Practical 4

Aim: To implement Integrity Constraints. Queries (along with sub-Queries)

Theory:

Integrity constraints ensure that changes (update deletion, insertion) made to the database by authorized users do not result in a loss of data consistency. Thus, integrity constraints guard against accidental damage to the database.

TYPES OF INTEGRITY CONSTRAINTS

1. Primary key constraint
2. Unique key constraint
3. Foreign Key constraint
4. NOT NULL constraint
5. Check constraint

1. Primary key constraints:

Primary key is the term used to identify one or more columns in a table that make a row of data unique. Although the primary key typically consists of one column in a table, more than one column can comprise the primary key.

2. Unique Constraints:

A unique column constraint in a table is similar to a primary key in that the value in that column for every row of data in the table must have a unique value. Although a primary key constraint is placed on one column, you can place a unique constraint on another column even though it is not actually for use as the primary key.

3. Foreign Key Constraints:

A foreign key is a column in a child table that references a primary key in the parent table. A foreign key constraint is the main mechanism used to enforce referential integrity between tables in a relational database. A column defined as a foreign key is used to reference a column defined as a primary key in another table.

4. NOT NULL Constraints:

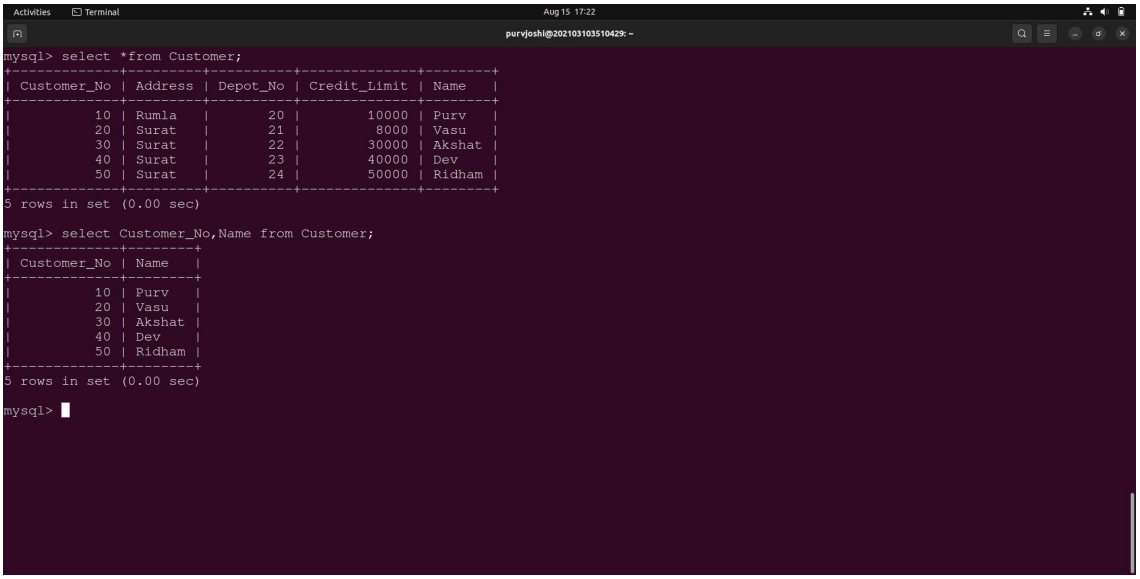
Previous examples use the keywords NULL and NOT NULL listed on the same line as each column and after the data type. NOT NULL is a constraint that you can place on a table's column. This constraint disallows the entrance of NULL values into a column; in other words, data is required in a NOT NULL column for each row of data in the table. NULL is generally the default for a column if NOT NULL is not specified, allowing NULL values in a column.

5. Check Constraints:

Check (CHK) constraints can be utilized to check the validity of data entered into particular table columns. Check constraints are used to provide back-end database edits, although edits are commonly found in the front-end application as well. General edits restrict values that can be entered into columns or objects, whether within the database itself or on a front-end application. The check constraint is a way of providing another protective layer for the data.

