ITCS 241 Database Management Systems
SQL Class Assignment 2 (**Extra**)
(No submission required)

Preparation before SQL Exercise
We will use an untouched `tinycollege` database for this exercise. Hence, before you do the exercise, please drop (delete) the current version of `tinycollege` database you used in the class, and create a brand new `tinycollege` database from the sql script. Otherwise**,** you can create a copy of the `tinycollege` database, i.e., `tinycollege2`, for these practices :).

Write the sql command for the following queries.

1. List all professors in the database. **Expected 6 attributes, 22 rows return**
2. Show all departments in the database. **Expected 5 attributes, 11 rows return**
3. List all students' names (firstname and lastname) in the database.
   Expected 2 attributes, 38 rows return
4. List all students' names (firstname and lastname). The resulting table must have two columns names "Firstname" and "Lastname" respectively. **Expected 2 attributes: `Firstname` and `Lastname`, 38 rows return**
5. List all **unique** course code from the Class table. **Expected 1 attribute, 30 rows return**
6. List all **unique** course code and class room from the Class table. **Expected 2 attribute, 28 rows return**
7. Show all course codes and their credits in this college.
   Expected 2 attributes, 28 rows return
8. List all class codes, course code, classroom number, and class time provided in this college. **Expected 4 attributes, 45 rows return**
9. List (top) 5 classroom numbers and the courses (code) taught in the classrooms.
   Expected 2 attributes, 5 rows return. The output table should be

class_room	course_code
KLR 225	ACCT-211
KLR 240	ACCT-212
KLR 240	ACCT-311
BBG 120	ART-210
BBG 143	ART-340

10. List all professors' employee numbers and their teaching courses (remove some duplicates if applicable)
    Expected 2 attributes (`emp_num, course_code`), 32 rows return.

11. List (top) 10 professors' names (first name and last name) and their date of birth. The resulting table must have the following columns names "Firstname", "Lastname", "DoB" respectively. **Expected 3 attributes, 10 rows return.**
12. List (top) 10 professors' names (first name and last name) and their **year** of birth. The resulting table must have the following columns names "Firstname", "Lastname", "Birthyear" respectively. **Hint**: Use `YEAR(column_name)` to extract the year from the column type `datetime`. **Expected 3 attributes, 10 rows return. The output table should be**

Firstname	Lastname	Birthyear
Ronald	Donelly	1952
Preston	Yukon	1948
Arnelle	Heffington	1950
Ross	Washington	1941
Van	Thieu	1951
Gerald	Graztevski	1939
Annelise	Ritula	1957
Robert	Smith	1955
Peter	Rob	1940
Willa	Dexter	1953

13. List (top) 10 professors' names (first name and last name) and their **age**. The resulting table must have the following columns names "Firstname", "Lastname", "Age" respectively. **Hint**: Use `YEAR(column_name)` to extract the year and then **compute** their age (up to this year). **Expected 3 attributes, 10 rows return. The output table should be**

Firstname	Lastname	DoB
Ronald	Donelly	69
Preston	Yukon	73
Arnelle	Heffington	71
Ross	Washington	80
Van	Thieu	70
Gerald	Graztevski	82
Annelise	Ritula	64
Robert	Smith	66
Peter	Rob	81
Willa	Dexter	68

14. Show all course information sorted by course credits ascendingly.
Expected 4 attributes, 28 rows return

15. Show the top three students (firstname, lastname, and GPA) with the highest GPA.
Expected 3 attributes, 3 rows return. The output table should be

stu_fname	stu_lname	stu_gpa
Annelise	Paulus	3.92
Sidney	Wesson	3.91
Kenna	Hernando	3.88

16. Show the students (firstname, lastname, and GPA) who earn the First-class honors, i.e. GPA of 3.50 or higher.
    Expected 3 attributes, 5 rows return. The output table should be

stu_fname	stu_lname	stu_gpa
Sidney	Wesson	3.91
Robert	Smith	3.51
Annelise	Paulus	3.92
Louise	Browning	3.72
Kenna	Hernando	3.88

