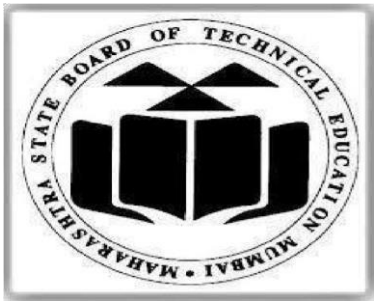

MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION

GOVERNMENT POLYTECHNIC, AWASARI (KH)

TAL-AMBEGAON, DIST – PUNE – 412405

ACADEMIC YEAR : 2021-22

- **COURSE NAME : Database Management**
- **COURSE CODE : 22416**
- **BRANCH : INFORMATION TECHNOLOGY (SY)**
- **TOPIC NAME : Develop Database for College Management System**

DETAILS OF TEAM MEMBERS:-

SR. NO.	NAMES OF GROUP MEMBERS	ROLL NO.	ENROLLMENT NO.
1	GHONGE KARISHMA RAJARAM	20IF213	2010510360
2	GITE AKSHAY SANGRAM	20IF214	2010510361
3	HULE GAYATRI KERBHAU	20IF215	2010510362
4	HULE SANIKA RAJENDRA	20IF216	2010510363
5	JADHAV KISHOR HARI	20IF217	2010510364
6	JADHAV PRANAV TANAJI	20IF218	2010510365

GUIDANCE BY :

SMT. S.D.RAUT

GROUP LEADER :

AKSHAY GITE.

PART A – A MICRO PROJECT PROPOSAL

Aims / benefits of micro-project :

- **Aim: Develop Database for College Management System**
- **Benefits:**
  - First we understand concept of MySQL very well.
  - We learn how to run Queries.
  - We learn how to create Databases and Tables .
  - We learn how to insert Records and Retrieve Them.
- **Course Outcomes (COs) : -**

CO1: Create Database using SQL commands.
CO2: Manage Database using SQL commands .
CO3: Implement Advanced SQL Concepts on Database.

- **Proposed Methodology: -**
  - First we select the **Develop Database for College Management System** with the help of Teacher.
  - Then we will install MySQL and learn to access it using command prompt.
  - We will discuss how to cover maximum Cos in our project.
  - Then we will start creating Database and Tables.
  - We will insert Data/Records in tables.
  - Then we will create Part B of our project in soft copy then Print hard copy and submit it in college.

➢ Action Plan: -

Sr. No.	details of activity	planned start date	Planned Finished date	Responsible Name of members
1	Group formation and allocation of Micro project title			All team members
2	Information search and required analysis.			All team members
3	Actual project / assembly project			All team members
4	Testing of project			All team Members
5	Acquire the printout and submit it.			All team members
6	Submission of project.			All team members

➢ **Resources Required: -**

Sr.no.	Name of Resource	Specification	Qty.	Remarks
1	Software	MySQL Server, Command Prompt, Microsoft word	-	
2	Websites	w3schools , tutorialspoint , javatpoint	-	

Date :- / /

TEACHER **PRINCIPAL** **H.O.D**

(Smt. S.D.Raut) **(DR. D.R. NANDANWAR)** **(DR. D.N.REWADKAR)**

DEPARTMENT OF INFORMATION TECHNOLOGY

GOVERNMENT POLYTECHNIC AWASARI (KHURD)

SEMESTER —IV (2021-22)

CERTIFICATE

This is to certify the following students of semester Fourth of Diploma in Information Technology of Institute : Government polytechnic, Awasari (kh) (code : 1051) has completed the micro project satisfactorily in subject- Database Management (**22416**) for the academic year 2021-22 as prescribed in the curriculum.

SR. NO.	NAMES OF GROUP MEMBERS	ROLL NO.	ENROLLMENT NO.
1	GHONGE KARISHMA RAJARAM	20IF213	2010510360
2	GITE AKSHAY SANGRAM	20IF214	2010510361
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4	HULE SANIKA RAJENDRA	20IF216	2010510363
5	JADHAV KISHOR HARI	20IF217	2010510364
6	JADHAV PRANAV TANAJI	20IF218	2010510365

TEACHER (Smt. S.D.Raut)

PRINCIPAL (DR. D.R. NANDANWAR)

H.O.D (DR.D.N.REWADKAR)

PART B - Micro Project Report

- **Aim: Develop Database for College Management System**

- **Rationale :-**

In todays world every device need to store data. For that purpose we rely on Many Database Servers but one of the most easy and oldest is MySQL.

MySQL is **an open-source relational database management system**. As with other relational databases, MySQL stores data in tables made up of rows and columns. Users can define, manipulate, control, and query data using Structured Query Language, more commonly known as SQL.