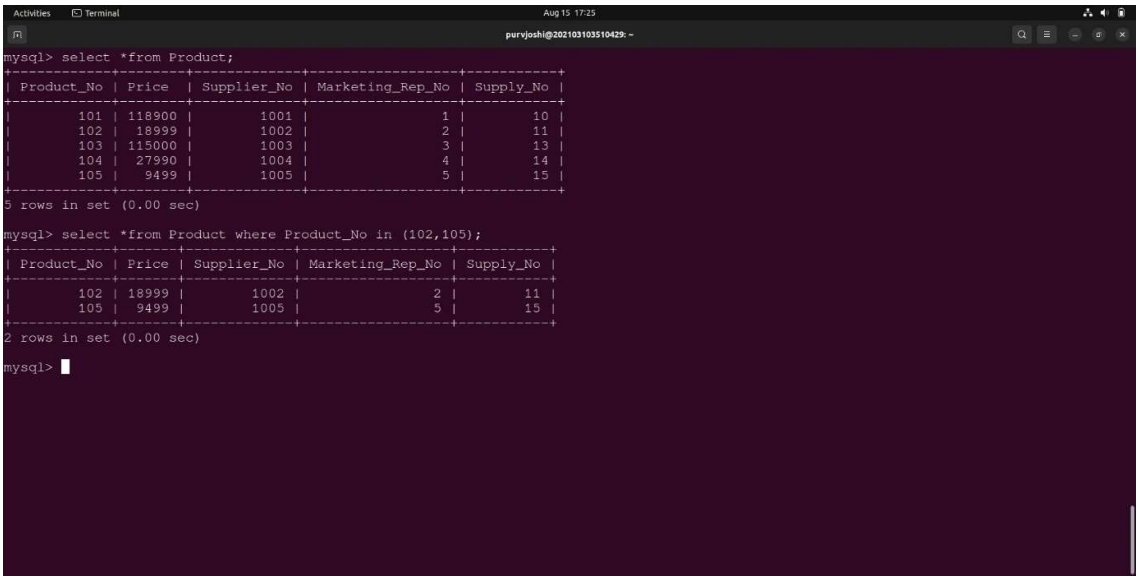
Query-1: List the customer numbers and names of all customer.

Query: select Customer_No, Name from Customer;



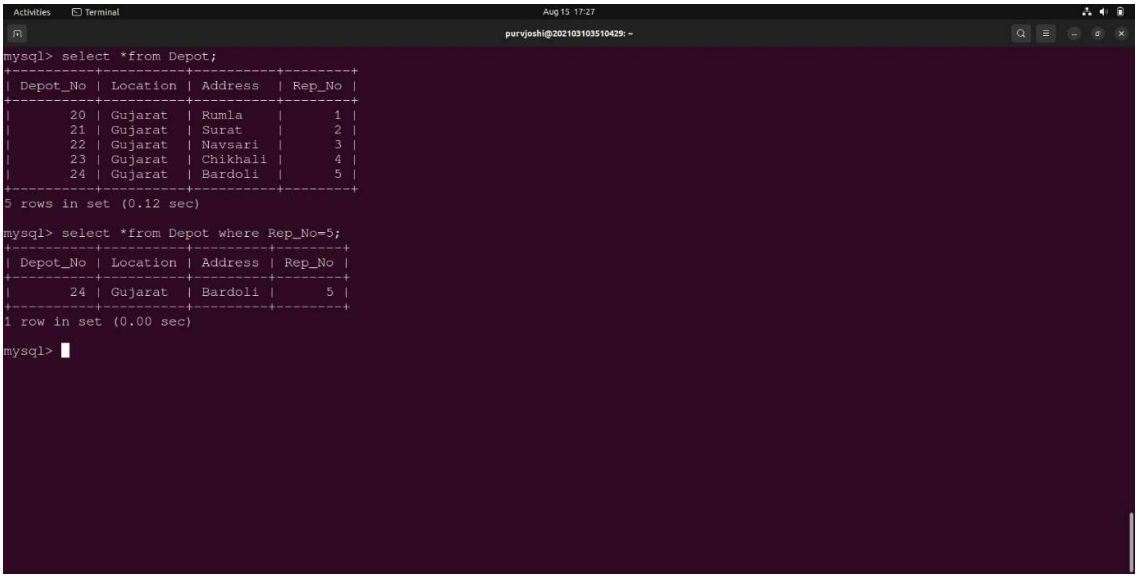
Query-2: List all details of the product with the product number of 102 and 105

Query: select *from Product where Product_No in (102,105);



