Database System Concepts

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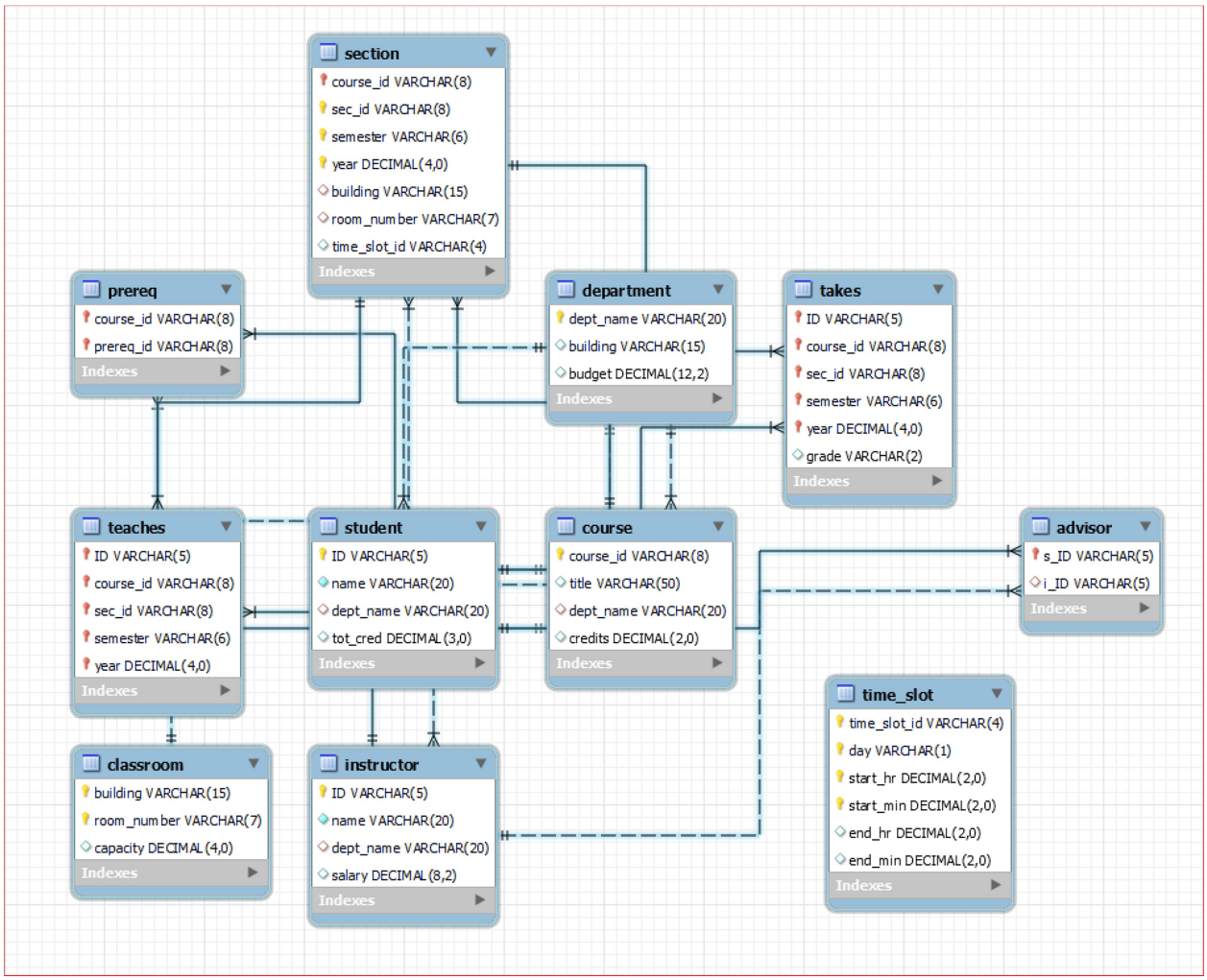
Schema



SQL Queries

Write queries in SQL, on the University schema, to answer each of the following questions:

