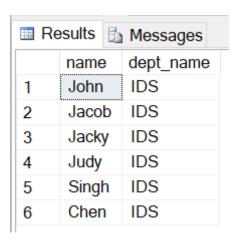# Assignment 3

Sinza Shrestha, Radhika Shukla, Dhananjay Singh, Jasmeet Singh, Deepak Singhal

Queries

1. List the names of instructors along with the course ID of the courses that they taught

```
Select I.name, D.dept_name
from instructor I , department D
where D.dept_name = I.dept_name;
```

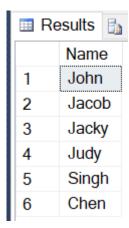|	name	dept_name
1	John	IDS
2	Jacob	IDS
3	Jacky	IDS
4	Judy	IDS
5	Singh	IDS
6	Chen	IDS

2) Create a view of instructors without their salary

```
create
view
faculty as
select InstructorId, Name, dept_name from instructor
select * from faculty
```

	InstructorId	Name	dept_name
1	425	John	IDS
2	567	Jacob	IDS
3	582	Jacky	IDS
4	584	Judy	IDS
5	777	Singh	IDS
6	892	Chen	IDS

3) Find all instructors in IDS department

```
select Name
from faculty
where dept_name = 'IDS'
```

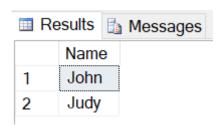|	Name
1	John
2	Jacob
3	Jacky
4	Judy
5	Singh
6	Chen

4) To find all student details in addition to instructor name.

```
select I.Name , S.* from
student S left outer join instructor I
on S.InstructorId = I.InstructorId
```

	Name	student_id	first_name	last_name	tot_cred	dept_name	InstructorId
1	Singh	147852963	Jessica	Day	16	CS	777
2	Singh	156354759	Monica	Geller	18	FIN	777
3	Judy	443454183	Robin	Hood	4	FIN	584
4	Chen	454565651	Cece	Parikh	10	IDS	892
5	Singh	456963159	Nick	Miller	4	IDS	777
6	Judy	545496969	Allison	Day	14	FIN	584
7	Singh	568925890	Sam	Smith	10	IDS	777
8	Chen	640001236	Phoebe	Buffay	4	FIN	892
9	Jacob	642568900	Penny	Smith	4	CS	567
10	Jacky	642589631	Ezra	Fitz	10	IDS	582
11	Jacob	645210078	Priya	Koothrapali	10	FIN	567
12	John	647845185	Raj	Koothrapali	16	FIN	425
13	John	648595632	Sheldon	Cooper	18	CS	425
14	Jacky	651258945	Aria	Montgom...	16	IDS	582
15	Jacky	652158963	Hanna	Marin	10	CS	582
16	Jacob	652158965	Emily	Sweets	18	FIN	567
17	John	652548741	Howard	Wolowitz	18	IDS	425
18	John	658021500	Leonard	Hofstadter	6	CS	425
19	Chen	658458789	Ross	Geller	18	CS	892
20	Jacob	661002789	Zack	Rivers	4	FIN	567
21	Jacob	661200785	Bernade...	Wolowitz	18	IDS	567
22	Jacky	662584569	Emily	Fields	12	IDS	582
23	Judy	663656214	Wyatt	Smith	14	FIN	584
24	Chen	665626369	Joey	Tribbiani	4	IDS	892
25	Jacky	667258695	Joe	Goldberg	16	FIN	582
26	Judy	667298123	Ken	Adams	16	CS	584

5) Find all instructors in IDS department.

```
select Name
from Instructor where dept_name = 'IDS' and semester = 'Spring'
```
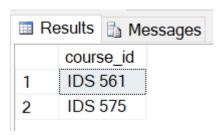

	Name
1	John
2	Judy

6) Create a view of department salary totals

```
create view
 departments_total_salary(dept_name, Salary)
 as
select dept_name, sum (Salary)from instructor group by
dept_name;

select * from departments_total_salary
```

Results | **Messages**

	dept_name	Salary
1	CS	56000
2	IDS	275000

7. Find all classes offered in both Spring 2020 or Fall 2021

```
(select course_id from section where semester = 'Fall' and year
= 2021)
union
(select course_id from section where semester = 'Spring' and
year = 2021)
```

Results | **Messages**

	course_id
1	IDS 561
2	IDS 575

8. Find the number of students under one advisor

```
Select first_name from student where instructorid = '777'
```

Results | **Messages**

	first_name
1	Jessica
2	Monica
3	Nick
4	Sam
5	Rachel
6	Winston

9. Find the number of students under each instructor ID

```
Select s.instructorid, count(S.instructorid) as
Number_of_Students from  student S group by s.instructorid
```

	instructorid	Number_of_Students
1	425	4
2	567	5
3	582	5
4	584	5
5	777	6
6	892	5

10) Find names of instructors with salaries greater than that of some (at least one) instructor in the Biology department.

```
 select * from instructor where salary > some (select salary
from instructor where dept_name = 'IDS');
```