17. List the students (firstname, lastname, and GPA) who earn the Second-class honors, i.e. GPA of 3.25 or higher but less than 3.5.
    Expected 3 attributes, 4 rows return. The output table should be

stu_fname	stu_lname	stu_gpa
Heinz	Schloss	3.45
Juliette	Brewer	3.48
Antoinette	Johnson	3.45
Rupert	Jones	3.33

18. List the students (firstname, lastname, and GPA) who are on Probation Type I (GPA of 1.50 or higher but less than 1.80).
    Expected 3 attributes, 4 rows return. The output table should be

stu_fname	stu_lname	stu_gpa
William	Bowser	1.55
John	Smith	1.75
William	Browning	1.53
John	Brewton	1.65

19. List the students (firstname, lastname, and GPA) who are on Probation Type II (GPA of 1.80 or higher but less than 2.00).
    Expected 3 attributes, 0 rows return.

20. Show the list of students (firstname, lastname) who do not have their GPA reported.
    Expected 2 attributes, 2 rows return. The output table should be

stu_fname	stu_lname
Samuel	Willow
Ronald	Richter

21. Show the list of student (firstname, lastname) who were born in the '70s, i.e., their birthday is between January 1, 1970, and ended on December 31, 1979. **Expected 2 attributes, 24 rows return.**

22. List all department code that have professors alphabetically. **Expected 8 attributes, 11 rows return. The output table should be**

dept_code
ACCT
ART
BIOL
CIS
ECON/FIN
ENG
HIST
MATH
MKT/MGT
PSYCH
SOC

23. List all students who have the professor with the employee number #209 as their advisor. **Expected 8 attributes, 4 rows return. The output table should be**

STU_NUM	STU_FNAME	STU_LNAME	STU_DOB	STU_CLASS	STU_GPA	DEPT_CODE	EMP_NUM
324257	Anne	Smithson	1973-11-18	3	2.02	CIS	209
330010	Georgette	Schlumberg	1949-02-25	1	3.21	CIS	209
343749	John	Brewton	1966-05-01	2	1.65	CIS	209
345758	Antoinette	Johnson	1975-06-16	3	3.45	CIS	209

24. List all professor names and their department code, who works in department "CIS" or "MATH". The result should be sorted by the department code alphabetically. **Expected 3 attributes, 5 rows return. The output table should be**

emp_fname	emp_lname	dept_code
Peter	Rob	CIS
Melanie	Smith	CIS
Carlos	Coronel	CIS
Annelise	Ritula	MATH
Hermine	Jones	MATH

25. List all "CIS" students whose first name begins with "A".
Expected 8 attributes, 3 rows return. The output table should be

STU_NUM	STU_FNAME	STU_LNAME	STU_DOB	STU_CLASS	STU_GPA	DEPT_CODE	EMP_NUM
311198	Anne	Robertson	1970-11-15	3	3.04	CIS	162
324257	Anne	Smithson	1973-11-18	3	2.02	CIS	209
345758	Antoinette	Johnson	1975-06-16	3	3.45	CIS	209

26. List all students whose last name ends with "son".
Expected 8 attributes, 5 rows return. The output table should be

STU_NUM	STU_FNAME	STU_LNAME	STU_DOB	STU_CLASS	STU_GPA	DEPT_CODE	EMP_NUM
311198	Anne	Robertson	1970-11-15	3	3.04	CIS	162
322345	Sidney	Wesson	1956-12-14	2	3.91	ACCT	301
324257	Anne	Smithson	1973-11-18	3	2.02	CIS	209
324291	Gerald	Robertson	1970-04-04	4	2.45	BIOL	387
345758	Antoinette	Johnson	1975-06-16	3	3.45	CIS	209

27. List all "Intro." course information provided in the college.
Expected 4 attributes, 10 rows return. The output table should be

COURSE_CODE	COURSE_NAME	CRS_CREDIT	DEPT_CODE
ART-210	Intro. to Art	3	ART
BIOL-120	Intro. to Biology	4	BIOL
CIS-220	Intro. to Microcomputing	3	CIS
CIS-370	Intro. to Systems Analysis	3	CIS
MATH-240	Intro. to Calculus	4	MATH
MGT-340	Intro. to Management	3	MKT/MGT
MKT-360	Intro. to Marketing	3	MKT/MGT
PSYCH-200	Intro. to Psychology	3	PSYCH
QM-261	Intro. to Statistics	3	CIS
SOC-200	Intro. to Sociology	3	SOC

