

**Database Management System Lab**

**Assignment - 3**

**Name :- Harsh Singh**

**Roll No. :- 244CA018**

1. List all students with a total credit count of 0.

```
SQL> select * from student where tot_cred = 0;
```

ID	NAME	DEPT_NAME	TOT_CRED
4582	Zaniolo	Math	0
93571	Kato	Psychology	0
81610	Ching	Languages	0
81175	Zelek	Biology	0
59908	Cox	Civil Eng.	0
48053	Macias	Comp. Sci.	0
82646	Nirenbu	Biology	0
39157	Loull	Accounting	0
14032	Belhadji	Elec. Eng.	0
83204	Tauber	Accounting	0
11201	Bianchi	Statistics	0

  

ID	NAME	DEPT_NAME	TOT_CRED
70924	Rajnov	Civil Eng.	0
987	Kasani	Athletics	0
42625	Holland	Languages	0
82707	Hadzilacos	Statistics	0
15283	Williams	Astronomy	0
75252	Huo	Languages	0
63289	So	Psychology	0
92776	OkI	Psychology	0
57055	Piou	Physics	0

20 rows selected.

2. Find the names of all courses offered by the "Physics" department.

```
SQL> select title from course where dept_name='Physics';
```

TITLE
Mobile Computing
Cost Accounting
Bacteriology
Hydraulics
Stream Processing
The Music of Donovan
Differential Geometry
The Music of the Ramones
The Music of Dave Edmunds
Journalism

10 rows selected.

3. Retrieve the names of all instructors who earn exactly ₹50,000.

```
SQL> select * from instructor where salary=50000;
```

ID	NAME	DEPT_NAME	SALARY
48570	Sarkar	Pol. Sci.	50000

4. List all classrooms with a capacity of exactly 100.

```
SQL> select * from classroom where capacity=100;
```

BUILDING	ROOM_NUM	CAPACITY
Painter	86	100
Lambeau	348	100

5. Find the total number of courses offered in the "Summer" semester.

```
SQL> select count(distinct course_id) from section where semester='Spring';
```

COUNT(DISTINCTCOURSE_ID)
45

6. List all students who have taken exactly 30 total credits.

```
SQL> select * from student where tot_cred=30;
```

ID	NAME	DEPT_NAME	TOT_CRED
38899	Murphy	Marketing	30
36845	Okaf	Math	30
81638	Chiu	Statistics	30
28952	Kennedy	Accounting	30
61127	Tuki	Physics	30
53805	Ludwig	Cybernetics	30
76291	Dellwo	Physics	30
7390	Stone	Accounting	30
5925	Maw	Languages	30
72177	Eller	Mech. Eng.	30
68712	Hill	Civil Eng.	30

  

ID	NAME	DEPT_NAME	TOT_CRED
52866	Loull	Math	30
5381	Diana	Languages	30
83003	Nam	Psychology	30

14 rows selected.

7. Find the names of all courses offered by the "Chemistry" department.

```
SQL> select title from course where dept_name='Psychology';
```

TITLE
Greek Tragedy
Graph Theory
Visual BASIC
FOCAL Programming
Transaction Processing
Geology
Operating Systems
Mechanics
Environmental Law
Compiler Design
Animal Behavior

  

TITLE
Video Gaming
Geology

13 rows selected.

8. Retrieve the names of all instructors who earn more than ₹100,000.

```
SQL> select name, salary from instructor where salary > 100000;
```

NAME	SALARY
Mird	119921.41
Shuming	108011.81
Voronina	121141.99
Arias	104563.38
Mingoz	105311.38
Kenje	106554.73
Jaekel	103146.87
Bondi	115469.11
Lent	107978.47
Sakurai	118143.98
Bietzk	117836.5

  

NAME	SALARY
Wieland	124651.41

12 rows selected.

9. List all classrooms located in the "Taylor" building.

```
SQL> select * from classroom where building='Taylor';
```

BUILDING	ROOM_NU	CAPACITY
Taylor	183	71
Taylor	812	115

10. Find the total number of courses offered in the "Winter" semester.

```
SQL> select count(distinct course_id) from section where semester='Fall';
```

COUNT(DISTINCTCOURSE_ID)
46

11. List all students who have taken courses with a grade of "C" or lower.

```
SQL> select student.id, student.name, takes.grade from student join takes on student.id = takes.id where grade >= 'C' and rownum <= 15;
```

ID	NAME	GR
65901	Shishkin	C-
94836	Fuller	C+
48850	Wehen	C-
53469	Fujii	C
49073	Bonvin	C-
88993	Palaniswami	C+
33460	Leonard	C+
8957	Walker	C
7956	Brandsd	C
92659	Mathias	C
46769	Kivv	C-

  

ID	NAME	GR
70235	Zle	C
39619	Dwyer	C+
33651	Seike	C-
62520	Im	C-

15 rows selected.

