

MySQL Labs

MySQL (Day2):

1	Update students courses table, set the registration date value to "Today";																												
	<pre>UPDATE students_courses SET reg_date = CURRENT_DATE();</pre> <table><tr><th>student_id</th><th>course_id</th><th>grade</th><th>reg_date</th></tr><tr><td>1</td><td>1</td><td>80</td><td>2023-01-22</td></tr><tr><td>1</td><td>2</td><td>90</td><td>2023-01-22</td></tr><tr><td>1</td><td>3</td><td>100</td><td>2023-01-22</td></tr><tr><td>2</td><td>2</td><td>99</td><td>2023-01-22</td></tr><tr><td>2</td><td>3</td><td>80</td><td>2023-01-22</td></tr><tr><td>3</td><td>4</td><td>70</td><td>2023-01-22</td></tr></table>	student_id	course_id	grade	reg_date	1	1	80	2023-01-22	1	2	90	2023-01-22	1	3	100	2023-01-22	2	2	99	2023-01-22	2	3	80	2023-01-22	3	4	70	2023-01-22
student_id	course_id	grade	reg_date																										
1	1	80	2023-01-22																										
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2	2	99	2023-01-22																										
2	3	80	2023-01-22																										
3	4	70	2023-01-22																										
2	Display the registration date in the following format: Day, month/ year																												
	<pre>SELECT DAYOFMONTH(reg_date),MONTH(reg_date),YEAR(reg_date) FROM students_courses;</pre> <table><tr><th>DAYOFMONTH(reg_date)</th><th>MONTH(reg_date)</th><th>YEAR(reg_date)</th></tr><tr><td>22</td><td>1</td><td>2023</td></tr><tr><td>22</td><td>1</td><td>2023</td></tr><tr><td>22</td><td>1</td><td>2023</td></tr><tr><td>22</td><td>1</td><td>2023</td></tr><tr><td>22</td><td>1</td><td>2023</td></tr><tr><td>22</td><td>1</td><td>2023</td></tr></table>	DAYOFMONTH(reg_date)	MONTH(reg_date)	YEAR(reg_date)	22	1	2023	22	1	2023	22	1	2023	22	1	2023	22	1	2023	22	1	2023							
DAYOFMONTH(reg_date)	MONTH(reg_date)	YEAR(reg_date)																											
22	1	2023																											
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3	Display the <u>full name (first, last)</u> of the student with <u>his grade</u>. if his garde is greater than 85% Excellent, from 75% to 85% Very good, from 65% to 75% Good and from 55% to 65% pass otherwise will be graded as failed.																												
	<pre>SELECT CONCAT(first_name," ",last_name) AS "full_name" ,course_name,grade, (CASE WHEN (grade >= 85) THEN "Excellent" WHEN (grade >= 75 AND grade < 85) THEN "Very Good" WHEN (grade >= 65 AND grade < 75) THEN "Good" WHEN (grade >= 55 AND grade < 65) THEN "Pass" WHEN (grade < 55) THEN "Failed" END) AS grade FROM students s,courses c, students_courses sc WHERE (s.student_id = sc.student_id) AND (c.course_id = sc.course_id);</pre>																												

full_name	course_name	grade	grade
Ahmed Aly	Database	80	Very Good
Ahmed Aly	C	90	Excellent
Ahmed Aly	Network	100	Excellent
Ahmed Ibrahim	C	99	Excellent
Ahmed Ibrahim	Network	80	Very Good
Ahmed Ossama	OS	70	Good