1. Find the names of all the instructors from Biology department

```
select * from instructor where dept_name="Biology";
```

```
4 •  select * from instructor where dept_name="Biology";
```

Result Grid | Filter Rows: | Edit: | Export/Import

ID	name	dept_name	salary
76766	Crick	Biology	72000.00
NULL	NULL	NULL	NULL

2. Find the names of courses in Computer science department which have 3 credits

```
select * from course where dept_name= "Comp. Sci." and credits=3;
```

```
4 •  select * from course where dept_name= "Comp. Sci." and credits=3;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wr

course_id	title	dept_name	credits
CS-315	Robotics	Comp. Sci.	3
CS-319	Image Processing	Comp. Sci.	3
CS-347	Database System Concepts	Comp. Sci.	3
NULL	NULL	NULL	NULL

3. For the student with ID 12345 (or any other value), show all course_id and title of all courses registered for by the student.

```
select ID, T.course_id, title from (select * from takes where ID="12345" ) as T left join course on T.course_id = course.course_id
```

```
4 •  select ID, T.course_id, title from (select * from takes where ID="12345" ) as T left join course on T.course_id = course.course_id
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

ID	course_id	title
12345	CS-101	Intro. to Computer Science
12345	CS-190	Game Design
12345	CS-315	Robotics
12345	CS-347	Database System Concepts

4. As above, but show the total number of credits for such courses (taken by that student). Don't display the tot_creds value from the student table, you should use SQL aggregation on courses taken by the student.

```
select ID, sum(credits) from ((select * from takes where ID="12345" ) as T left join course on T.course_id = course.course_id) group by ID
```

```
4 •  select ID, sum(credits) from
5        ((select * from takes where ID="12345" ) as T left join course on T.course_id = course.course_id)
6        group by ID
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

ID	sum(credits)
12345	14

5. As above, but display the total credits for each of the students, along with the ID of the student; don't bother about the name of the student. (Don't bother about students who have not registered for any course, they can be omitted)

```
select * from
(select ID, sum(credits) as TotalCredits from
        (takes left join course on takes.course_id = course.course_id)
  group by ID) as T
  where TotalCredits>0
```

```
4  select * from
5  (select ID, sum(credits) as TotalCredits from
6      (takes left join course on takes.course_id = course.course_id)
7      group by ID) as T
8      where TotalCredits>0
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

ID	TotalCredits
00128	7
12345	14
19991	3
23121	3
44553	4
45678	11
54321	8
55739	3
76543	7
76653	3
98765	7
98988	8

6. Find the names of all students who have taken any Comp. Sci. course ever (there should be no duplicate names)

```
select distinct name from
(select ID, takes.course_id, dept_name from
(takes left join course on takes.course_id = course.course_id)) as T
left join student on T.ID = student.ID
```

```
4  select distinct name from
5  (select ID, takes.course_id, dept_name from
6      (takes left join course on takes.course_id = course.course_id)) as T
7      left join student on T.ID = student.ID
8
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

name
Tanaka
Zhang
Shankar
Levy
Williams
Brown
Bourikas
Aoi
Chavez
Brandt
Sanchez
Peltier

7. Display the IDs of all instructors who have never taught a couse (Notesad1) Oracle uses the keyword minus in place of except; (2) interpret "taught" as "taught or is scheduled to teach")

```
select ID from instructor where ID not in (select ID from teaches)
```

```
5  select ID from instructor where ID not in (select ID from teaches)
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wr

ID
76543
58583
33456
NULL

8. As above, but display the names of the instructors also, not just the IDs.

```
select ID, name from instructor where ID not in (select ID from teaches)
```

```
5 •  select ID, name from instructor where ID not in (select ID from teaches)
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Ce

ID	name
33456	Gold
58583	Califieri
76543	Singh
NULL	NULL

Credits:

These are the queries from the book –

Database System Concepts *Seventh Edition*

Avi Silberschatz, Henry F. Korth, S. Sudarshan

https://www.db-book.com/university-lab-dir/exercises-dir/