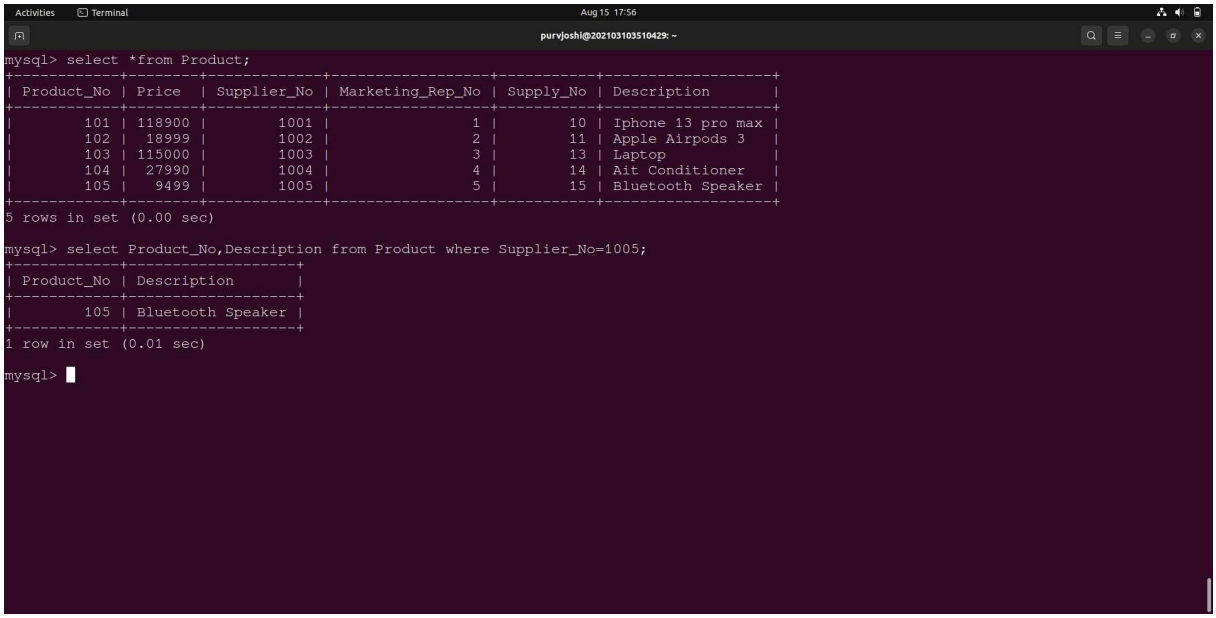
Query-3: List all details of depot with rep=5 as their rep number.

Query: select *from Depot where Rep_No=5;



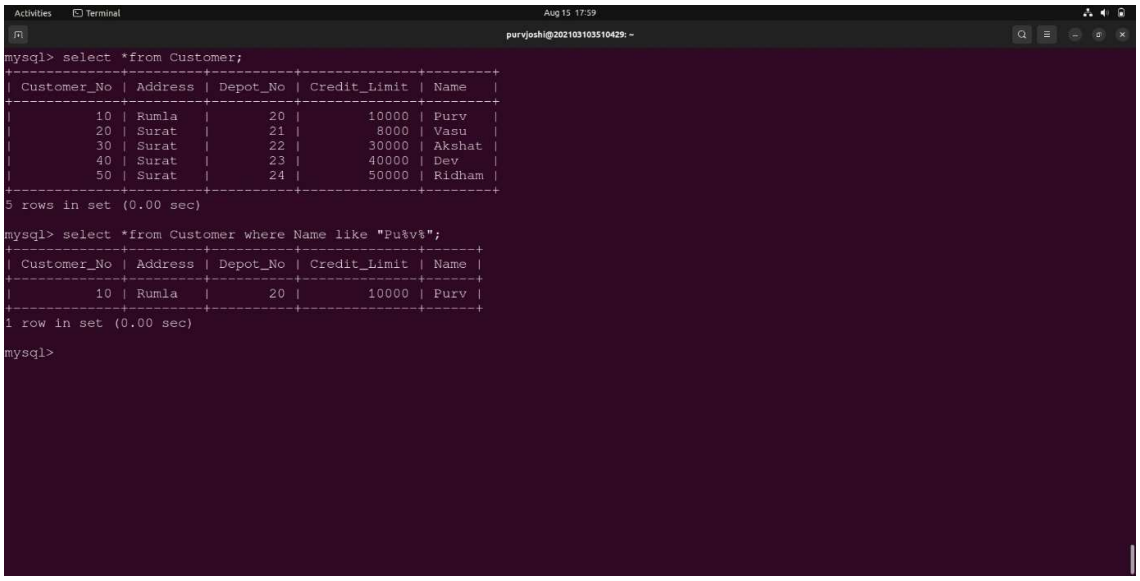
Query-4: List the product number and description of all product from supplier number 1005.