4 *Display the capitalized last name , and the grade , if he has no grade display the keyword absent. [using ifNULL function]*

```
SELECT Upper(last_name) AS las_name,course_name,IFNULL(grade,"Absent") AS grade
FROM (students s,courses c) LEFT OUTER JOIN students_courses sc
ON (s.student_id = sc.student_id) AND (c.course_id = sc.course_id);
```

las_name	course_name	grade
ALY	Database	80
IBRAHIM	Database	Absent
OSSAMA	Database	Absent
KHALED	Database	Absent
KHALIL	Database	Absent
ALY	C	90
IBRAHIM	C	99
OSSAMA	C	Absent
KHALED	C	Absent
KHALIL	C	Absent
ALY	Network	100
IBRAHIM	Network	80
OSSAMA	Network	Absent
KHALED	Network	Absent
KHALIL	Network	Absent
ALY	OS	Absent
IBRAHIM	OS	Absent
OSSAMA	OS	70
KHALED	OS	Absent
KHALIL	OS	Absent
ALY	MySQL	Absent
IBRAHIM	MySQL	Absent
OSSAMA	MySQL	Absent
KHALED	MySQL	Absent
KHALIL	MySQL	Absent
ALY	Java	Absent
IBRAHIM	Java	Absent
OSSAMA	Java	Absent
KHALED	Java	Absent
KHALIL	Java	Absent

5 *Display students' names, course name along with their grades.*

```
SELECT CONCAT(first_name," ",last_name) AS "student_name"
,course_name,grade
FROM students s,courses c, students_courses sc
WHERE (s.student_id = sc.student_id) AND (c.course_id = sc.course_id);
```

student_name	course_name	grade
Ahmed Aly	Database	80
Ahmed Aly	C	90
Ahmed Aly	Network	100
Ahmed Ibrahim	C	99
Ahmed Ibrahim	Network	80
Ahmed Ossama	OS	70

