ASSIGNMENT-BASED QUESTIONS & ANSWER

**Question 1**: The first step of every RDBMS activity is to create a star schema for a particular data set. You have a total of eight tables as described earlier, and it is essential for you to create an entity relational diagram (ERD) in order to relate the various tables.

**Answer:** Based on the problem statement the 'customers' table has only one to many/zero relation with the 'orders' table. Multiple customers may be assigned to a particular employee; hence, the 'employees' table has one/zero to many/zero relation with the 'customers' table. Only a single office is assigned to a particular employee; hence, the 'offices' table has only one to many/zero relation with the 'employees' table.

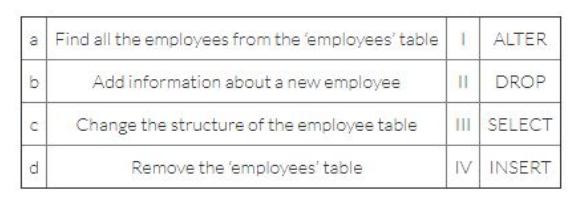
**Question 2:** Which of the table names has a self-referential relationship based on the descriptions of columns of each table given in the problem statement?

**Answer:** Since the 'employees' table has the ‘reportsTo’ column in it, it has a self-referential relationship.

**Question 3:** Identify the foreign key in the 'customers' table that relates this table with the 'employees' table.

**Answer**: 'salesRepEmployeeNumber' is the foreign key in the 'customers' table, which acts as a unique identification for a particular employee in the 'employees' table.

Question 4 Match the following actions with the appropriate SQL commands presented in the table given below.



1. a-I, b-II, c-III, d-IV
2. a-IV, b-III, c-II, d-I
3. a-III, b-I, c-II, d-IV
4. a-III, b-IV, c-I, d-II

**Answer:** D

**Question 5:** Suppose you want to create a table named 'payments' in SQL with the two primary keys 'customerNumber' and 'checkNumber', as mentioned in the ERD. Write the query to achieve this.

**Answer:**

CREATE TABLE `payments` ( `customerNumber` int(11) NOT NULL, `checkNumber` varchar(12) NOT NULL, `paymentDate` datetime DEFAULT NULL, `amount` decimal(12,2) DEFAULT NULL, PRIMARY KEY (`customerNumber`,`checkNumber`) CONSTRAINT `Check` FOREIGN KEY (`customerNumber`) REFERENCES `customers` (`customerNumber`))

**Question 6:** You need to enter the following entries in the 'customers' table to proceed in this assignment.

(495,'Diecast Collectables','Franco','Valarie','Boston','MA','51003','USA','1188',85100), (496,'Kelly\'s Gift Shop','Snowden','Tony','Auckland','NULL','NULL','New Zealand','1612',110000)

Which commands can be used to enter the two rows that are given above in the 'customers' table?

**Answer:** INSERT command.

insert into customers values (495,'Diecast Collectables','Franco','Valarie','Boston','MA','51003','USA','1188',85100), (496,'Kelly's Gift Shop','Snowden','Tony','Auckland ','NULL','NULL','New Zealand','1612',110000)

**Question 7:** Suppose you need to change the 'employees' table by inserting the job title 'Sales Rep' in which the office code is equal to 4. Which query will you use to perform this operation?

**Answer:**

update employees

set jobTitle = 'Sales Rep' where officeCode = 4;

**Question 8:** Delete the entries where the ‘productLine’ column has a value that equals to ‘Boats’ from the 'productlines' table. What is the number of rows in the 'productlines' table?

**Answer:** 8

**Question 9:** Suppose you want to convert the data type of the 'quantityOrdered' column of the 'orderdetails' table from varchar into an integer. Which code will you use to convert the varchar data type into an integer?

**Answer:** alter table orderdetails modify column quantityOrdered int;

**Question 10:** You have tables named 'employees' and 'customers'. Code in the MySQL workbench that you have been provided and answer the following questions: -

* Suppose you print the names of employees with the job title 'Sales Rep'. What is the first name of the employee that appears first in this query?
* What is the total number of employees from the ‘employees’ table? Alias it as 'Total\_Employees'. - How many customers are based in Australia? Alias it as 'Australia\_Customers'.

**Answer:** Leslie, 23, 5

**Question 11:** You have tables named 'products' and 'orders'. Code in the MySQL workbench that you have been provided and answer the following questions:

* Using the 'products' table, calculate the sum of quantity that is in stock for the product vendor 'Red Start Diecast' and the product line 'Vintage Cars'.
* What is the total number of orders that have not been shipped yet from the 'orders' table?

**Answer:** 8073, 23

**Question 12:** How many entries does the 'orderdetails' table contain for which the ‘productCode’ starts with S18 and the ‘priceEach’ is greater than 150?

**Answer:** 26

**Question 13:** Which are the top three countries (in order) that have the maximum number of customers?

**Answer:** USA, Germany, France

**Question 14:** What is the average credit limit for Singapore from the 'customers' table?

**Answer:** 67233

**Question 15:** What is the total amount to be paid by the customer named 'Euro+ Shopping Channel'? You need to refer to the 'customers' and 'payments' tables to answer this question.

**Answer:** 715738

**Question 16**: Which month received the maximum aggregate payments from the customers along with the aggregated value of the payment of that month?

**Answer:** December, 1645923

**Question 17:** What is the shipped date of the maximum quantity that was ordered for the product name '1968 Ford Mustang'?

**Answer:** 09-09-2003

**Question 18:** What is the average value of the credit limit that corresponds to the customers who have been contacted by the employees from the 'Tokyo' office after using the ‘inner join’ clause on these two tables? Hint: You need to apply the nested query as well.

**Answer:** 83900

**Question 19:** How will you find the name of the customer who paid the lowest amount for the product? You need to use the ‘outer join’ clause on the 'customers' and 'payments' tables and the ‘sum’ clause on the attribute ‘amount’ to answer this question.

**Answer:** Boards & Toy Co

**Question 20:** In which office does the employee with the job title 'VP Marketing' work?

**Answer:** San Francisco

**Question 21:** What is the name of the customer who belongs to ‘France’ and has the maximum creditLimit among the customers in France?

**Answer:** Mini Gifts Distributors Ltd.

**Question 22:** What will be the remaining stock of the product code that equals ‘S18\_1589’ if it is sent to all the customers who have demanded it?

**Answer:** 8692

**Question 23:** What is the average amount paid by the customer 'Mini Gifts Distributors Ltd.'?

**Answer:** 64910