28. List all non-introduction courses information provided in the college. **Expected 4 attributes, 18 rows return. The output table should be**

COURSE_CODE	COURSE_NAME	CRS_CREDIT	DEPT_CODE
ACCT-211	Accounting I	3	ACCT
ACCT-212	Accounting II	3	ACCT
ACCT-311	Managerial Accounting	3	ACCT
ART-340	Jewelry Design	3	ART
BIOL-220	Biology and the Environment	4	BIOL
CIS-320	Spreadsheet Applications	3	CIS
CIS-420	Database Design and Implementation	4	CIS
ECON-240	Microeconomics	3	ECON/FIN
ECON-250	Macroeconomics	3	ECON/FIN
ENG-210	Writing	3	ENG
ENG-220	Literature	3	ENG
FIN-300	Money and Banking	3	ECON/FIN
HIST-210	U.S. History Through the 1800s	3	HIST
HIST-220	U.S. History Through the 1900s	3	HIST
MATH-120	College Algebra I	3	MATH
MATH-243	Mathematics for Managers	3	MATH
QM-362	Statistical Applications	4	CIS
SPCH-240	Public Speeking	3	ENG

29. List all courses that are provided by department "ACCT", "ECON/FIN", and "MKT/MGT". **Expected 4 attributes, 8 rows return. The output table should be**

COURSE_CODE	COURSE_NAME	CRS_CREDIT	DEPT_CODE
ACCT-211	Accounting I	3	ACCT
ACCT-212	Accounting II	3	ACCT
ACCT-311	Managerial Accounting	3	ACCT
ECON-240	Microeconomics	3	ECON/FIN
ECON-250	Macroeconomics	3	ECON/FIN
FIN-300	Money and Banking	3	ECON/FIN
MGT-340	Intro. to Management	3	MKT/MGT
MKT-360	Intro. to Marketing	3	MKT/MGT

30. List all courses that are in the 300 level (the course code starts with the number 3) , e.g. the course code MKT-360, MGT-340. The result should be sorted by the department code. **Expected 4 attributes, 8 rows return. The output table should be**

COURSE_CODE	COURSE_NAME	CRS_CREDIT	DEPT_CODE
ACCT-311	Managerial Accounting	3	ACCT
ART-340	Jewelry Design	3	ART
CIS-320	Spreadsheet Applications	3	CIS
CIS-370	Intro. to Systems Analysis	3	CIS
QM-362	Statistical Applications	4	CIS
FIN-300	Money and Banking	3	ECON/FIN
MGT-340	Intro. to Management	3	MKT/MGT
MKT-360	Intro. to Marketing	3	MKT/MGT

31. List all the Section 2 classes (class code, course code, and class time) that are taught every Monday, Wednesday, and Friday. **Hint**: Look for "MWF" in the class time. **Expected 3 attributes, 5 rows return. The output table should be**

class_code	course_code	class_time
10013	ACCT-211	MWF 9:00-9:50 a.m.
20018	CIS-220	MWF 9:00-9:50 a.m.
25001	ENG-210	MWF 2:00-2:50 p.m.
32001	HIST-210	MWF 1:00-1:50 p.m.
40011	MATH-120	MWF 11:00-11:50 a.m.

32. List all the Section 1 classes (class code, course code, and class time) that are taught every 10:00 am to 10:50 am. Hint: Look for "10:00-10:50 a.m." in the class time. **Expected 3 attributes, 5 rows return. The output table should be**.

class_code	course_code	class_time
10015	ACCT-212	MWF 10:00-10:50 a.m.
12002	ART-340	MWF 10:00-10:50 a.m.
20025	CIS-320	MWF 10:00-10:50 a.m.
23120	MKT-360	MWF 10:00-10:50 a.m.
32000	HIST-210	MWF 10:00-10:50 a.m.