6	<p>For each course, display the <u>course name</u>, <u>min grade</u>, <u>max grade</u>, <u>average grade</u>, <u>number of attended students</u>.</p>																									
	<pre>SELECT course_name,MIN(grade), MAX(grade), AVG(grade),COUNT(sc.student_id) FROM students s,courses c, students_courses sc WHERE (s.student_id = sc.student_id) AND (c.course_id = sc.course_id) GROUP BY course_name;</pre> <table><tr><th>course_name</th><th>MIN(grade)</th><th>MAX(grade)</th><th>AVG(grade)</th><th>COUNT(sc.student_id)</th></tr><tr><td>C</td><td>90</td><td>99</td><td>94.5000</td><td>2</td></tr><tr><td>Database</td><td>80</td><td>80</td><td>80.0000</td><td>1</td></tr><tr><td>Network</td><td>80</td><td>100</td><td>90.0000</td><td>2</td></tr><tr><td>OS</td><td>70</td><td>70</td><td>70.0000</td><td>1</td></tr></table>	course_name	MIN(grade)	MAX(grade)	AVG(grade)	COUNT(sc.student_id)	C	90	99	94.5000	2	Database	80	80	80.0000	1	Network	80	100	90.0000	2	OS	70	70	70.0000	1
course_name	MIN(grade)	MAX(grade)	AVG(grade)	COUNT(sc.student_id)																						
C	90	99	94.5000	2																						
Database	80	80	80.0000	1																						
Network	80	100	90.0000	2																						
OS	70	70	70.0000	1																						
7	<p>Use subquery to display the <u>names of the students</u> who were born before student no 1.</p>																									
	<pre>SELECT CONCAT(first_name," ",last_name) AS "student_name" FROM students WHERE birth_date < (SELECT birth_date FROM students LIMIT 1);</pre> <table><tr><th>student_name</th></tr><tr><td>Ahmed Ibrahim</td></tr><tr><td>Hoda Khaled</td></tr></table>	student_name	Ahmed Ibrahim	Hoda Khaled																						
student_name																										
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8	<p>Use subquery to display the <u>data of all the courses</u> with a credit hour similar to MySQL's credit hours</p>																									
	<pre>SELECT * FROM courses WHERE credit_hour = (SELECT credit_hour FROM courses WHERE course_name LIKE "MYSQL") AND course_name NOT LIKE "MYSQL";</pre> <table><tr><th>course_id</th><th>course_name</th><th>credit_hour</th></tr><tr><td>1</td><td>Database</td><td>2</td></tr></table>	course_id	course_name	credit_hour	1	Database	2																			
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1	Database	2																								
10	<p>Create a view called <u>female_students_vu</u> to display all the female students</p>																									
	<pre>CREATE VIEW female_students_vu AS SELECT * FROM students WHERE gender LIKE "female";</pre> <table><tr><th>student_id</th><th>first_name</th><th>last_name</th><th>tel</th><th>email</th><th>gender</th><th>birth_date</th></tr><tr><td>4</td><td>Hoda</td><td>Khaled</td><td>NULL</td><td>NULL</td><td>female</td><td>1991-09-01</td></tr><tr><td>5</td><td>Mona</td><td>Khalil</td><td>NULL</td><td>NULL</td><td>female</td><td>1992-10-01</td></tr></table>	student_id	first_name	last_name	tel	email	gender	birth_date	4	Hoda	Khaled	NULL	NULL	female	1991-09-01	5	Mona	Khalil	NULL	NULL	female	1992-10-01				
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4	Hoda	Khaled	NULL	NULL	female	1991-09-01																				
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11	Try to <u>insert a male student</u> through your view																																																																						
	INSERT INTO female_students_vu VALUES(6,"Amir","Ahmed",NULL,NULL,"male","1999-11-1");																																																																						
12	Select all the data from your view and then from the students table SELECT * FROM female_students_vu; <table><tr><th>student_id</th><th>first_name</th><th>last_name</th><th>tel</th><th>email</th><th>gender</th><th>birth_date</th></tr><tr><td>4</td><td>Hoda</td><td>Khaled</td><td>NUL</td><td>NUL</td><td>female</td><td>1991-09-01</td></tr><tr><td>5</td><td>Mona</td><td>Khalil</td><td>NUL</td><td>NUL</td><td>female</td><td>1992-10-01</td></tr></table> SELECT * FROM students; <table><tr><th>student_id</th><th>first_name</th><th>last_name</th><th>tel</th><th>email</th><th>gender</th><th>birth_date</th></tr><tr><td>1</td><td>Ahmed</td><td>Aly</td><td>NUL</td><td>NUL</td><td>male</td><td>1991-10-01</td></tr><tr><td>2</td><td>Ahmed</td><td>Ibrahim</td><td>NUL</td><td>NUL</td><td>male</td><td>1991-09-01</td></tr><tr><td>3</td><td>Ahmed</td><td>Ossama</td><td>NUL</td><td>NUL</td><td>male</td><td>1992-10-01</td></tr><tr><td>4</td><td>Hoda</td><td>Khaled</td><td>NUL</td><td>NUL</td><td>female</td><td>1991-09-01</td></tr><tr><td>5</td><td>Mona</td><td>Khalil</td><td>NUL</td><td>NUL</td><td>female</td><td>1992-10-01</td></tr><tr><td>6</td><td>Amir</td><td>Ahmed</td><td>NUL</td><td>NUL</td><td>male</td><td>1999-11-01</td></tr></table>	student_id	first_name	last_name	tel	email	gender	birth_date	4	Hoda	Khaled	NUL	NUL	female	1991-09-01	5	Mona	Khalil	NUL	NUL	female	1992-10-01	student_id	first_name	last_name	tel	email	gender	birth_date	1	Ahmed	Aly	NUL	NUL	male	1991-10-01	2	Ahmed	Ibrahim	NUL	NUL	male	1991-09-01	3	Ahmed	Ossama	NUL	NUL	male	1992-10-01	4	Hoda	Khaled	NUL	NUL	female	1991-09-01	5	Mona	Khalil	NUL	NUL	female	1992-10-01	6	Amir	Ahmed	NUL	NUL	male	1999-11-01
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6	Amir	Ahmed	NUL	NUL	male	1999-11-01																																																																	
13	Prevent the ability to insert another male student through you view																																																																						
	ALTER VIEW female_students_vu AS SELECT * FROM students WHERE gender LIKE "female" WITH CHECK OPTION; <pre>MariaDB [php]> INSERT INTO female_students_vu -> VALUES(6,"Amr","Hesham",NULL,NULL,"male","1997-8-20"); ERROR 1369 (44000): CHECK OPTION failed `php`.`female_students_vu`</pre>																																																																						
14	Use the information schema to display the <u>table name</u> , <u>schema</u> and the <u>updatability</u> of the <u>female_students_vu</u> view																																																																						
	USE information_schema; DESC VIEWS; SELECT TABLE_NAME, TABLE_SCHEMA, IS_UPDATABLE FROM VIEWS WHERE TABLE_NAME LIKE "female_students_vu" AND TABLE_SCHEMA LIKE "php"; <table><tr><th>TABLE_NAME</th><th>TABLE_SCHEMA</th><th>IS_UPDATABLE</th></tr><tr><td>female_students_vu</td><td>php</td><td>YES</td></tr></table>	TABLE_NAME	TABLE_SCHEMA	IS_UPDATABLE	female_students_vu	php	YES																																																																
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female_students_vu	php	YES																																																																					