Query: Select Product_No, Description from Product where Supplier_No=1005;



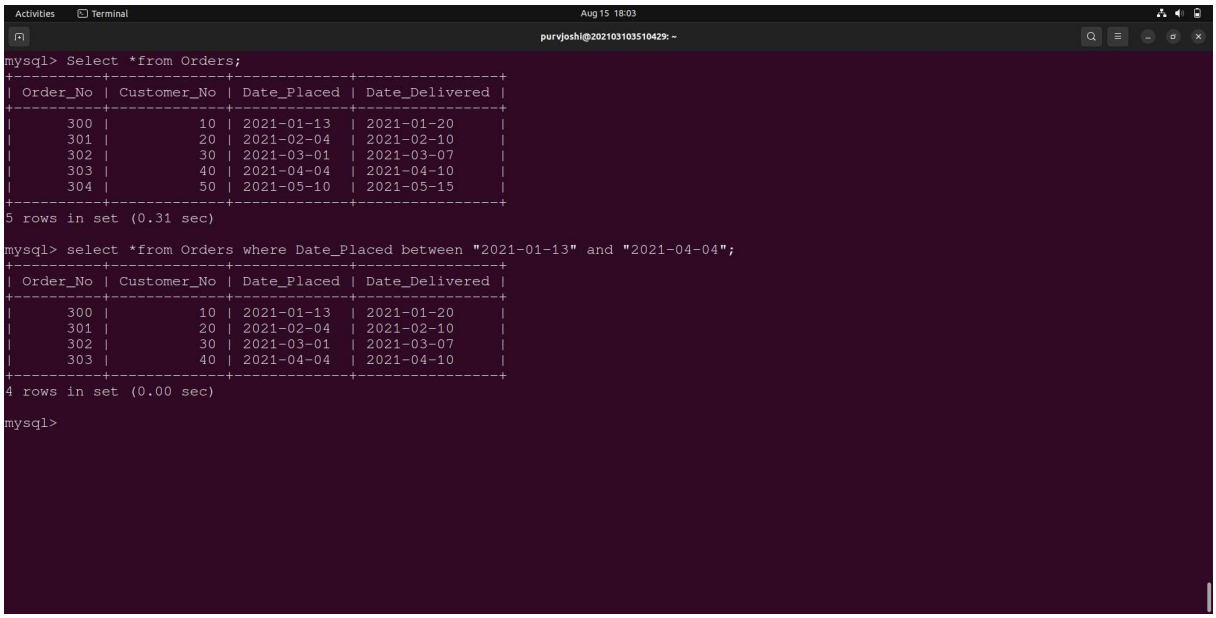
Query-5: List all details for all customers with names starting from Pu followed by 1 character followed by v.

Query: select *from Customer where Name like "Pu%v%";



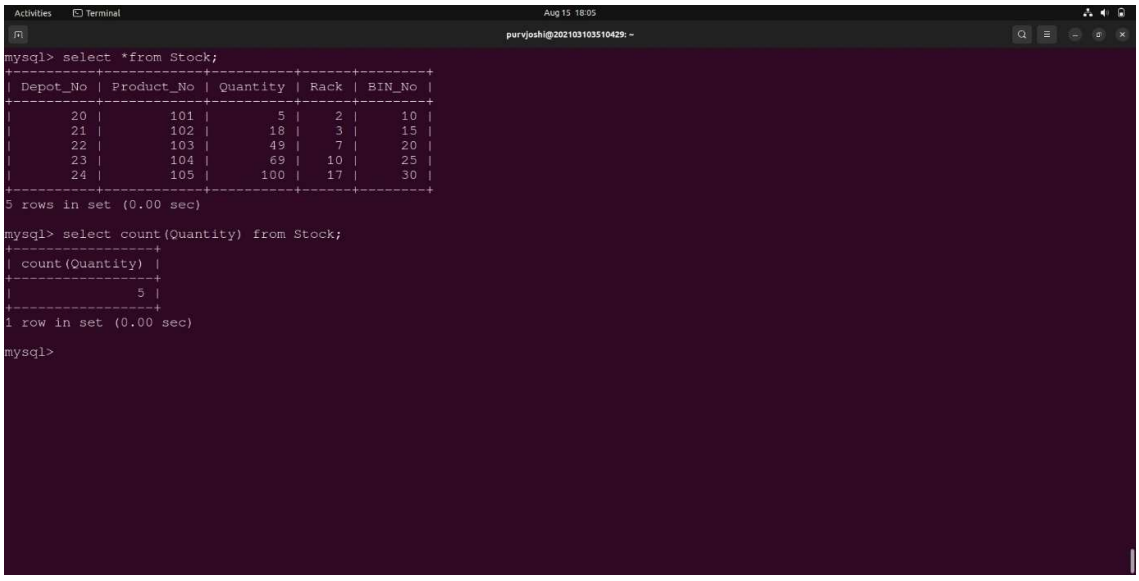
Query-6: List all details for all orders with date placed from 13 January 2021 to 04 April 2021.