33. List all the Section 3 afternoon classes (class code, course code, and class time). Hint: Look for "p.m." in the class time. **Expected 3 attributes, 4 rows return. The output table should be**.

class_code	course_code	class_time
10014	ACCT-211	TTh 2:30-3:45 p.m.
15022	BIOL-120	MWF 1:00-1:50 p.m.
25002	ENG-210	TTH 12:30-1:45 p.m.
32002	HIST-210	TTH 2:00-3:15 p.m.

34. List all classes taught by professors who has the employee number beginning with 1 and end with 5 (e.g. 105, 115, 125, 135 etc.). The result should be sorted by employee number. **Expected 6 attributes, 6 rows return. The output table should be**.

CLASS_CODE	COURSE_CODE	CLASS_SECTION	CLASS_TIME	CLASS_ROOM	EMP_NUM
10012	ACCT-211	1	MWF 8:00-8:50 a.m.	KLR 225	105
10013	ACCT-211	2	MWF 9:00-9:50 a.m.	KLR 225	105
90015	ACCT-211	1	MWF 8:00-8:50 a.m.	KLR 225	105
40010	MATH-120	1	TTh 8:00-9:15 a.m.	AAK 200	155
40011	MATH-120	2	MWF 11:00-11:50 a.m.	AAK 200	155
30010	PSYCH-200	1	MWF 11:00-11:50 a.m.	AAK 244	195

35. List all courses (course code, course name, and department code) of the "CIS", "MATH", and "ENG" departments. The result should be sorted by the department code alphabetically. **Expected 3 attributes, 12 rows return. The output table should be**

course_code	course_name	dept_code
CIS-220	Intro. to Microcomputing	CIS
CIS-320	Spreadsheet Applications	CIS
CIS-370	Intro. to Systems Analysis	CIS
CIS-420	Database Design and Implementation	CIS
QM-261	Intro. to Statistics	CIS
QM-362	Statistical Applications	CIS
ENG-210	Writing	ENG
ENG-220	Literature	ENG
SPCH-240	Public Speeking	ENG
MATH-120	College Algebra I	MATH
MATH-240	Intro. to Calculus	MATH
MATH-243	Mathematics for Managers	MATH

36. List all courses (course code, course name, and department code), whose name contains the word "Application". **Expected 3 attributes, 2 rows return. The output table should be**

course_code	course_name	dept_code
CIS-320	Spreadsheet Applications	CIS
QM-362	Statistical Applications	CIS

37. List all department names that are located at the "BBG" building. **Hint**: Look for “BBG” in the department address. **Expected 1 attributes, 2 rows return. The output table should be**

dept_name	dept_address
Fine Arts	BBG 185, Box 128
Sociology	BBG 208, Box 132

38. List all department names that are not located in the "BBG" or "KLR" building. **Expected 1 attributes, 2 rows return. The output table should be**

dept_name	dept_address
Biology	AAK 230, Box 415
English	DRE 102, Box 223
History	DRE 156, Box 284
Mathematics	AAK 194, Box 422
Psychology	AAK 297, Box 438

39. List all the classes (class code, course code, and professor employee number) which are taught by professors whose employee numbers are 104, 105, 106, or 155. The result must be sorted by professor numbers.
Expected 3 attributes, 10 rows return. The output table should be

class_code	course_code	emp_num
25000	ENG-210	104
25001	ENG-210	104
25010	SPCH-240	104
25011	SPCH-240	104
10012	ACCT-211	105
10013	ACCT-211	105
90015	ACCT-211	105
23121	MKT-360	106
40010	MATH-120	155
40011	MATH-120	155

40. List all the professor employee number, course code, and class time, where the class are taught on Monday, Wednesday, and Friday morning class at the “KLR” building and the course are in the 300 level (the course code starts with the number 3, e.g. MKT-360, MGT-340). **Expected 3 attributes, 4 rows return. The output table should be**

emp_num	course_code	class_time
228	CIS-320	MWF 10:00-10:50 a.m.
209	CIS-370	MWF 11:00-11:50 a.m.
191	MKT-360	MWF 10:00-10:50 a.m.
162	QM-362	MWF 11:00-11:50 a.m.