	InstructorId	Name	Salary	dept_name	sec_id	semester	year	course_id
1	425	John	100000	IDS	2	Spring	2021	IDS 561
2	567	Jacob	56000	IDS	1	Fall	2020	IDS 572
3	582	Jacky	56000	IDS	3	Fall	2020	IDS 572
4	584	Judy	45000	IDS	2	Spring	2020	IDS 572
5	892	Chen	39000	IDS	1	Fall	2020	IDS 521

11) Finding students that got A in IDS 572

```
select S.first_name, S.last_name from grade G join student S on
G.student_id = S.student_id  where G.grade = 'A'
```

	first_name	last_name
1	Jessica	Day
2	Monica	Geller
3	Sam	Smith
4	Emily	Sweets
5	Howard	Wolowitz
6	Emily	Fields
7	Ken	Adams
8	Chandler	Bing
9	Winston	Jackson

12) Find advisor of students named Rachel Green and Ross Geller

```
Select distinct I.Name from instructor as I join student as S
on I.InstructorId = S.instructorid
 where S.first_name =  'Rachel'  and S.last_name = 'Green' or
S.first_name =  'Ross'  and S.last_name = 'Geller'
```

	Name
1	Chen
2	Singh

13) Find the total number of students in each department

```
Select dept_name, count(student_id) as count_of_student from
student group by dept_name
```

	dept_name	count_of_student
1	CS	8
2	FIN	11
3	IDS	11

14) To find all instructor details with names of all students they are advising.

```
select I.*, S.first_name from
instructor I right join student S
on I.InstructorId= S.InstructorId
```

	InstructorId	Name	Salary	dept_name	sec_id	semester	year	course_id	first_name
8	892	Chen	39000	IDS	1	Fall	2020	IDS 521	Phoebe
9	567	Jac...	56000	CS	1	Fall	2020	IDS 572	Penny
10	582	Jacky	56000	IDS	3	Fall	2020	IDS 572	Ezra
11	567	Jac...	56000	CS	1	Fall	2020	IDS 572	Priya
12	425	John	100...	IDS	2	Spring	2021	IDS 561	Raj
13	425	John	100...	IDS	2	Spring	2021	IDS 561	Sheldon
14	582	Jacky	56000	IDS	3	Fall	2020	IDS 572	Aria
15	582	Jacky	56000	IDS	3	Fall	2020	IDS 572	Hanna
16	567	Jac...	56000	CS	1	Fall	2020	IDS 572	Emily
17	425	John	100...	IDS	2	Spring	2021	IDS 561	Howard
18	425	John	100...	IDS	2	Spring	2021	IDS 561	Leonard
19	892	Chen	39000	IDS	1	Fall	2020	IDS 521	Ross
20	567	Jac...	56000	CS	1	Fall	2020	IDS 572	Zack
21	567	Jac...	56000	CS	1	Fall	2020	IDS 572	Bernade...
22	582	Jacky	56000	IDS	3	Fall	2020	IDS 572	Emily
23	584	Judy	45000	IDS	2	Spring	2020	IDS 572	Wyatt
24	892	Chen	39000	IDS	1	Fall	2020	IDS 521	Joey
25	582	Jacky	56000	IDS	3	Fall	2020	IDS 572	Joe
26	584	Judy	45000	IDS	2	Spring	2020	IDS 572	Ken
27	892	Chen	39000	IDS	1	Fall	2020	IDS 521	Chandler
28	777	Singh	35000	IDS	3	Fall	2021	IDS 575	Rachel
29	584	Judy	45000	IDS	2	Spring	2020	IDS 572	Lisa
30	777	Singh	35000	IDS	3	Fall	2021	IDS 575	Winston

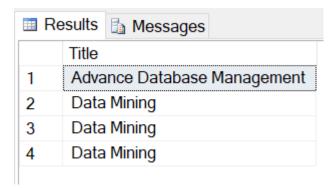15) Perform inner join on course and section tables to show all common courses with their respective sections.
Showing com

```
Select * from
course inner join section on
course.course_id = section.course_id
```