Query: select from Orders where Date_Placed between "2021-01-13" and "2021-04-04";



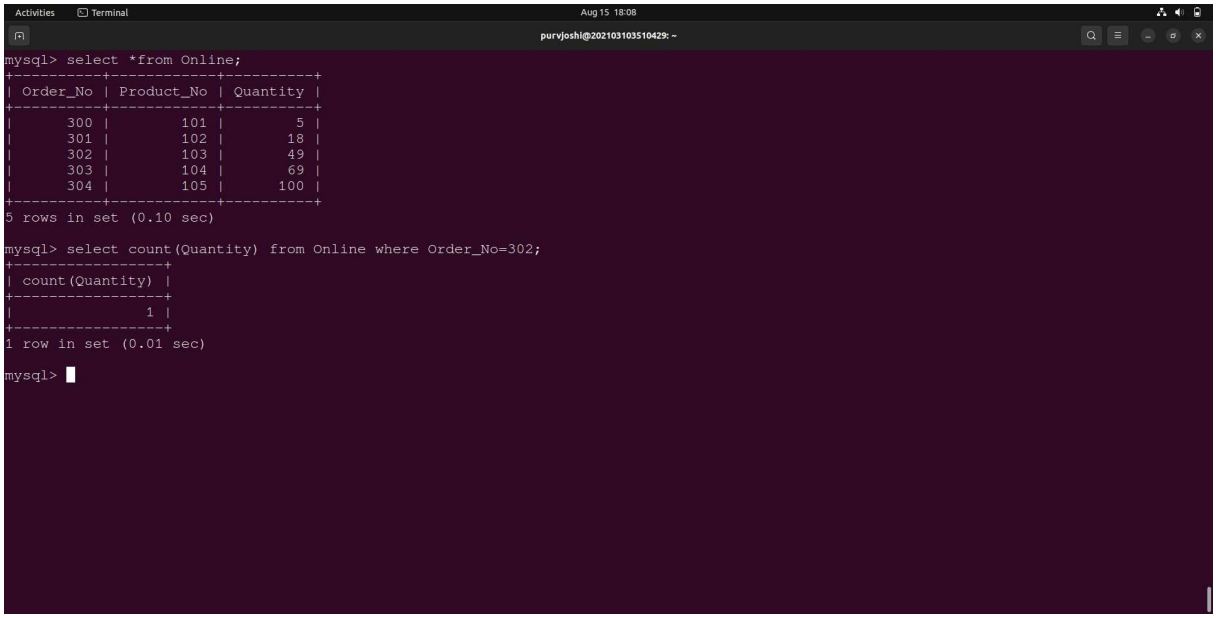
Query-7: Give the total number of items in stock in all depot.

Query: select count (Quantity) from Stock;



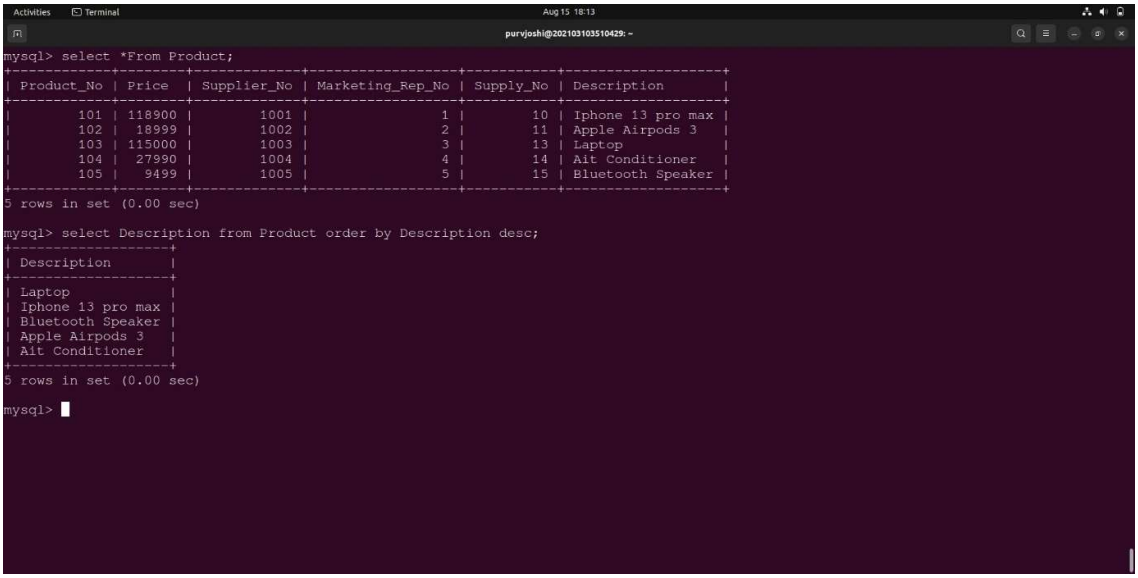
Query-8: Give the total number of items which have been ordered with order number 302.

