CSC 355 Database Systems 602
Assignment 1 (4/1)

Due 6:00:00pm, Wednesday 4/8.

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

Problems:

For this assignment, you should submit a single electronic document (.doc, .docx, .pdf preferred) containing two screen shots and the answers to several short-answer questions. Include your name, course number and section, assignment number and date at the top of your submitted document. Whenever you include a screen shot in a document, you should crop and resize it so that it fits in the document and is readable.

First, download and install SQLDeveloper from Oracle – use either the link in the CDM Oracle Tutorial document or 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) in the center window.

Take a single screen shot that shows 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 document.

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 document.

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

Database Schema:

BUILDING (BID, Address, City)

LEASE (BuildingID, TenantID, Unit, Rent)

TENANT (TID, Name, Phone)

Database Instance:

BUILDING

BID	Address	City
111	1 Sunset Strip	Los Angeles
222	200 Wilshire Blvd	Los Angeles
333	99 Mirage Rd	Long Beach
444	1000 South Pier	Santa Monica
555	50 Main St	Oxnard

TENANT

TID	Name	Phone
M891	Martin	310-555-1234
M512	McKay	424-555-9099
S773	Sanders	818-555-5555
W209	Walsh	310-999-0210
W021	Walsh	424-999-0210

LEASE

BuildingID	TenantID	Unit	Rent
111	S773	1103	2000
111	M512	1401	2500
444	S773	18	1600
333	W209	2	900
444	M512	19	1500

a. List the attribute(s) that make up the primary key (if one exists) in TENANT.
b. List the attribute(s) that make up the primary key (if one exists) in LEASE.
c. List the attribute(s) that make up the foreign key(s) (if any exist) in TENANT.
d. List the attribute(s) that make up the foreign key(s) (if any exist) in LEASE.
e. Construct a new tuple that can be inserted into LEASE without violating any constraints.
f. Construct a new tuple that cannot be inserted into LEASE because doing so would violate referential integrity (but would not violate any other constraints)
g. Construct a new tuple that can be inserted into TENANT without violating any constraints.
h. Construct a new tuple that cannot be inserted into TENANT because doing so would violate a key constraint (and thus would also violate entity integrity), but would not violate any other constraints.
i. List the tuples in BUILDING that could be removed without violating referential integrity, and explain why it is safe to remove them.

Remarks:

1. As stated above, 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. Your name, course number and section, assignment number and date should appear at the top of every document you submit for any assignment.

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

Eric J. Schwabe – 04/01/20