- **Course Outcomes (COs) : -**

CO1: Create Database using SQL commands.
CO2: Manage Database using SQL commands .
CO3: Implement Advanced SQL Concepts on Database.

- **Actual Methodology followed :-**

- First we selected the topic **Develop Database for College Management System** with the help of Teacher.
- Then we installed MySQL and learned to access it using command prompt.
- We discussed about how to cover maximum Cos in our project.
- Then we creating Database and Tables.
- We inserted Data/Records in tables.
- Then we created Part B of our project in soft copy then Print hard copy and submitted it in college.

➢ Actual Resources Required: -

Sr.no.	Name of Resource	Specification	Qty.	Remarks
1	Software	MySQL Server, Command Prompt, Microsoft word	-	
2	Websites	w3schools , tutorialspoint , javatpoint	-	

➢ Skill developed/ learned out of this project:

- We are understood main concept and importance of MySQL
- We are able to make a project with a team.
- We are understood how to manage database.

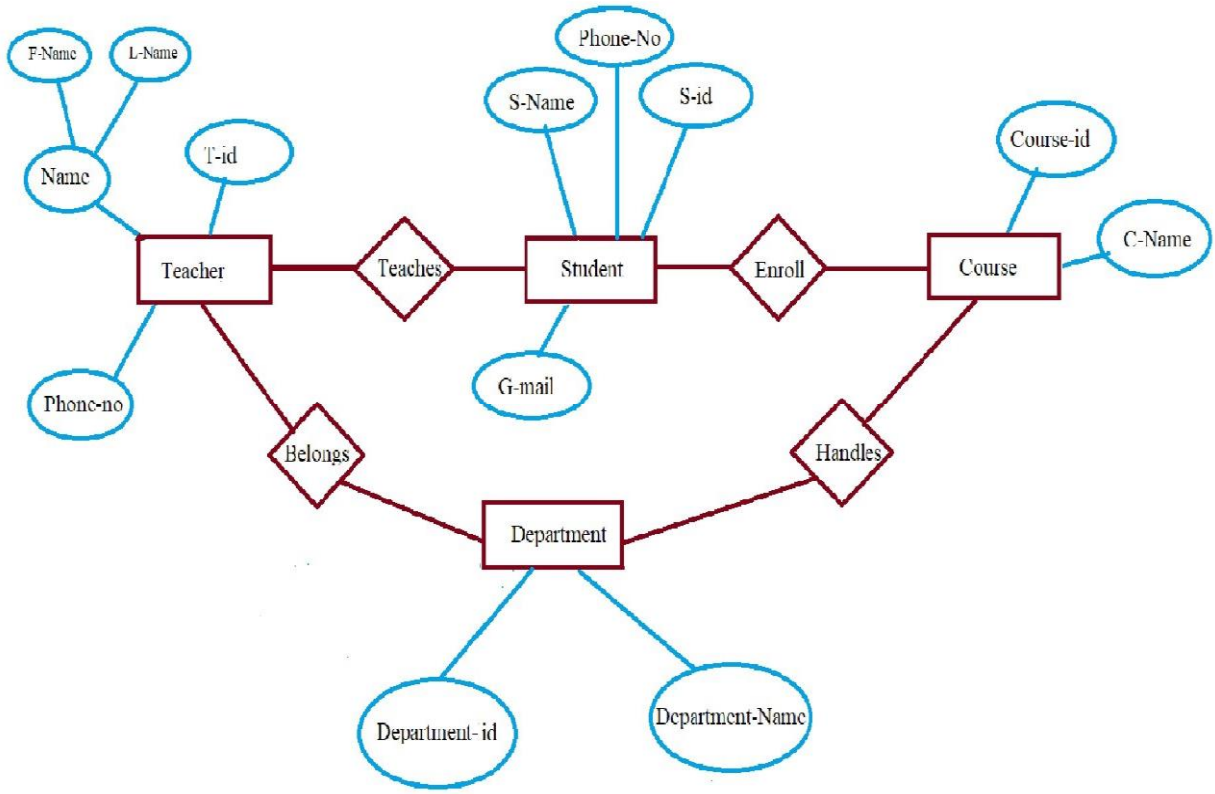
Index

1. Introduction to MySQL
2. E-R Diagram for College Management System
3. Creating Database
4. Creating Tables
    a) Table – 1: Department
    b) Table – 2: Course
    c) Table – 3 : Teacher
    d) Table – 4: Student
5. Foreign Key
6. Tables In Database
7. All Table Views
8. All Tables Schemas (DESC)
9. Join Operations
10. Commands
    a) DDL - [Data Definition Language]
    b) DML – [Data Manipulation Language]
    c) TCL – [Transaction Control Language]
11. Conclusion

