Test lesson 5. Intermediate SQL 1

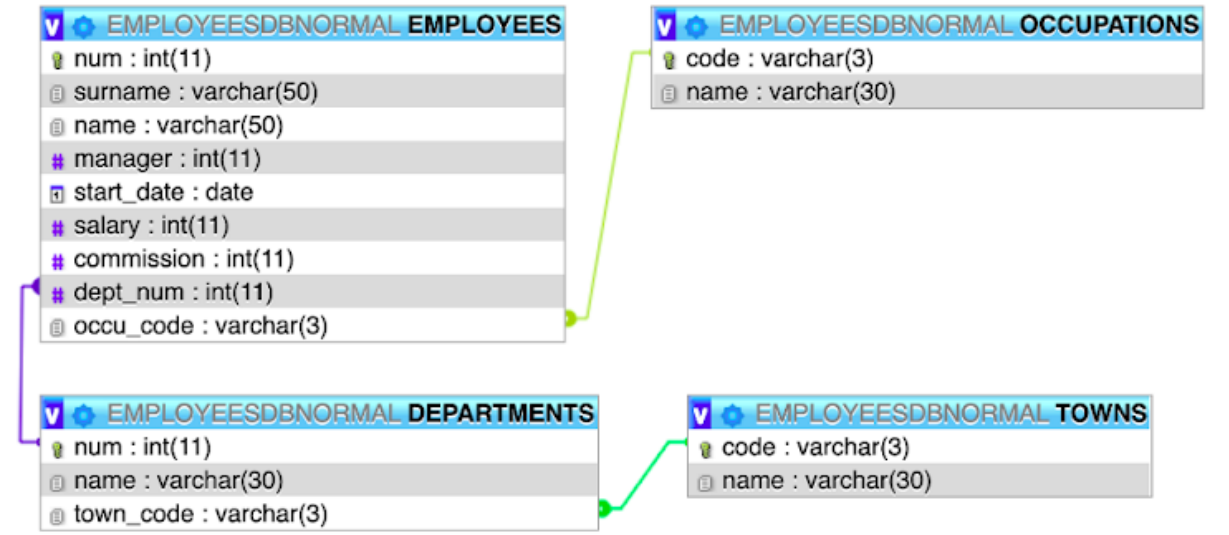
The first 5 correct answers add nothing to the total result. After that, each correct answer adds 6.66 points to the final mark. Wrong answers do not reduce the final mark. It is recommended that you answer all the questions.

The respondent's email (**null**) was recorded on submission of this form.

1. Email *

2. Show number of employees per department considering employees with no department

```
+------------+---------------+
| name       | num_employees |
+------------+---------------+
| ACCOUNTING |             2 |
| PRODUCTION |             0 |
| RESEARCH   |             5 |
| SALES      |             6 |
| NULL       |             2 |
+------------+---------------+
5 rows in set (0.002 sec)
```



Mark only one oval.

- select D.name, count(E.num) as num_employees from EMPLOYEES as E left join DEPARTMENTS as D on E.dept_num=D.num group by D.name;
- select D.name, count(E.num) as num_employees from EMPLOYEES as E right join DEPARTMENTS as D on E.dept_num=D.num group by D.name;
- (select D.name, count(E.num) as num_employees from EMPLOYEES as E left join DEPARTMENTS as D on E.dept_num=D.num group by D.name) union (select D.name, count(E.num) as num_employees from EMPLOYEES as E right join DEPARTMENTS as D on E.dept_num=D.num group by D.name);
- (select D.name, count(E.num) as num_employees from EMPLOYEES as E natural left join DEPARTMENTS as D on E.dept_num=D.num group by D.name) union (select D.name, count(E.num) as num_employees from EMPLOYEES as E natural right join DEPARTMENTS as D on E.dept_num=D.num group by D.name);

3. Given the tables course and prereq, the resulting table shown below is ...

course

course_id	title	dept_name	credits
BIO-301	Genetics	Biology	4
CS-190	Game Design	Comp. Sci.	4
CS-315	Robotics	Comp. Sci.	3

prereq

course_id	prereq_id
BIO-301	BIO-101
CS-190	CS-101
CS-347	CS-101

course_id	title	dept_name	credits	prereq_id
BIO-301	Genetics	Biology	4	BIO-101
CS-190	Game Design	Comp. Sci.	4	CS-101
CS-315	Robotics	Comp. Sci.	3	*null*

Mark only one oval.

- ◯ course natural inner join prereq
- ◯ course natural outer join prereq
- ◯ course natural right outer join prereq
- ◯ course natural left outer join prereq

4. [Join type – defines how tuples in each relation that do not match any tuple in the other relation (based on the join condition) are treated.] Which of the following is not a join type?

Mark only one oval.