15	<p>Use the information schema to display the <u>create time</u>, <u>table rows</u>, <u>auto increment</u>, and the <u>comments</u> on the students table.</p>												
	<pre>USE information_schema; DESC TABLES; SELECT CREATE_TIME, TABLE_ROWS, AUTO_INCREMENT, TABLE_COMMENT FROM TABLES WHERE TABLE_NAME LIKE "students";</pre> <table><tr><th>CREATE_TIME</th><th>TABLE_ROWS</th><th>AUTO_INCREMENT</th><th>TABLE_COMMENT</th></tr><tr><td>2023-01-21 13:58:49</td><td>5</td><td>NULL</td><td></td></tr><tr><td>2023-01-21 14:40:54</td><td>6</td><td>7</td><td></td></tr></table>	CREATE_TIME	TABLE_ROWS	AUTO_INCREMENT	TABLE_COMMENT	2023-01-21 13:58:49	5	NULL		2023-01-21 14:40:54	6	7	
CREATE_TIME	TABLE_ROWS	AUTO_INCREMENT	TABLE_COMMENT										
2023-01-21 13:58:49	5	NULL											
2023-01-21 14:40:54	6	7											
16	<p>Create a nonunique index on the foreign key column (COURSE_ID) in the students_courses table.</p>												
	<pre>ALTER TABLE students_courses ADD INDEX (course_id);</pre>												
17	<p>Create a user with your name and give him the privilege to access the grades database</p>												
	<pre>CREATE USER 'Hager'@'localhost' IDENTIFIED BY 'hagerOS43'; GRANT ALL ON grades.* TO 'Hager';</pre>												
18	<p>Connect to mysql using the user you created and try to insert one record in the courses table.</p>												
	<pre>MYSQL -u Hager -p; USE grades; INSERT INTO courses (course_id, course_name, credit_hour) VALUES(1, "JavaScript", 4);</pre> <table><tr><th>course_id</th><th>course_name</th><th>credit_hour</th></tr><tr><td>1</td><td>JavaScript</td><td>4</td></tr></table>	course_id	course_name	credit_hour	1	JavaScript	4						
course_id	course_name	credit_hour											
1	JavaScript	4											
19	<p>Change your password.</p>												
	<pre>ALTER USER 'Hager'@'localhost' IDENTIFIED BY 'OS43'; FLUSH PRIVILEGES; Or SET PASSWORD FOR 'Hager'@'localhost' = 'OS43';</pre>												
20	<p>Show your privileges.</p>												
	<pre>SHOW GRANTS FOR CURRENT USER();</pre> <table><tr><td>Grants for Hager@localhost</td></tr><tr><td>GRANT USAGE ON *.* TO 'Hager'@'localhost' IDENTIFIED BY PASSWORD '*AE1324888159E381D32BADCB1BC19E4EF0761CF7'</td></tr></table>	Grants for Hager@localhost	GRANT USAGE ON *.* TO 'Hager'@'localhost' IDENTIFIED BY PASSWORD '*AE1324888159E381D32BADCB1BC19E4EF0761CF7'										
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