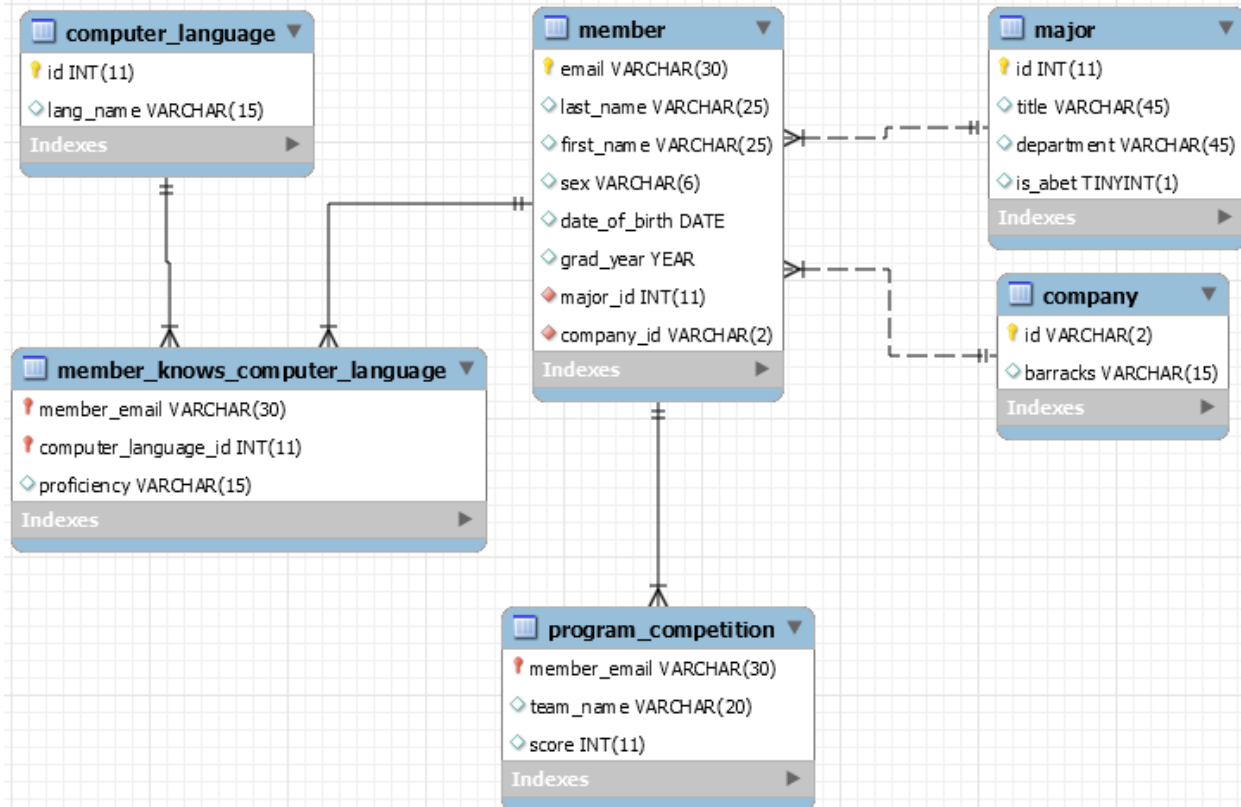


## CY355 AY17-1 Database Project

You are part of a computing club at USMA that brings together students with similar interests. While most of the members are computer science or information technology majors, there are members with other majors such as electrical engineering, mechanical engineering, mathematical sciences, etc. You have been assigned of maintaining the club's membership database. The club president has also tasked you to expand the capabilities of the database.

In MySQL Workbench, open the script cy355\_project.sql and run it. This script will create the database shown in the entity-relationship (E-R) diagram below:



You have been given a shell SQL script named xnumber.sql. Change the name of the script to your xnumber.sql (e.g. x62798.sql). You will save all your work in this SQL script in the appropriate section of the script. You will turn in your SQL script to the following turn in folder: <\\usmasvddeecs\leecs\cadet\courses\cy355\<Section>\<LastName>.<FirstName>\web\DB Project> substituting your section number (e.g. E1, F2, J3, or L4) for <Section> and your last name and first name for <LastName> and <FirstName>, respectively.