12. Retrieve the names of instructors who have taught in the "Fall" semester of 2022.

```
SQL> select distinct instructor.name from instructor join teaches on instructor.id = teaches.id where teaches.semester = 'Fall' and teaches.year = 2022;
```

NAME
Liley
Queiroz
Sullivan
Ullman
Bondi
Choll
Gustafsson
Romero
Dale

9 rows selected.

13. Find the average capacity of classrooms in each building.

```
SQL> select building, avg(capacity) average_capacity from classroom group by building;
```

BUILDING	AVERAGE_CAPACITY
Painter	100
Stabler	113
Nassau	92
Chandler	10.5
Whitman	76
Alumni	36.5
Main	26
Power	11
Garfield	59
Taylor	93
Saucon	49.3333333

BUILDING	AVERAGE_CAPACITY
Gates	37.5
Fairchild	27
Polya	28
Grace	34
Bronfman	12
Lambeau	100
Lamberton	10
Drown	18
Rathbone	60

20 rows selected.



14. List all courses that have more than 3 credits.

```
SQL> select * from course where credits > 3 and rownum <= 15;
```

COURSE_ID	TITLE	DEPT_NAME	CREDITS
787	C Programming	Mech. Eng.	4
278	Greek Tragedy	Statistics	4
972	Greek Tragedy	Psychology	4
400	Visual BASIC	Psychology	4
762	The Monkeys	History	4
482	FOCAL Programming	Psychology	4
581	Calculus	Pol. Sci.	4
843	Environmental Law	Math	4
704	Marine Mammals	Geology	4
774	Game Programming	Cybernetics	4
591	Shakespeare	Pol. Sci.	4

  

COURSE_ID	TITLE	DEPT_NAME	CREDITS
319	World History	Finance	4
274	Corporate Law	Comp. Sci.	4
852	World History	Athletics	4
808	Organic Chemistry	English	4

15 rows selected.

15. Retrieve the names of students who have taken courses in the "Watson" building.

```
SQL> select * from (select distinct student.name from student join takes on student.id = takes.id join section on takes.sec_id = section.sec_id and section.course_id = takes.course_id and section.year = takes.year where section.building = 'Taylor') where rownum <= 15;
```

NAME
Aarde
Abdul-Rahman
Abeggl
Abraham
Abu-B
Achilles
Adam
Adda
Adeni
Advani
Afin

  

NAME
Agar
Agarwal
Agraz
Ahmad

15 rows selected.

16. Find the total number of students advised by each instructor.

```
SQL> select i_id, count(s_id) from advisor group by i_id;
```

I_ID	COUNT(S_ID)
99052	33
52647	48
79653	46
63395	31
95030	41
59795	31
81991	40
65931	38
22591	40
73623	46
48570	49

I_ID	COUNT(S_ID)
41930	41
28400	44
14365	39
35579	54
43779	34
77346	54
90643	24
25946	38
79081	40
80759	43
4233	44

17. List all sections that do not have a classroom assigned.

```
SQL> select * from section where room_number is null;
```

```
no rows selected
```

18. Retrieve the names of students who have taken courses with the highest number of credits.

```
SELECT DISTINCT s.name
FROM student s
JOIN takes t ON s.id = t.id
JOIN course c ON t.course_id = c.course_id
  5 WHERE c.credits = (SELECT MAX(credits) FROM course) and rownum<11;
```

NAME
Rotom
Yasuda

```
SQL> □
```



19. Find the departments with the highest average instructor salary.

```
SQL> select * from (select dept_name, avg(salary) avg_salary from instructor group by dept_name order by
avg_salary desc) where rownum <= 1;
```

DEPT_NAME	AVG_SALARY
Physics	114576.9

20. List all courses that have been taught by more than one instructor.

```
SQL> select distinct student.id, name from student join takes on student.id = takes.id where takes.course
_id in (select course_id from course where credits in (select max(credits) from course));
```

ID	NAME
7956	Brandsd
10033	Zelty
10076	Duan
10481	Grosch
35498	Lanfr
35588	John
35685	Usi
90372	Rho
29390	Aufr
29399	Sutter
29514	Michael