Query: select count (Quantity) from Online where Order_No-302;



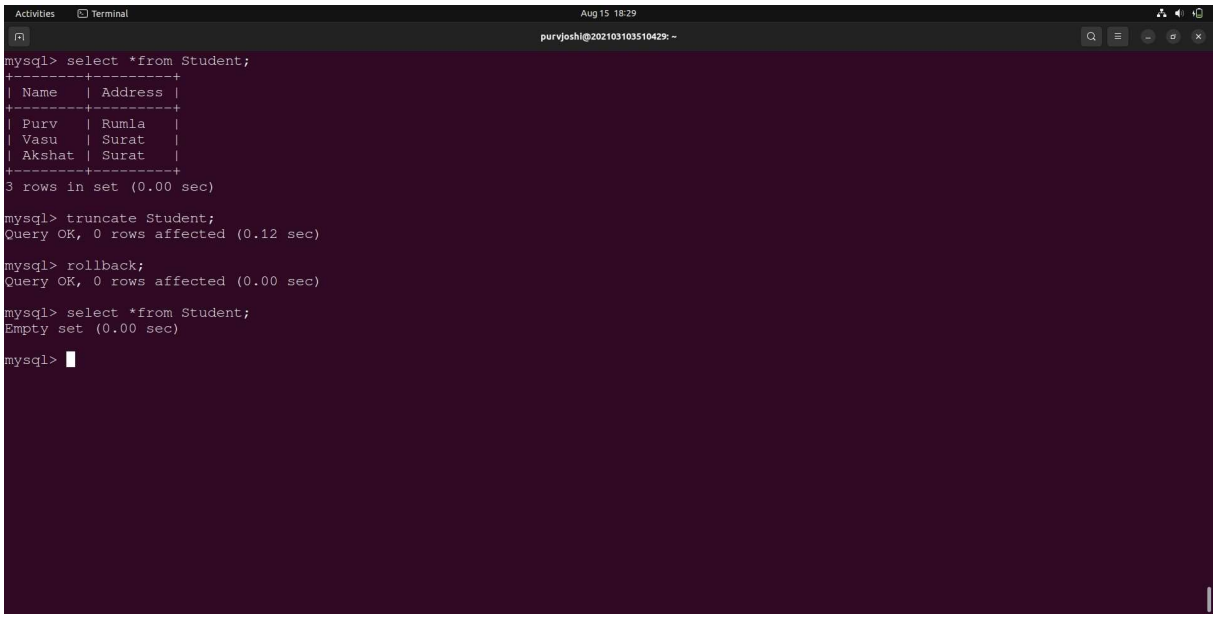
Query-9: List product description in reverse alphabet order.

Query: select Description from Product order by Description desc;



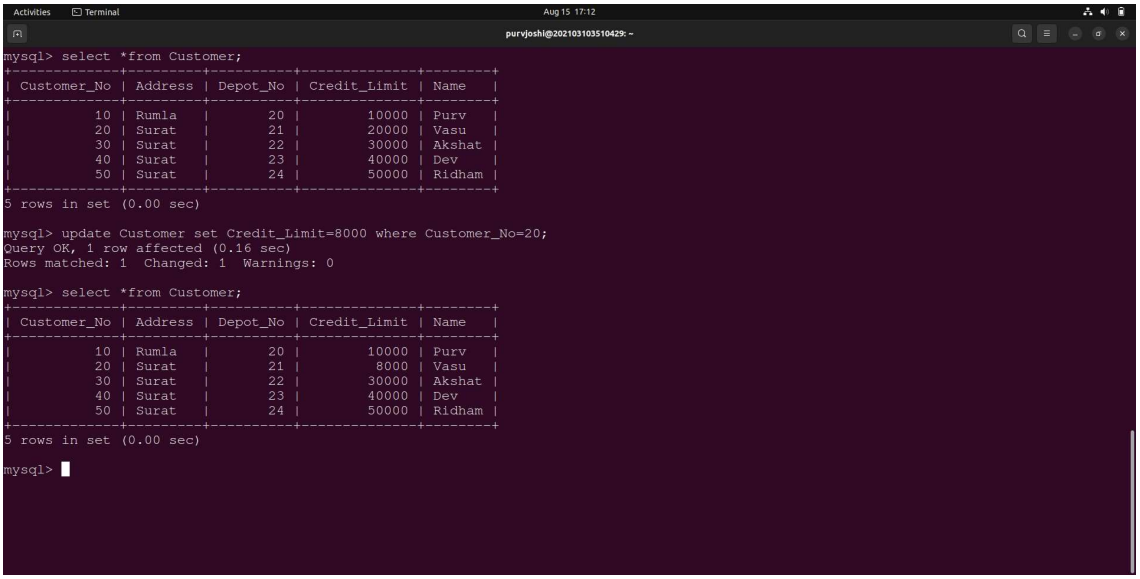
Query-10: Delete all the data row from any table and look again content of table.

