

January 2023 CSE 216

Advanced SQL ONLINE - 2

Time: 45 minutes

As the newly appointed database expert (going to be) in the company with an Oracle database system, your CEO assigned you a crucial task. You were asked to extract specific information from the **UNIVERSITY** schema. Sample outputs have been provided. Observe carefully, ***your column names are expected to match the provided output's column names.***

1. Find the courses that have the highest enrollment count in each semester. Order the output according to year and semester.

	ABC SEMESTER	123 YEAR	ABC COURSE_TITLE	123 ENROLLMENT_COUNT
1	Fall	2,001	International Practicum	306
2	Spring	2,001	Arabic	325
3	Fall	2,002	Drama	338
4	Spring	2,002	Manufacturing	304
5	Fall	2,003	Astronautics	321
6	Spring	2,003	African History	331
7	Fall	2,004	Video Gaming	298
8	Spring	2,004	International Practicum	335
9	Fall	2,005	Embedded Systems	338
10	Spring	2,005	Calculus	313

2. Find the distinct courses taught by instructors with at least 100 students receiving a grade of 'A+'. *You cannot use join in the main query.* You must use SUB-QUERY in the where clause. You can use join in the sub-queries.

	ABC COURSE_TITLE
1	105 Image Processing
2	158 Elastic Structures
3	169 Marine Mammals
4	200 The Music of the Ramones
5	237 Surfing
6	338 Graph Theory
7	362 Embedded Systems
8	400 Visual BASIC
9	408 Bankruptcy
10	443 Journalism
11	468 Fractal Geometry
12	735 Greek Tragedy
13	867 The IBM 360 Architecture
14	960 Tort Law

3. Find the distinct course IDs and titles that appear in either the "Comp. Sci." department or have a prerequisite in the "Math" department. You must use set operations. *You cannot use any join operations.* Order the output according to the department name.

	ABC COURSE_ID	ABC TITLE	ABC DEPT_NAME
1	656	Groups and Rings	Civil Eng.
2	274	Corporate Law	Comp. Sci.
3	276	Game Design	Comp. Sci.
4	284	Topology	Comp. Sci.
5	359	Game Programming	Comp. Sci.
6	539	International Finance	Comp. Sci.
7	571	Plastics	Comp. Sci.
8	584	Computability Theory	Comp. Sci.
9	647	Service-Oriented Architectures	Comp. Sci.
10	747	International Practicum	Comp. Sci.
11	949	Japanese	Comp. Sci.
12	774	Game Programming	Cybernetics
13	353	Operating Systems	Psychology

4. Find the courses that have conflicting time slots (overlapping schedules).

	ABC COURSE_ID	ABC COURSE_TITLE	ABC COURSE_ID	ABC CONFLICTING_COURSE
1	105	Image Processing	304	Music 2 New for your Instructor
2	242	Rock and Roll	304	Music 2 New for your Instructor

5. Find the instructors who have taught courses with enrollment counts higher than the average enrollment count of all courses in each semester. *Your column names are expected to match the provided output's column names.*

	ABC INSTRUCTOR_NAME	123 ENROLLMENT_COUNT	ABC SEMESTER	123 YEAR	ABC COURSE_TITLE
1	Wieland	306	☞ Fall	2,001 ☞	International Practicum
2	Mingoz	315	☞ Spring	2,001 ☞	Biostatistics
3	Valtchev	325	☞ Spring	2,001 ☞	Arabic
4	Bondi	332	☞ Fall	2,002 ☞	Corporate Law
5	Liley	338	☞ Fall	2,002 ☞	Drama
6	Queiroz	312	☞ Fall	2,002 ☞	Martian History
7	Romero	307	☞ Fall	2,002 ☞	Image Processing
8	Mingoz	304	☞ Spring	2,002 ☞	Manufacturing
9	Atanassov	306	☞ Fall	2,003 ☞	Care and Feeding of Cats
10	DAgostino	312	☞ Fall	2,003 ☞	Visual BASIC
11	Dale	318	☞ Fall	2,003 ☞	Tort Law
12	Ullman	321	☞ Fall	2,003 ☞	Astronautics
13	DAgostino	309	☞ Spring	2,003 ☞	Mechanics
14	Dale	324	☞ Spring	2,003 ☞	Finite Element Analysis
15	Dale	331	☞ Spring	2,003 ☞	African History