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CDS 302-DL1

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Assignment 3

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# Section 1.1

## Problem 1.1.1

### Code

with dept\_avg(dept\_name, val) as  
 (select dept\_name,   
 avg(instructor.salary) as salary  
 from instructor  
 group by dept\_name),  
 dept\_total(salary) as  
 (select avg(val)  
 from dept\_avg)  
select dept\_name, val  
from dept\_avg, dept\_total  
where val > dept\_total.salary

### Answer:

|  |  |
| --- | --- |
| Biology | 88000.0 |
| CDS | 97500.0 |
| Math | 77000.0 |
| Physics | 80000.0 |

## Problem 1.1.2

### Code

select student.ID, takes.course\_id, takes.grade  
from student left join takes on takes.ID = student.ID

### Answer

|  |  |  |
| --- | --- | --- |
| 00001 | CDS-101 | A |
| 00001 | CDS-130 | B+ |
| 00001 | CDS-302 | A+ |
| 00002 | CDS-302 | A+ |
| 00002 | MAT-114 | B |
| 00003 | BIO-101 | C |
| 00004 | PHY-403 | B- |
| 00005 | MUS-100 | D |
| 00006 | CDS-101 | A |
| 00006 | CDS-130 | B- |
| 00007 | BIO-101 | C |
| 00007 | CDS-302 | A+ |
| 00007 | MAT-114 | B |
| 00008 | CDS-302 | A |
| 00009 | CDS-302 | A |
| 00010 |  |  |
| 00011 |  |  |

# Section 1.2

## Problem 1.2.1

### Code

select language, avg(grade)

from (  
 select t.lid, t.grade, langs.language  
 from (  
 select inlang.lid as lid, inlang.mid, movies.title, movies.grade as grade  
 from inlang join movies on movies.mid = inlang.mid  
 ) as t, langs  
 where langs.lid = t.lid  
) as l  
group by language

### Answer

|  |  |
| --- | --- |
| Aboriginal | 6.0 |
| Arabic | 7.66666666666667 |
| Australian | 6.0 |
| Bulgarian | 10.0 |
| Chinese | 8.33333333333333 |
| Czechoslovakian | 9.33333333333333 |
| Danish | 5.25 |
| Dutch | 8.5 |
| English | 6.00681198910082 |
| Estonian | 8.0 |
| Finnish | 9.0 |
| French | 6.89285714285714 |
| German | 8.23076923076923 |
| Greek | 10.0 |
| Hebrew | 8.0 |
| Hindi | 8.0 |
| Hungarian | 6.0 |
| Inuktitut | 8.0 |
| Irani | 8.0 |
| Italian | 8.25 |
| Japanese | 7.0 |
| Kazakh | 8.0 |
| Korean | 8.0 |
| Mandarin | 8.0 |
| Mende | 7.0 |
| Mongolian | 6.5 |
| Navajo | 4.0 |
| Nepali | 8.0 |
| Norwegian | 7.5 |
| Portugese | 2.0 |
| Russian | 7.75 |
| Silent | 6.0 |
| Sindarin | 4.5 |
| Spanish | 6.27777777777778 |
| Swedish | 7.4 |
| Tibetan | 8.0 |
| Ukranian | 9.0 |
| Xhosa | 7.0 |
| Yiddish | 8.0 |

## Problem 1.2.2

### Code

with gActors (firstname, lastname, mid, title,aid) as (  
 select actors.firstname, actors.lastname, isin.mid, movies.title, isin.aid  
 from actors, isin, movies  
 where actors.aid = isin.aid and isin.mid = movies.mid and actors.firstname like "G%")

select count(firstname), country  
from (  
 select firstname, lastname, gActors.mid, title, cid  
 from gActors, incountry  
 where gActors.mid = incountry.mid  
 ) as t, country  
where country.cid = t.cid  
group by country

### Answer

|  |  |
| --- | --- |
| 1 | France |
| 1 | Germany |
| 2 | UK |
| 4 | USA |

Im not sure if this one is right simply because there are more than 8 actors with their names starting with ‘G’; however, the incountry table is not very long, so it could be right based on what it has.

# Section 2.1

## Problem 2.1.1

### Answer

select t.name, t.salary  
from (   
 select name, salary  
 from instructor  
 where salary > 70000  
) as t

## Problem 2.1.2

### Answer

select section.course\_id  
from section  
where (section.semester = 'Fall' and section.year = 2019) or (section.semester = 'Spring' and section.year = 2020)

# Section 2.2

## Problem 2.2.1

### Answer

select avg(movies.grade)  
from movies

## Problem 2.2.2

### Answer

select movies.title  
from actors natural join isin natural join movies  
where movies.grade = 4 and actors.firstname='Harrison'

### Returned:

Star Wars: Return of the Jedi

# Section 3.1

## Problem 3.1.1

πstudent.ID, student.dept\_name(σ(student.dept\_name=’CDS’)(student))

## Problem 3.1.2

πcount(instructor.name)(σ(instructor.dept\_name=’CDS’)**U**(instructor.dept\_name=’Math’)(instructor))

# Section 3.2

## Problem 3.2.1

πmovies.\*(σ(isin.mid=movies.mid^isin.aid=actors.aid)^(actors.firstname=’Brad’Uactors.firstname=’Daniel’)(movies ⋈ actors ⋈ isin)

## Problem 3.2.2

π(movies.title, movies.grade)(σcountry=’France’(movies ⋈ incountry ⋈ country))

This can also be done with the following:

π(movies.title, movies.grade)(σ(movies.mid=incountry.mid) ^ (country.cid=incountry.cid) ^ (country.country=’France’))(movies,incountry,country))