- ◯ natural join
- ◯ inner join
- ◯ left join
- ◯ right join

5. Which of the following is not implemented in MariaDB?

Mark only one oval.

- inner join
- full outer join
- left join
- right join

6. Imagine that the university clerk needs access to the name of the instructors but not their salaries. How can we filter the information of the instructor table.

Mark only one oval.

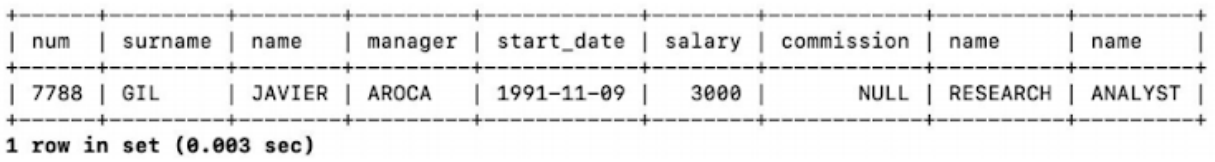
- view
- join
- check
- transaction

7. Which of the following statements is false?

Mark only one oval.

- The sintax to create a view is "CREATE VIEW v AS <query expression>".
- Once a view is defined, the view name can be used to refer to the virtual relation that the view generates.
- View definition is the same as creating a new relation by evaluating the query expression. The data in the view is not changed even if the data in the original tables is.
- A view definition causes the saving of an expression; the expression is substituted into queries using the view.

8. Show the data of the employees whose salary is greater than 2000 (show department name instead department code, occupation name instead occupation code and managersurname instead manager num) using inner join.



num	surname	name	manager	start_date	salary	commission	name	name
7788	GIL	JAVIER	AROCA	1991-11-09	3000	NULL	RESEARCH	ANALYST

1 row in set (0.003 sec)

Mark only one oval.

- select E.num, E.surname, E.name, M.surname, E.start_date, E.salary, E.commission, D.name, O.namefrom EMPLOYEES as E join DEPARTMENTS as D on E.dept_num=D.num join OCCUPATIONS as O on E.occu_code=O.code join EMPLOYEES as M on E.manager=M.num where E.salary>2000;
- select E.num, E.surname, E.name, M.surname, E.start_date, E.salary, E.commission, D.name, O.namefrom EMPLOYEES as E join DEPARTMENTS as D on E.dept_num=D.num join OCCUPATIONS as O on E.occu_code=O.code where E.salary>2000;
- select E.num, E.surname, E.name, T.name, E.start_date, E.salary, E.commission, D.name, O.name from EMPLOYEES as E join DEPARTMENTS as D on E.dept_num=D.num join OCCUPATIONS as O on E.occu_code=O.code join EMPLOYEES as M on E.manager=M.num join TOWNS as T on D.towncode=T.code where E.salary>2000;
- select E.num, E.surname, E.name, T.name, E.start_date, E.salary, E.commission, D.name, O.name from EMPLOYEES as E join DEPARTMENTS as D on E.dept_num=D.num join OCCUPATIONS as O on E.occu_code=O.code join TOWNS as T on D.towncode=T.code where E.salary>2000;

9. What command can we use to see the views and the tables?

Mark only one oval.

- show full tables;
- describe tables;
- show views;
- select * from views;

10. Create a view (with name V_DEPARTMENTS) that shows all the departments with their number of employees and their town name.

```
MariaDB [P04_views]> select * from V_DEPARTMENTS;
+-----+------------+-----------+-----------+---------------+
| num | name       | town_code | town_name | num_employees |
+-----+------------+-----------+-----------+---------------+
|  10 | ACCOUNTING | SVQ       | SEVILLA   |             2 |
|  20 | RESEARCH   | MAD       | MADRID    |             5 |
|  30 | SALES      | BCN       | BARCELONA |             6 |
|  40 | PRODUCTION | BIO       | BILBAO    |             0 |
+-----+------------+-----------+-----------+---------------+
4 rows in set (0.001 sec)
```

Mark only one oval.

- ( ) create view V_DEPARTMENTS select D.num, D.name, D.town_code, T.name as town_name, count(E.num) as num_employees from EMPLOYEES as E right join DEPARTMENTS as D on E.dept_num=D.num join TOWNS as T on D.town_code=T.code group by D.num;
- ( ) create V_DEPARTMENTS as select D.num, D.name, D.town_code, T.name as town_name, count(E.num) as num_employees from EMPLOYEES as E right join DEPARTMENTS as D on E.dept_num=D.num join TOWNS as T on D.town_code=T.code group by D.num;
- ( ) create view V_DEPARTMENTS as select D.num, D.name, D.town_code, T.name as town_name, count(E.num) as num_employees from EMPLOYEES as E right join DEPARTMENTS as D on E.dept_num=D.num join TOWNS as T on D.town_code=T.code group by D.num;
- ( ) new view V_DEPARTMENTS as select D.num, D.name, D.town_code, T.name as town_name, count(E.num) as num_employees from EMPLOYEES as E right join DEPARTMENTS as D on E.dept_num=D.num join TOWNS as T on D.town_code=T.code group by D.num;

11. Which of the following statements is false?

Mark only one oval.