ID	NAME
29645	Oller
15328	Chien
15340	Silbert
15538	Yeung
6400	Kelly
20180	Reyes
20974	Hawkins
68263	Roessler
68453	Kjellmer
44816	Burman
31761	Jame

ID	NAME
32065	Tapia
32130	Bannac
32245	Saariluoma
32345	Chorno
74530	Ranno

21. List all students who have taken courses with a grade of "A" in the "Fall" semester of 2022.

```
SQL> select * from student join takes on student.id = takes.id where takes.grade like 'A%' and takes.semester='Fall' and takes.year = 2002;
```

ID	NAME	DEPT_NAME	TOT_CRED	ID	COURSE_I	SEC_ID	SEMEST	YEAR	GR
14182	Moszkowski	Civil Eng.	73	14182	694	1	Fall	2002	A+
79329	Velikovs	Marketing	110	79329	200	2	Fall	2002	A-
98940	Hawthorne	Marketing	78	98940	169	2	Fall	2002	A+
21395	Leuen	Math	43	21395	169	2	Fall	2002	A-
94998	Krishnakumar	Physics	81	94998	192	1	Fall	2002	A-
1968	Sahn	Finance	4	1968	694	1	Fall	2002	A
81538	Wunderli	Languages	117	81538	274	1	Fall	2002	A
68999	Greve	Psychology	113	68999	192	1	Fall	2002	A-
74639	Cerime	Accounting	35	74639	169	2	Fall	2002	A
66054	Crick	Comp. Sci.	86	66054	192	1	Fall	2002	A
60267	Dage	Physics	7	60267	274	1	Fall	2002	A+

  

ID	NAME	DEPT_NAME	TOT_CRED	ID	COURSE_I	SEC_ID	SEMEST	YEAR	GR
17769	Pearlman	Biology	45	17769	192	1	Fall	2002	A-
17769	Pearlman	Biology	45	17769	274	1	Fall	2002	A
39580	Macias	Psychology	128	39580	192	1	Fall	2002	A+
39580	Macias	Psychology	128	39580	461	1	Fall	2002	A
89106	Dawson	Mech. Eng.	88	89106	559	1	Fall	2002	A+
60040	Samel	Math	100	60040	105	2	Fall	2002	A
7123	Holn	Math	27	7123	559	1	Fall	2002	A-
44584	Agar	Geology	58	44584	559	1	Fall	2002	A
76953	Lemoine	Athletics	60	76953	169	2	Fall	2002	A+
76953	Lemoine	Athletics	60	76953	694	1	Fall	2002	A-
22057	Cal	Cybernetics	20	22057	461	1	Fall	2002	A-

22. Retrieve the names of instructors who have taught in the "Spring" semester of 2023.

```
SQL> select distinct instructor.name from instructor join teaches on instructor.id = teaches.id where teaches.semester = 'Spring' and teaches.year = 2003;
```

NAME
Ullman
D'Agostino
Mahmoud
Mingoz
Dale

23. Find the average number of students enrolled in each course.

```
SQL> select avg(cnt) from (select count(id) cnt from takes group by course_id);
```

AVG(CNT)
352.941176

24. List all courses that have exactly 4 credits.

```
SQL> select * from course where credits = 4;
```

COURSE_I	TITLE	DEPT_NAME	CREDITS
787	C Programming	Mech. Eng.	4
278	Greek Tragedy	Statistics	4
972	Greek Tragedy	Psychology	4
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COURSE_I	TITLE	DEPT_NAME	CREDITS
319	World History	Finance	4
274	Corporate Law	Comp. Sci.	4
852	World History	Athletics	4
808	Organic Chemistry	English	4
730	Quantum Mechanics	Elec. Eng.	4
362	Embedded Systems	Finance	4
227	Elastic Structures	Languages	4
376	Cost Accounting	Physics	4
489	Journalism	Astronomy	4
407	Industrial Organization	Languages	4
998	Immunology	Civil Eng.	4

25. Retrieve the names of students who have taken courses in the "Packard" building.

```
SQL> select distinct student.id, student.name from student join takes on student.id = takes.id join section on takes.course_id = section.course_id and takes.sec_id = section.sec_id and section.building='Whitman';
```

ID	NAME
92839	Cirsto
21395	Leuen
90567	Tomason
57985	Weller
33651	Seike
58889	Collet
70572	Andrews
77289	Kok
19582	Canas
2419	Hirakuri
18808	Snif

  

ID	NAME
91063	Dair
62549	Komatsu
32245	Saariluoma
17831	Srivastava
28738	Birkett
3651	Narayanan
69960	Raiev
36494	Baccou
79446	Frost
1087	Roses
46769	Kivv