Illinois Institute of Technology
CS425: Database Design and Applications (Database Organization)
Spring 2015
Faculty: Francis Leung
TA: Ramya Madhihally Sreenidhi
TA: Raghav Kapoor

Assignment: SQL DDL – part 1(6 points out of semester 100 points - graded in scale of 100):
Due date: Monday, Feb 16, 2015.

How and by What Time to Submit: All students Must submit via Blackboard. REMOTE INTERNET and Indian campus students are due one day later. You must do this homework on the department Oracle system.

Your assignment is not to model/re-model the database, but to use the model described below in terms of different relations, and using Structured Query Language (SQL) to define the tables and perform data manipulations and queries as listed below.

Following are the database schemas, and the database instance with the existing tuples. All the primary keys are underlined. Other candidate keys (CK), and foreign keys (FK) are specified. Any attribute that is nullable is specified otherwise the attribute can not be null (not null).

RecCenterMember (id, f_name, l_name, dob, family_id)
FK: family_id references id in Family_Package
Family_id nullable

Class (id, title, type, instructor, season, year)
Attribute *season* may be "Spring" or "Summer" or "Fall" or "Winter"
FK: type references type in Type
FK: instructor references id in Instructor

Instructor (id, f_name, l_name, member_id)
FK: member_id references id in RecCenterMember
Member_id nullable

Type (type, description)

FamilyPackage (id, address, phone)
CK: phone

Enrollment (class_id, member_id, cost)
FK: class_id references id in Class
FK: member_id references id in RecCenterMember

Using SQL, answer the following ten questions (Q1 30 points; Q2-Q7 10 points each):

1.
   a) Create all the tables with the specified attribute names, as listed above, with appropriate constraints such as primary keys, foreign keys, unique attributes, value check, and defining nullability. Put all the DDL statements in a file *create.sql* and create the tables and constraints running the batch of SQL statements from this file. You may also put in any comments you have on the creation of your tables. (20 pts)
   b) Insert the data into the tables, using a batch of insert statements from *insert.sql*. (10 pts)

2. What is the phone number of the O'Shea's family?

3. Give the name of the instructors who taught in both the Spring and Fall of 2009 and the description of the classes that they taught in the two semesters.

4. Give the name of the instructor who has taught the most total classes since data have been kept.

5. Display the names and the class description, of members, that are enrolled in at least 3 different types of classes.

6. Display the names of members and description of the classes, to which all the members of a family were enrolled in summer but not in winter.

7. Give the average ages of the recreation center members who are younger than 50 years old and those who are older than 50 years old.

Important:
1. Write your name in each of the file as the first line of the file.
2. Questions from 2 - 6 should be solved using one SQL statement each.
3. Write batch of SQL statements for creating tables in *create.sql*; for inserting data in *insert.sql;* for questions 2 -6 in *query.sql*.
4. Collect the output of all questions in a spool file *spool.sql*

Deliverables: Files: *create.sql, insert.sql, query.sql, spool.sql.* Zip your files into one zip folder. Your folder name should be "sqlhw1_your last name".

How to submit:
Submit your "sqlhw1_your last name" folder to Digital Drop Box on http://blackboard.iit.edu . When using blackboard to upload your assignments onto the digital box, you must click on the 'Add File' button **and** click the 'Send File' button.
NOTE: The file will not be sent if you just add it.

Data **(this is a hypothetical set of data that may or may not be real…and is created for your practice!)**

RecCenterMember

Id	F_name	L_name	Dob	Family
1	Abby	Smith	5/21/1983	1
2	Mike	O'Shea	7/4/1968	2
3	April	O'Shea	6/23/1954	2
4	Vijay	Gupta	8/1/1945	
5	Lisa	Tang	11/5/2000	3
6	Harry	Smith	2/3/1972	
7	Justin	Smith	2/2/1983	1
8	Lisa	Brown	12/28/1959	
9	Harry	Tang	4/3/1948	3
10	Dongmei	Tang	6/2/1942	3
11	Laura	Dickinson	11/11/1998	
12	Victor	Garcia	4/5/2006	5
13	Emily	Citrin	5/4/1993	
14	Maria	Garcia	7/7/2007	5
15	Cassie	O'Shea	6/2/1988	2
16	Cassandra	McDonald	7/1/1990	
17	Jessie	Knapp	9/12/1981	4
18	Monica	Knapp	9/17/1982	4
19	Leslie	Blackburn	1/19/1986	
20	Sandra	Svoboda	9/9/1999	

Class

Id	Title	Type	Instructor	Season	Year
1	Needle points	Craft	2	Spring	2010
2	Photography	Art	1	Fall	2008
3	Woodworking	Craft	4	Spring	2009
4	Chinese (Intro.)	Languages	1	Winter	2008
5	Team games	Kids	1	Summer	2008
6	Yoga (Intro.)	Exercise	2	Fall	2009
7	Origami (Adv.)	Craft	4	Fall	2009
8	Oil painting	Art	3	Spring	2009
9	Yoga (Adv.)	Exercise	1	Spring	2008
10	Chinese (Intro.)	Languages	3	Spring	2009

Instructor

id	F_name	L_nae	Member_id
1	Annie	Heard	
2	Monica	Knapp	18
3	James	Robertson	
4	April	O'Shea	2
5	Harry	Tang	9

Class_type	
Type	**Description**
Craft	Knitting, sewing, ect
Art	Paining, sculpting, ect
Exercise	Any courses having to do with physical activity
Languages	Anything to do with writing, literature, or communication
Kids	Courses geared towards children 13 and younger

FamilyPackage		
Id	**Address**	**Phone**
1	23 Beacon St. Hillside IL	708-555-9384
2	4930 Dickens Ave Chicago IL	312-555-9403
3	345 Fullerton St. Chicago IL	773-555-0032
4	34 Maple Ln Elmhurst IL	312-555-9382
5	563 Harvard Ave Lisle IL	630-555-9321

Enrollment (class_id, member_id, cost)

Enrollment		
Class_id	**Member_id**	**Cost**
3	3	20
1	9	15
2	9	20
4	10	30
3	10	10
5	5	10
4	9	30
1	11	25
2	19	40
7	14	10
8	12	5
1	1	30
6	1	15
9	1	20
8	1	25
1	13	18
2	20	9
10	4	15
1	2	3