Query: truncate Student; , rollback; , select *from Student;



Query-11: Modify credit limit to 8000 for those customers who lives in Surat.

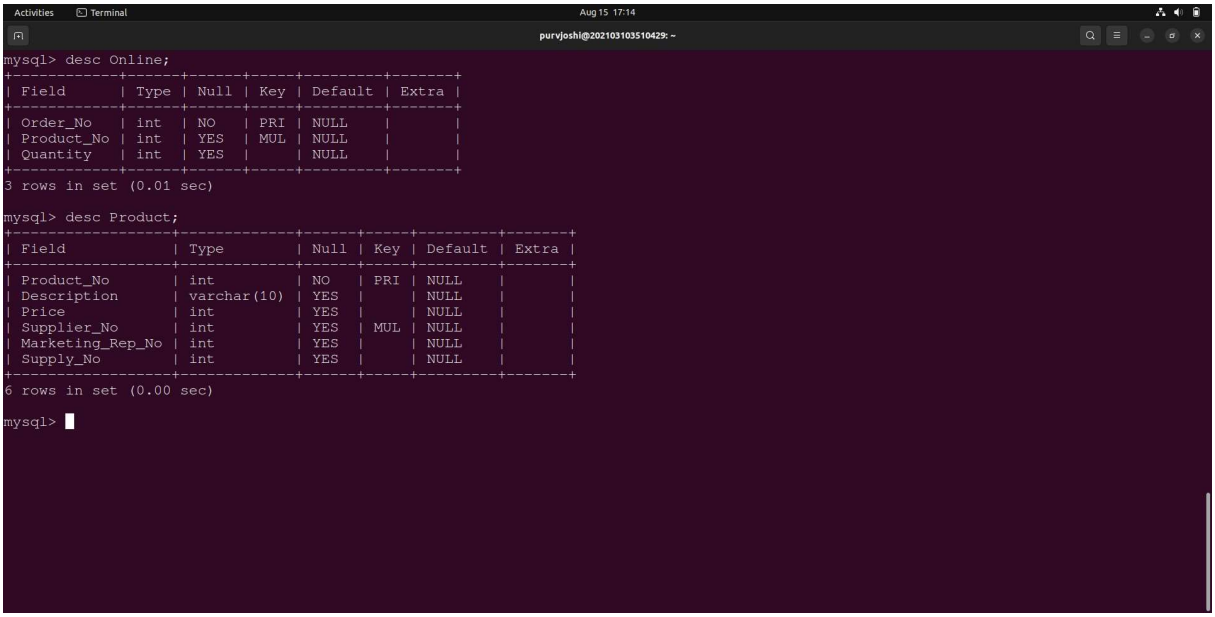
Query: update Customer set Credit_Limit=8000 where Customer_No=20;



```
Activities  Terminal                    Aug 15 17:12
purvjoshi@202103103510429: ~
mysql> select *from Customer;
+-------------+---------+----------+--------------+--------+
| Customer_No | Address | Depot_No | Credit_Limit | Name   |
+-------------+---------+----------+--------------+--------+
|          10 | Rumla   |       20 |        10000 | Purv   |
|          20 | Surat   |       21 |        20000 | Vasu   |
|          30 | Surat   |       22 |        30000 | Akshat |
|          40 | Surat   |       23 |        40000 | Dev    |
|          50 | Surat   |       24 |        50000 | Ridham |
+-------------+---------+----------+--------------+--------+
5 rows in set (0.00 sec)

mysql> update Customer set Credit_Limit=8000 where Customer_No=20;
Query OK, 1 row affected (0.16 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select *from Customer;
+-------------+---------+----------+--------------+--------+
| Customer_No | Address | Depot_No | Credit_Limit | Name   |
+-------------+---------+----------+--------------+--------+
|          10 | Rumla   |       20 |        10000 | Purv   |
|          20 | Surat   |       21 |         8000 | Vasu   |
|          30 | Surat   |       22 |        30000 | Akshat |
|          40 | Surat   |       23 |        40000 | Dev    |
|          50 | Surat   |       24 |        50000 | Ridham |
+-------------+---------+----------+--------------+--------+
5 rows in set (0.00 sec)

mysql>
```

Query-12: Display the structure of any two tables.