## Part I – Build Queries for the Current Database:

- A. Write a query that returns the names of the female members of the club and their graduation year in two columns. In the first column named “female\_members”, format the output to be <last\_name>, <first\_name>. The second column will have the graduation year. Sort the output by graduation year (seniors first) then by last name and first name. Your output should look like the following partial result:

female_members	grad_year
Buel, Senaida	2017
Cleaver, Serina	2017
Disandro, Beatriz	2017
Fairfax, Adrienne	2017
Keese, Shemeka	2017
Amon, Angelika	2018
Arens, Lavona	2018
Cabiness, Lupita	2018

- B. Write a query that returns the majors and departments represented by cadets in the club and the count of cadets belonging to each major named “num\_students”. Sort the output the largest represented major then by the name of the major, alphabetically. Your output should look like the partial result below:

title	department	num_students
Information Technology	Electrical Engineering and Computer Science	18
Computer Science	Electrical Engineering and Computer Science	13
Electrical Engineering	Electrical Engineering and Computer Science	6
Mathematical Sciences	Mathematical Sciences	3
Mechanical Engineering	Civil and Mechanical Engineering	3
Geospatial Information Science	Geography and Environmental Engineering	2
Interdisciplinary Science	Physics and Nuclear Engineering	1
Life Science	Chemistry and Life Science	1

- C. Write a query that returns the barracks name in the first column and the members' names in the second column in the format of <last\_name>, <first\_name> and named “members”. Sort the output by barracks name, last name, and then first name. Your output should look like the partial result below:

barracks	members
Bradley	Arens, Lavona
Bradley	Bagg, Loma
Bradley	Dalton, Dick
Bradley	Dilullo, Quinton
Bradley	Fairfax, Adrienne
Bradley	Lemons, Cody
Bradley	Mebane, Gaston
Bradley	Minns, Hong
Bradley	Otani, Perry
Bradley	Rosenzweig, Earle
Bradley	Scharf, Dominique

- D. Write a query that returns the member's last name and company and computer language for all members that have a computer language proficiency of "Expert". Sort the output by computer language name, then member last name. Your output should look like the partial result below:

last_name	company_id	lang_name
Fairfax	G2	C
Fisk	H1	C
Argueta	I4	Java
Dalton	D2	Java
Bagg	I2	Perl
Arens	H2	Python
Buel	B3	Python
Disandro	I4	Python

- E. Write a query that returns the companies that do not have any club members. Your output should look like the result below:

id
A2
A4
C4
D1
F4
I1

- F. Write a query that returns team names and overall team score (i.e. sum of the individual member's score) named "team\_score" from the programming competition. Limit the

result to only show the top three teams (i.e. with greatest cumulative scores). Your output should look like the result below:

team_name	team_score
Team Barton	360
Team Banner	348
Team Stark	344

- G. Write a query that returns the member's last name, team name, and member's score from the programming competition. Limit the result to only show the top five scores. Your output should look like the result below:

last_name	team_name	score
Rock	Team Barton	98
Hurtado	Team Banner	97
Dalton	Team Barton	96
Stlawrence	Team Stark	96
Grosse	Team Barton	92

## Part II – Extend the Database:

- A. Create a table named **smart\_phone** with four columns: an auto incrementing id, the make of the smart phone (e.g. Apple, Samsung, HTC, etc.), the model of the smart phone (e.g. iPhone 6, iPhone 6 Plus, Galaxy S7, etc.), and the operating system of the smart phone (e.g. iOS, Android, and Windows). Establish the appropriate relationship between **smart\_phone** and **member** that multiple members can have the same make/model of smartphone. Submit the SQL code to create **smart\_phone** and/or alter **member**.
- B. Write and submit the SQL code to insert a MINIMUM of 5 records into **smart\_phone**. Write a query to demonstrate that returns the member's name and the make/model of their smart phone. HINT: You will need to have one instance where two members have the same make/model of smart phone to prove that your relationship works.
- C. Create a table named **computing\_interest** with two columns: an auto incrementing id and the name of the interest. Import the names of the interests from the file **computing\_interest.csv**. Establish the appropriate relationship between **computing\_interest** and **member** that one member can have multiple interests (e.g. Networking and Databases) and that one interest can have multiple members (e.g. three members are interested in Cyber Security).
- D. Write and submit the SQL Code to insert a MINIMUM of 5 records into relationship table between **computing\_interest** and **member**. Write a query that returns the member's name and computing interest. HINT: You will need to insert the appropriate records to show that multiple members can have the same interest and that one member can have multiple interests.