**CC-215-L: Database Systems Lab**

*Faculty of Computing & Information Technology*



**BS(CS) Morning - Fall 2021, Semester Fall 2023**

**LAB – 08**

# Topics

* DML operations
* Alter Queries

# Learning Objectives

* Learn how to insert, update, delete from table
* Alter table and add new constraints.
* Alter table to add new columns

# General Instructions:

* In this Lab, you are **NOT** allowed to discuss your solution with your colleagues, even not allowed to ask how s/he is doing; this may result in negative marking. You can **ONLY** discuss with your Teaching Assistants (TAs) or Lab Instructor.
* Your TAs will be available in the Lab for your help. Alternatively, you can send your queries via email to one of the followings.

|  |  |  |
| --- | --- | --- |
| **Lab Instructors** | | |
| Course Instructor | Dr. Asif Sohail | [asif@pucit.edu.pk](mailto:asif@pucit.edu.pk) |
| Teaching Assistants | Kabeer Ali | [bitf20m018@pucit.edu.pk](mailto:bitf20m018@pucit.edu.pk) |
| Hamza | [bitf20m031@pucit.edu.pk](mailto:bitf20m031@pucit.edu.pk) |

Hope you are fine and feeling yourself comfortable and exciting to play with Structured Query Language (SQL) in this first lab. *You have been taught in the lecture about SQL and query writing. Why not to get all what you have learned with a hands-on experience?* So, let’s Start!

*Allowed time: 1.5 hour*

***Note: Do follow these instructions while you are sitting in the lab and performing the tasks.***

1. ***Gossips are not allowed. So be gentle and do what you know. The lab is not to deduct your sessional marks but to prepare you to achieve good marks in quizzes, mids and finals and finally have good grades. So, try to perform all your tasks in time and at your own.***
2. ***Teacher assistants are for your help, so be nice with them. Respect them as they are teaching you. Raise your hands if you have some problem and need help from TA. Avoid calling them by raising your voice and disturbing the environment of Lab.***
3. ***You must revise the content of the past lectures before starting the lab, it will help you resolve most of your general queries and give you the confidence that you can do it.***
4. ***Evaluation will be considered final and you cannot debate for the marks. So, focus on performing the tasks when the time is given to you.***
5. ***TA may deduct your marks for any kind of ill-discipline or misconduct from your side.***
6. ***Finally, pray before you start. And, Best of Luck!***

* **Kindly paste the query as well as result table screenshot as a result of each task**

**Sample:**

**Display All the Employees from emp table**

**Solution:**

**Select \* from emp**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **EMPNO** | **ENAME** | **JOB** | **MGR** | **HIREDATE** | **SAL** | **COMM** | **DEPTNO** |
| 7369 | SMITH | CLERK | 7902 | 12/17/1980 | 800 | - | 20 |
| 7499 | ALLEN | SALESMAN | 7698 | 02/20/1981 | 1600 | 300 | 30 |
| 7521 | WARD | SALESMAN | 7698 | 02/22/1981 | 1250 | 500 | 30 |
| 7566 | JONES | MANAGER | 7839 | 04/02/1981 | 2975 | - | 20 |
| 7654 | MARTIN | SALESMAN | 7698 | 09/28/1981 | 1250 | 1400 | 30 |

**Task 01: [5 Marks]**

1. Create the following tables for a Sales System. You must give meaningful names to all the constraints.

|  |  |  |
| --- | --- | --- |
| Table | **Supplier** |  |
| **Col Name** | **Data Type** | **Constraints** |
| Supplier\_ID | NUMBER (5) | Primary Key |
| S\_name | VARCHAR2 (20) |  |
| City | VARCHAR2 (30) |  |
| Phone | CHAR (16) | Unique |

1. Update Table Product and add following cols to it.
   1. Stock INT Default 0
   2. Supplier\_ID INT Foreign key reference Suppliers

**Task 02: [15 Marks]**

1. View the structure of customer table.
2. Alter table customer and add phone field in it. *VARCHAR2 (10*
3. Alter table customer and
   1. Apply NOT NULL constraint on city field.
   2. Apply NOT NULL constraint on c\_name field.
   3. Change the size of c\_name field to 25 characters.
4. Alter table invoice and add Primary Key constraint on inv\_no.
5. Alter table invoice\_details and add foreign constraint on p\_no referencing product.
6. Alter table product and change the name of the column price to cost\_price.
7. Alter table product and modify the constraint on cost\_price filed to >=10.
8. View all the constraints of above given table.
9. Disable the NOT NULL constraint on p\_name of product table.
10. Alter table customer\_copy to make it a read only table.
11. Change the name of customer\_copy table to customer\_backup.
12. Write to generic queries to change name of a table.
13. Drop tables All\_in\_one and customer\_backup.
14. Remove the default constraint on Stock in Products Table
15. Viva Voice
    1. Difference between Drop, Truncate, Delete, and cascade
    2. Difference between structured and unstructured database

**Task 03: [10 Marks]**

1. Insert a new supplier into the Suppliers table with the following details:

**Supplier ID: 1001**

**Supplier Name: ABC Corporation**

**Address: 123 Main Street, Anytown, USA**

**Phone: 987-654-3210**

1. Insert a new customer into the Customer table with the following details:

**Customer Number: 1001**

**Customer Name: John Doe**

**City: New York**

**CNIC: 1234567890123456**

**Phone: 1234567890**

**After insertion, query the Customer table to verify that the data has been added correctly.**

1. Insert a new product into the Product table with the following details:

**Product Number: 2001**

**Product Name: Laptop**

**Cost Price: 1500**

**Stock: 50**

**Supplier ID: 1001**

**After insertion, query the Product table to verify that the data has been added correctly.**

1. Insert a new invoice into the Invoice table with the following details:

**Invoice Number: 3001**

**Invoice Date: (current date)**

**Customer Number: 1001**

**Payment Method: Cash**

**After insertion, query the Invoice table to verify that the data has been added correctly.**

1. Insert a new entry into the Invoice\_Details table with the following details:

**Invoice Number: 3001**

**Product Number: 2001**

**Quantity: 2**

**Sale Price: 1600**

**After insertion, query the Invoice\_Details table to verify that the data has been added correctly.**

1. Insert a new entry into the Invoice table with the following details:

**Invoice Number: 3002**

**Customer Number : 1002**

**After insertion, query the Invoice table to verify that the data has been added correctly**

**Additional Tasks to Check Constraints:**

1. Try to insert a new customer with a duplicate CNIC and see if the UNIQUE constraint is enforced.
2. Attempt to insert a new product with a price below 5 and see if the check constraint is enforced.
3. Try to insert a new invoice without specifying the customer number and see if the FOREIGN KEY constraint is enforced.
4. Attempt to update a customer's city to NULL and see if the NOT NULL constraint is enforced.
5. Attempt to modify the cost price of a product to a value less than 5 and see if the CHECK constraint is enforced.

**UPDATE AND DELETING TABLE**

12.Change the Stock and Cost price of Laptop in Products Table

13. Change the Payment mode to Card for Customers of New York in Invoice table

14. Delete the INVOICE\_DETAILS table.