Query: desc Online; , desc Product;



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Activities  Terminal                    Aug 15 17:14
purvjoshi@202103103510429: ~
mysql> desc Online;
+------------+------+------+-----+---------+-------+
| Field      | Type | Null | Key | Default | Extra |
+------------+------+------+-----+---------+-------+
| Order_No   | int  | NO   | PRI | NULL    |       |
| Product_No | int  | YES  | MUL | NULL    |       |
| Quantity   | int  | YES  |     | NULL    |       |
+------------+------+------+-----+---------+-------+
3 rows in set (0.01 sec)

mysql> desc Product;
+-----------------+-------------+------+-----+---------+-------+
| Field           | Type        | Null | Key | Default | Extra |
+-----------------+-------------+------+-----+---------+-------+
| Product_No      | int         | NO   | PRI | NULL    |       |
| Description     | varchar(10) | YES  |     | NULL    |       |
| Price           | int         | YES  |     | NULL    |       |
| Supplier_No     | int         | YES  | MUL | NULL    |       |
| Marketing_Rep_No | int        | YES  |     | NULL    |       |
| Supply_No       | int         | YES  |     | NULL    |       |
+-----------------+-------------+------+-----+---------+-------+
6 rows in set (0.00 sec)

mysql>
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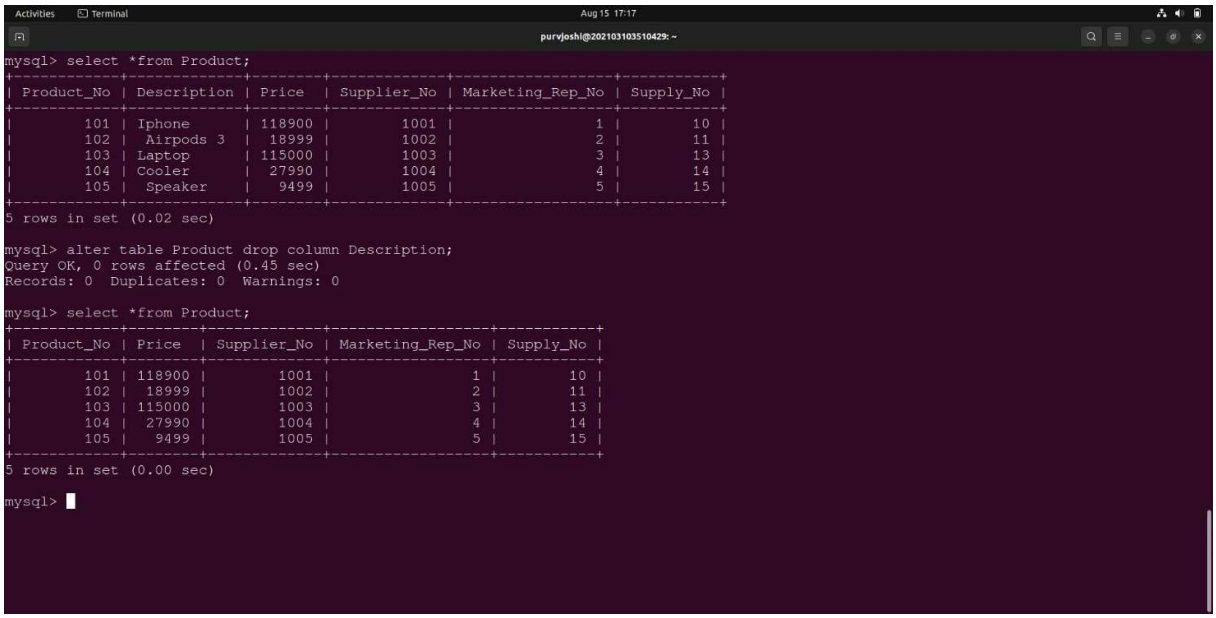
Query-13: Delete description from table.

Query: alter table Product drop column Description;



CONCLUSION:

IN this practical we have learned about different integrity constraints. integrity constraint is done every time an insert, update, delete, or alter operation is performed on the table.