➢ Introduction to MySQL

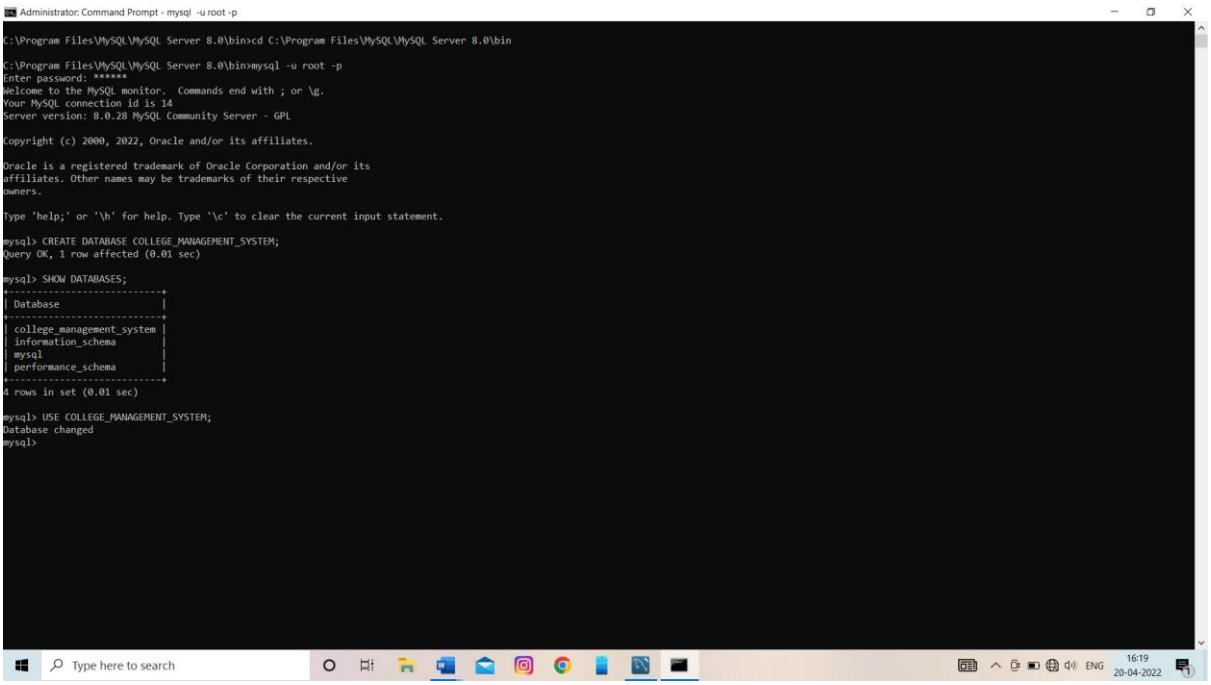
- MySQL is a database system used for developing web-based software applications.
- MySQL used for both small and large applications.
- MySQL is a relational database management system (RDBMS).
- MySQL is fast, reliable, and flexible and easy to use.
- MySQL supports standard SQL (Structured Query Language).
- MySQL is free to download and use.
- MySQL was developed by Michael Widenius and David Axmark in 1994.
- MySQL is presently developed, distributed, and supported by Oracle Corporation.

➢ E-R Diagram for College Management System



➢ Based on the E-R Model We can create a New Database.

