribute(s) that make up the primary key (if one exists) in TRAVELER.
b. List the attribute(s) that make up the primary key (if one exists) in CRUISE.
c. List the attribute(s) that make up the primary key (if one exists) in RESERVATION.
d. List the attribute(s) that make up the foreign key(s) (if any exist) in TRAVELER.
e. List the attribute(s) that make up the foreign key(s) (if any exist) in CRUISE.
f. List the attribute(s) that make up the foreign key(s) (if any exist) in RESERVATION.
g. Construct a new tuple that can be inserted into RESERVATION without violating any constraints.
h. Construct a new tuple that cannot be inserted into RESERVATION because doing so would violate referential integrity (but would not violate any other constraints)
i. Construct a new tuple that can be inserted into CRUISE without violating any constraints.
j. Construct a new tuple that cannot be inserted into CRUISE because doing so would violate a key constraint (and thus would also violate entity integrity), but would not violate any other constraints.
k. Which of the tuples in SHIP could be removed without violating referential integrity? Explain why.

Remarks:

1. Your assignment submission should be a single electronic document – .doc or .pdf format are preferred – including the requested screen shots for Problems 1 and 2 and your typed answers to Problem 3. Whenever you are asked to include a screen shot in your solutions, you should crop and resize it so that it fits in the document and is readable. Solutions should always be typed or drawn electronically, not by hand. Your name, course number and section, assignment number and date should appear at the top of every submitted document.

2. As will be the case for all assignments, everything you turn in must be your own individual work.

Eric J. Schwabe – 09/16/19