Results | Messages

	course_id	Title	credits	prereq_id	dept_name	sec_id	semester	year	course_id	section_name	max_occupa
1	IDS 521	Advance Database Management	4	NULL	IDS	1	Fall	2020	IDS 521	Red	100
2	IDS 561	Big Data Analytics	4	IDS 572	IDS	2	Spring	2021	IDS 561	Green	100
3	IDS 572	Data Mining	4	NULL	IDS	1	Fall	2020	IDS 572	Green	100
4	IDS 572	Data Mining	4	NULL	IDS	2	Spring	2020	IDS 572	Red	100
5	IDS 572	Data Mining	4	NULL	IDS	3	Fall	2020	IDS 572	Yellow	100
6	IDS 575	Machine Learning	4	IDS 410	IDS	3	Fall	2021	IDS 575	Yellow	100

16) Find all courses that were offered at most once in 2020

```
select C.Title from course C join section S  on C.course_id =
S.course_id where S.year = '2020'
```

Results | Messages

	Title
1	Advance Database Management
2	Data Mining
3	Data Mining
4	Data Mining

17) Creating "Grade" table from existing columns "student_id" and "course_id" from the "Student" table

```
SELECT student_id, course_id INTO Grade FROM student;
```

	student_id	course_id	grade
1	147852963	IDS 521	A
2	147852963	IDS 572	B
3	156354759	IDS 561	B
4	156354759	IDS 572	A
5	156354759	IDS 575	C
6	443454183	IDS 572	C
7	454565651	IDS 561	C
8	456963159	IDS 561	C
9	545496969	IDS 575	B
10	568925890	IDS 572	A
11	640001236	IDS 572	C
12	642568900	IDS 561	B
13	642589631	IDS 572	B
14	645210078	IDS 572	C
15	647845185	IDS 561	B
16	648595632	IDS 575	C
17	651258945	IDS 572	C
18	652158963	IDS 561	B
19	652158965	IDS 561	A
20	652548741	IDS 572	A
21	658021500	IDS 575	C

18) Transferring Professor Jacob to CS department

```
 UPDATE instructor
SET dept_name='CS'
WHERE name='Jacob';
select * from instructor
```

	InstructorId	Name	Salary	dept_name	sec_id	semester	year	course_id
1	425	John	100000	IDS	2	Spring	2021	IDS 561
2	567	Jacob	56000	CS	1	Fall	2020	IDS 572
3	582	Jacky	56000	IDS	3	Fall	2020	IDS 572
4	584	Judy	45000	IDS	2	Spring	2020	IDS 572
5	777	Singh	35000	IDS	3	Fall	2021	IDS 575
6	892	Chen	39000	IDS	1	Fall	2020	IDS 521

19) Adding instructor id to student table for advisor relationship

```
ALTER TABLE student
ADD InstructorId varchar(1000)
FOREIGN KEY (InstructorId) REFERENCES instructor(InstructorId);
```

Results | Messages

	student_id	first_name	last_name	tot_cred	dept_name	InstructorId
1	147852963	Jessica	Day	16	CS	777
2	156354759	Monica	Geller	18	FIN	777
3	443454183	Robin	Hood	4	FIN	584
4	454565651	Cece	Parikh	10	IDS	892
5	456963159	Nick	Miller	4	IDS	777
6	545496969	Allison	Day	14	FIN	584
7	568925890	Sam	Smith	10	IDS	777
8	640001236	Phoebe	Buffay	4	FIN	892
9	642568900	Penny	Smith	4	CS	567
10	642589631	Ezra	Fitz	10	IDS	582
11	645210078	Priya	Koothra...	10	FIN	567
12	647845185	Raj	Koothra...	16	FIN	425
13	648595632	Sheldon	Cooper	18	CS	425
14	651258945	Aria	Montgo...	16	IDS	582
15	652158963	Hanna	Marin	10	CS	582
16	652158965	Emily	Sweets	18	FIN	567

20) List the name of students along with the titles of courses they are taking

```
Select S.first_name, C.title
From student S join takes T on S.student_id=T.student_id,
course C
Where T.course_id = C.course_id
```

	first_name	Title
1	Jessica	Advance Database Management
2	Jessica	Data Mining
3	Monica	Big Data Analytics
4	Monica	Data Mining
5	Monica	Machine Learning
6	Robin	Data Mining
7	Cece	Big Data Analytics
8	Nick	Big Data Analytics
9	Allison	Machine Learning
10	Sam	Data Mining
11	Phoebe	Data Mining
12	Penny	Big Data Analytics
13	Ezra	Data Mining
14	Priya	Data Mining
15	Raj	Big Data Analytics
16	Sheldon	Machine Learning
17	Aria	Data Mining
18	Hanna	Big Data Analytics
19	Emily	Big Data Analytics
20	Howard	Data Mining
21	Leonard	Machine Learning
22	Ross	Machine Learning
23	Zack	Machine Learning
24	Bernade...	Data Mining
25	Emily	Data Mining
26	Wyatt	Data Mining