Birla Institute of Technology & Science Pilani, K.K Birla Goa Campus

CS-F212 Database Systems

Sem2 2020-2021

Lab 5 Practice Problems - SQL

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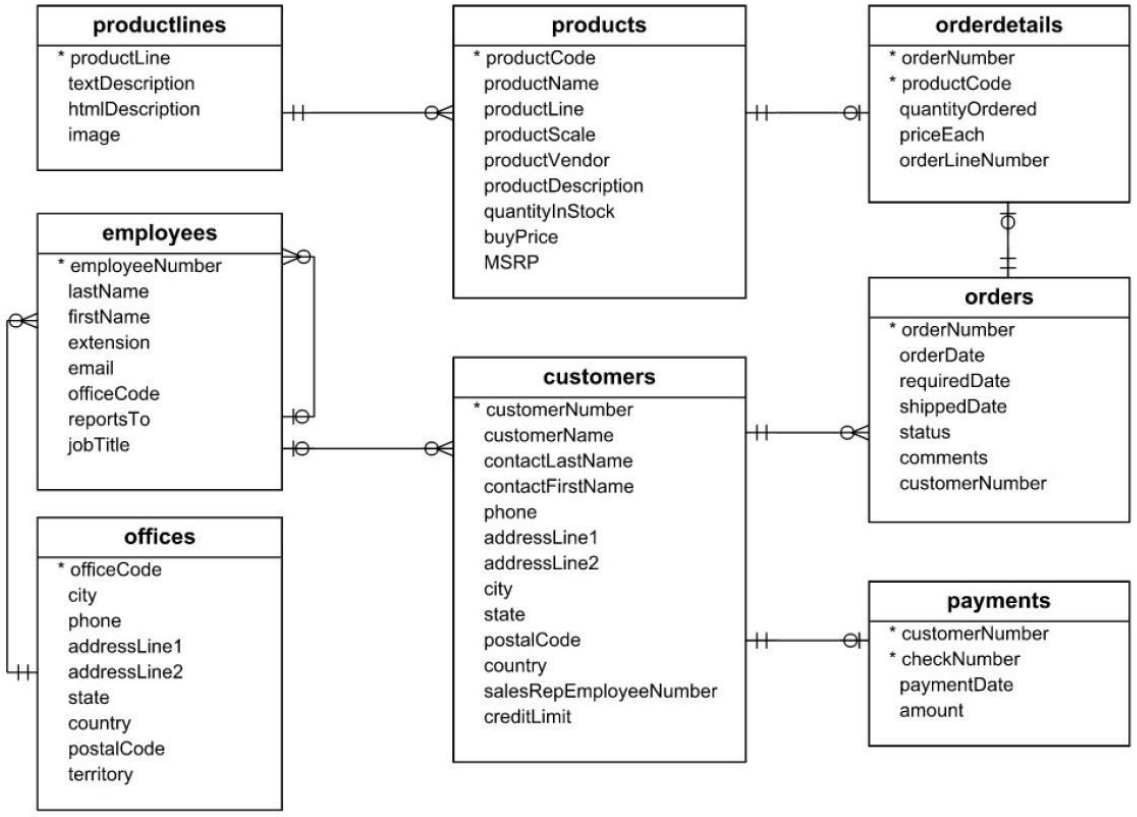
Download and run the seeding file through the source command. The schema for the database is as follows.



Now, answer the following questions:

1. Run the command *show create table customers* and observe the output. Classify all constraints into domain integrity constraints, entity integrity constraints and referential integrity constraints. Using the given schema, try to convince yourself that these constraints were indeed required.

2. Add the UNIQUE constraint to the column *customerNumber* using the ALTER command. Are you able to add the constraint? Is *customerNumber* now a primary key?

3. Identify the user currently logged into the database

4. Check the permissions of the currently logged in user

5. Create a new user and grant all privileges to this user

6. Now that we have given all privileges to the user, let's remove them 'right' away. Delete the user created in Q5.

[Note: Creating roles might not work for older versions of mysql. The support for creating and manipulating roles has only been given for MySQL 8.0 onwards.]

7. Create a new user like in Q5. Call this user 'jake'. Create a new role called 'students'. Add 'jake' to the role 'students' and verify the assignment. Set 'students' as the default role for 'jake'. Repeat the steps for two more users 'amy' and 'charles'. Create a role 'boss' and add user 'holt'.

8. Grant all privileges to 'boss' and only the SELECT privilege to 'students'. Use the SHOW GRANTS command to view the privileges of all the users.

9. Several times, employee details need to be maintained even after the employee has left the company. Create a trigger which will store Employee Number, Last Name, First Name, Job Title and the time of removal from the company in a table *employee_audit* after the employee has left the company.

10. Drop all foreign key constraints in the employees table

11. Delete all entries from the employees table where Job Title begins with 'VP'. Display the employee_audit table after the deletion is complete

12. Display all triggers

13. Drop the foreign key constraints from the products table. Create two new tables productline_update_audit and productline_delete_audit (Names are self explanatory). Set triggers AFTER UPDATE and BEFORE DELETE for the productlines table. Create a new table productline_reintroduced, and set an AFTER INSERT trigger for productline_update table, which will insert the new query in productline_reintroduced, only if the query already exists in productline_delete_audit. [You only need to store the product line name, no other information needs to be stored]

14. Execute the following queries (in-order):

```
update productlines set productLine = 'Trams' where productLine =
'Ships';
delete from productlines where productLine='Trains';
delete from productlines where productLine='Planes';
delete from productlines where productLine='Trams';
update productlines set productLine = 'Trains' where productLine
= 'Motorcycles';
```

```
update productlines set productLine = 'Planes'where productLine =
'Classic Cars';
select * from productline_reintroduced;
```

Expected Output:

```
Trains
Planes
```

15. Create a view *officeDetails* from the offices table, containing the columns office code, phone and postal Code where the country is USA
16. Create a view *orderView* from the tables orders and orderdetails, containing the order number, product code, order date, quantity ordered, customer number and status, where the order status is “Resolved”.
17. Drop the view *officeDetails*
18. In the orderdetails table, add a check such that the price per object is always greater than 100.
19. Drop the check constraint created in Q18
20. Create a table *Managers* with the following columns - ID [INT NOT NULL], LastName [varchar(255) NOT NULL], FirstName [varchar(255)], Age [INT], City [varchar(255)]. Add a check constraint to ensure that the age of the Manager is greater than equal to 18, and the Residing City is “Sancoale”. (Do not write two check constraints, attempt the question using one check constraint only).