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CDS 302-DL1

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Assignment 3

Contents

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

$\pi_{\text{student.ID, student.dept\_name}}$
$(\sigma_{\text{(student.dept\_name='CDS')}}$
(student))

Problem 3.1.2

$\pi_{\text{count(instructor.name)}}$
$(\sigma_{\text{(instructor.dept\_name='CDS')}}\mathbf{U}_{\text{(instructor.dept\_name='Math')}}$
(instructor))

Section 3.2

Problem 3.2.1

$\pi_{\text{movies.*}}$
$(\sigma_{\text{(isin.mid=movies.mid\^isin.aid=actors.aid)\^(actors.firstname='Brad'Uactors.firstname='Daniel')}}$
(movies ⋈ actors ⋈ isin)

Problem 3.2.2

$\pi_{\text{(movies.title, movies.grade)}}$
$(\sigma_{\text{country='France'}}$
(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))