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ASSIGNMENT - 3

1. Increase the credits of all courses by 1, but only for courses where the average grade of students is above 75.

```
mysql> select * from course;
```

coursenum	title	credit	dcode
1	DSA	4	1
2	DLD	4	1
3	OS	4	1
4	DAA	4	1
5	Power Systems	3	2
6	control systems	4	3
7	VLSI	3	3
8	Basic Electronics	4	3
9	Antenna	3	3
10	Thermodynamics	3	4
11	Fluid Mechanics	4	4
12	Machine Design	4	4
13	Heat Transfer	3	4
14	Control Engineering	4	4
15	Network Analysis	3	2

```
15 rows in set (0.00 sec)
```

```
mysql> UPDATE course c JOIN ( SELECT coursenum, AVG(grade) AS avg_grade FROM student_course sc GROUP BY coursenum ) AS cg ON c.coursenum = cg.coursenum SET c.credit = c.credit + 1 WHERE cg.avg_grade > 75;
Query OK, 12 rows affected, 4 warnings (0.00 sec)
Rows matched: 12 Changed: 12 Warnings: 4
```

```
mysql> select * from course;
```

coursenum	title	credit	dcode
1	DSA	5	1
2	DLD	5	1
3	OS	5	1
4	DAA	5	1
5	Power Systems	4	2
6	control systems	5	3
7	VLSI	4	3
8	Basic Electronics	5	3
9	Antenna	3	3
10	Thermodynamics	4	4
11	Fluid Mechanics	5	4
12	Machine Design	5	4
13	Heat Transfer	3	4
14	Control Engineering	4	4
15	Network Analysis	4	2

```
15 rows in set (0.00 sec)
```

**2. Add a new column 'DateOfBirth' to the 'Students' table, and find average ages of all students for an Academic program.**

```
[mysql> alter table student
-> add column DateOfBirth DATE;
Query OK, 0 rows affected (0.02 sec)
Records: 0 Duplicates: 0 Warnings: 0

[mysql> desc student;
```

Field	Type	Null	Key	Default	Extra
rollno	varchar(255)	NO	PRI	NULL	
sname	varchar(1024)	NO		NULL	
address	varchar(2000)	YES		NULL	
semester	int	NO		NULL	
pcode	int	NO	MUL	NULL	
DateOfBirth	date	YES		NULL	

```
6 rows in set (0.01 sec)
```

```
mysql> SELECT AVG(YEAR(CURDATE()) - YEAR(DateOfBirth)) AS average_age
-> FROM student
-> WHERE pcode = 1 ;
+-----+
| average_age |
+-----+
|      21.4000 |
+-----+
1 row in set (0.00 sec)
```

**3. Change the data type of the 'Credit' column in the 'Courses' table from INT to DECIMAL(5,2)**

```
[mysql> alter table course
-> modify credit decimal(5,2);
Query OK, 15 rows affected (0.03 sec)
Records: 15 Duplicates: 0 Warnings: 0

[mysql> desc course;
```

Field	Type	Null	Key	Default	Extra
coursenum	int	NO	PRI	NULL	
title	varchar(100)	YES		NULL	
credit	decimal(5,2)	YES		NULL	
dcode	int	YES	MUL	NULL	

```
4 rows in set (0.01 sec)
```

4. Update the student names to include a suffix 'Honors' if they have maintained an average grade above 90% across all semesters.

```
mysql> UPDATE student s
-> JOIN (
->   SELECT rollno, avg_grade
->   FROM (
->     SELECT rollno, AVG(grade) AS avg_grade
->     FROM student_course
->     GROUP BY rollno
->   ) AS avg_grades
->   WHERE avg_grade > 90
-> ) c ON s.rollno = c.rollno
-> SET s.sname = CONCAT(s.sname, ' (Honors)');
Query OK, 3 rows affected, 2 warnings (0.00 sec)
Rows matched: 3  Changed: 3  Warnings: 2

mysql> select * from student;
```

rollno	sname	address	semester	pcode	DateOfBirth
21CS8017	Navneet	Jaipur,Rajasthan	6	1	2002-05-21
21CS8046	Devanjana	Mumbai	6	1	2002-08-14
21CS8056	Oishik	Kolkata	6	1	2003-02-12
21CS8070	Ritabrata Das	Kolkata	6	1	2003-02-12
21CS8077	Vedang (Honors)	Kashipur	6	1	2003-02-12
21EC8031	Siddhi Sunil Agarkar	Mumbai	6	3	2002-11-15
21EC8044	Dipanjana	Siliguri	6	3	2002-11-15
21EC8045	Sahadat SK	Murshidabad,West Bengal	6	3	2002-11-15
21EC8046	Sivam	Siliguri	6	3	2002-11-15
21EC8056	Ali	Kolkata	4	3	2002-11-15
21EC8066	Richa Roy (Honors)	Kolkata	6	3	2002-11-15
21EE8027	Sumit	Delhi	6	2	2002-07-25
21EE8080	Amit Sharma	Lucknow,Uttar Pradesh	6	2	2002-07-25
21EE8099	Rounak	Howrah	6	2	2002-07-25
21ME8001	Suman Karmakar	Purulia,West Bengal	6	4	2001-09-11
21ME8031	Satyam (Honors)	Asansol,West Bengal	6	4	2001-09-11
21ME8071	Prince Maurya	Kanpur	6	4	2001-09-11
22CS8101	Jaydeep	Ranchi,Jharkhand	1	5	2003-01-01

```
18 rows in set (0.00 sec)
```

5. Display the course numbers and titles of courses that have not been registered by any student.

```
mysql> select c.coursenum,c.title
-> from course c
-> left join student_course sc on c.coursenum = sc.coursenum
-> where sc.coursenum is null;
```

coursenum	title
9	Antenna
13	Heat Transfer
14	Control Engineering

```
3 rows in set (0.00 sec)
```

6. Find the names of students who have registered for courses offered by a department different from their enrolled department.

```
mysql> select s.sname,c.title
-> from student as s
-> join programme p on s.pcode = p.pcode
-> join student_course sc on s.rollno = sc.rollno
-> join course c on sc.coursenum = c.coursenum
-> where p.dcode!=c.dcode;
```

sname	title
Ritabrata Das	Power Systems
Vedang (Honors)	control systems
Richa Roy (Honors)	OS
Amit Sharma	control systems
Rounak	VLSI

5 rows in set (0.00 sec)