



# Home Work 1 - Relational Algebra.

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# Home Work Tables

## Depts

dcode	Dname
ICS	Info. & Comp. Sci.
COE	Comp. Eng.
SWE	Software Eng.

## Lecturers

LID	Lname	Ldcode	Lsalary
111	Ali	COE	2000
222	Sami	SWE	2100
333	Adel	ICS	1900
444	Sami	COE	2000
555	Yasser	ICS	1500

## Subjects

Scode	Sname	Dcode
ICS202	DS	ICS
ICS334	DB	ICS
COE241	MP	COE
SWE444	SW design	SWE
SWE212	GUI	SWE
ICS431	OS	ICS

## Can\_teach

LID	Scode
111	ICS202
222	ICS334
333	ICS202
444	ICS431
333	ICS334
111	COE241
222	SWE444
222	ICS202
333	ICS431



Using relational algebra expressions answer the following questions.

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1. Retrieve the names of the lecturers whose salary is greater than 1600.
2. Retrieve the IDs of the lecturers who do not teach any courses.
3. Retrieve the IDs and names of the lecturers who teach all ICS courses.
4. Retrieve the names of the lecturers who get the highest salary.
5. Find the average salary of all the lecturers.
6. Retrieve the IDs and Names of the lecturers who do not teach any course.
7. Retrieve the courses that are taught by more than one lecturer.
8. Rename the table **depts** to departments.
9. Rename the column dname to department\_name.
10. Find the average salary of the lecturers in each department
11. Retrieve all the courses that can not be taught by any lecturer.
12. Retrieve the names of all courses (even those that can not be taught by any lecturer) and the names of all the lecturers who can teach them.