- ( ) It is possible to alter a view.
- ( ) It is possible to define a view selecting data from another view. "CREATE VIEW v2 AS SELECT column1 FROM v1;"
- ( ) It is possible to create views with columns that are not present in the original table. Like the following example "create view V_DEPARTMENTS as select D.num, D.name, T.code, T.name, count(E.num) from EMPLOYEES as E join DEPARTMENTS as D on E.dept_num=D.num join TOWNS as T on D.town_code=T.code group by D.num;"
- ( ) It is always possible to insert data into views.

12. What is the statement to start a transaction in MariaDB?

Mark only one oval.

- START TRANSACTION;
- RECORD TRANSACTION;
- SAVE CHECKPOINT;
- ADD CHECKPOINT;

13. What is the result or running the following statements? start transaction;delete from instructor where dept_name in (select dept_name from department where building = 'Watson');rollback;commit;

Mark only one oval.

- Nothing.
- It deletes the instructors of departments in the Watson building.
- It deletes the departments in the Watson building.
- It deletes the department name of the instructors that work in the Watson building.

14. What is the result or running the following statements? start transaction;delete from instructor where dept_name in (select dept_name from department where building = 'Watson'); savepoint my_savepoint; rollback to my_savepoint; commit;

Mark only one oval.

- Nothing.
- It deletes the instructors of departments in the Watson building.
- It deletes the departments in the Watson building.
- It deletes the department name of the instructors that work in the Watson building.

15. What is the keyword to finish a transaction in MariaDB?

Mark only one oval.

- Commit;
- Finish;
- End;
- Complete;

16. Which of the following is not an integrity constraint on a single relation?

Mark only one oval.

- rollback
- not null
- primary key
- unique

17. If we add the restriction "unique(building, budget)" to the "department" table of the "university" database, which of the following statements is false?

Mark only one oval.

- it is not possible to have two departments in the same building.
- the combination of attributes (dept_name, building) will be a superkey.
- it is not possible to have two departments in the same building with the same budget.
- the values of building and budget can be null.

18. Which of the following is not valid?

Mark only one oval.

- check(select name from instructor where dept_name in (select dept_name from department where building='Watson'))
- check (budget > 0)
- check (semester in ('Fall', 'Winter', 'Spring', 'Summer'))
- check (year > 1701 and year < 2100)

19. How can we add a constraint to an existing table "table-name"?

Mark only one oval.

- ALTER TABLE "table-name" ADD "constraint"
- CREATE "constraint" IN TABLE "table-name"
- DEFINE "table-name" NEW "constraint"
- ADD "constraint" TO TABLE "table-name"

20. How can we disable autocommit in MySQL/MariaDB?

Mark only one oval.

- set autocommit=0;
- set autocommit=1;
- set autocommit off;
- set autcommit on;

21. In the slides we have defined three "Join Conditions". Which of the following is not a "Join Coindition"?

Mark only one oval.

- OUTER
- NATURAL
- ON <predicate>
- USING (A1, A2, ..., An)

22. Consider the following code: INSERT INTO T (id, s) VALUES (4, 'fourth');ROLLBACK;SELECT * FROM T; What is the result?

Mark only one oval.

- The data will be inserted if autocommit is on.
- The data will be inserted if autocommit is off.
- The data will be inserted if there was a START TRANSACTION; code before.
- The data will be inserted if there was a BEGIN; code before.

23. 1. CREATE TABLE my_table (column1 INTEGER, column2 INTEGER, CONSTRAINT my_constraint UNIQUE (column1, column2)); 2. INSERT INTO my_table VALUES (1,2); 3. INSERT INTO my_table VALUES (3,3);INSERT INTO my_table VALUES (1,3); 4. INSERT INTO my_table VALUES (1,2); 5. INSERT INTO my_table VALUES (4,NULL); 6. INSERT INTO my_table VALUES (NULL,3); 7. INSERT INTO my_table VALUES (NULL,NULL);

Mark only one oval.

- command 4 will report an error.
- commands 3, 5 and 7 will report an error.
- commands 4 and 6 will report an error.
- commands 4, 5, 6 and 7 will report an error.

24. We create the tables "department" and "instructor" in phpmyadmin. To create the foreign key we go to the ...

Mark only one oval.

- ... "Relation View" menu.
- ... "Foreign Key" menu.
- ... "Referential Integrity" menu.
- ... "Table Connection" menu.