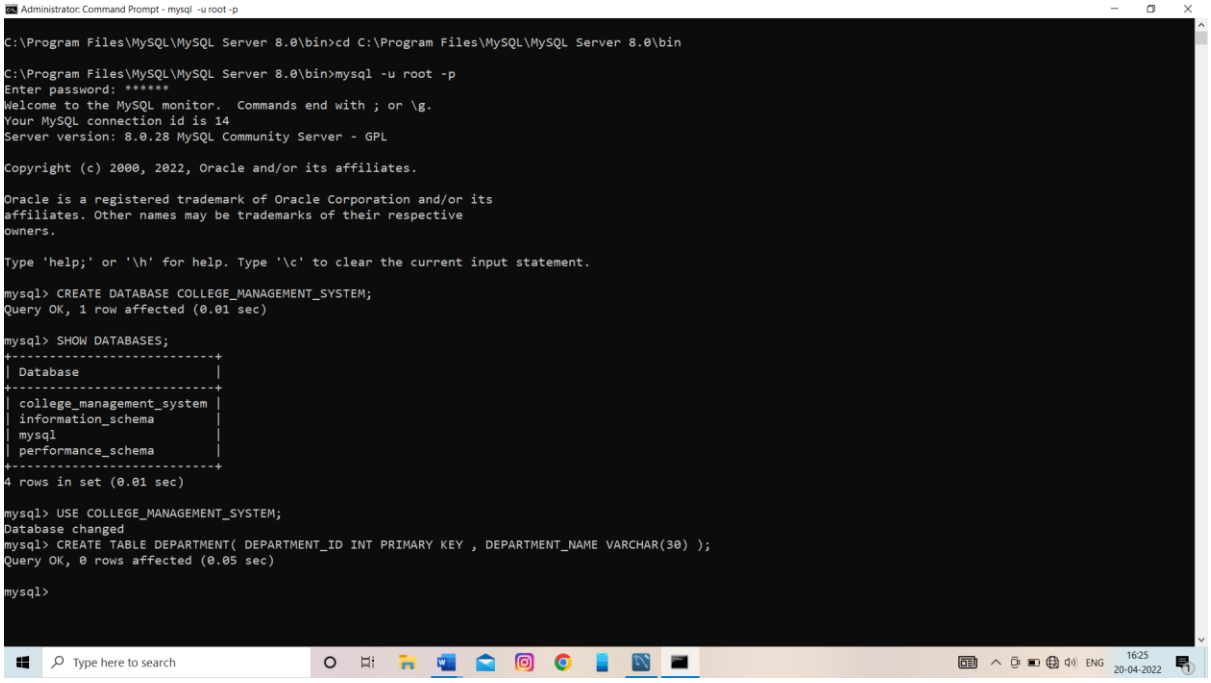
- **CREATE DATABASE COLLEGE_MANAGEMENT_DATABASE;**



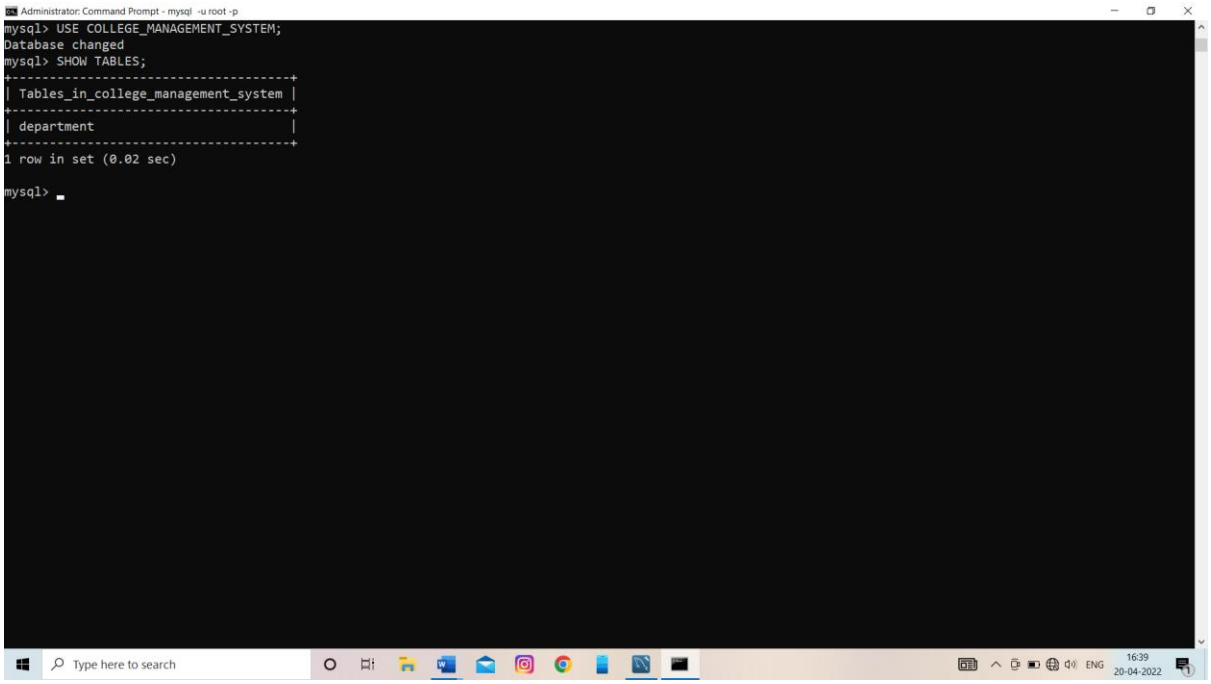
➢ Creating Tables

o Table – 1: Department

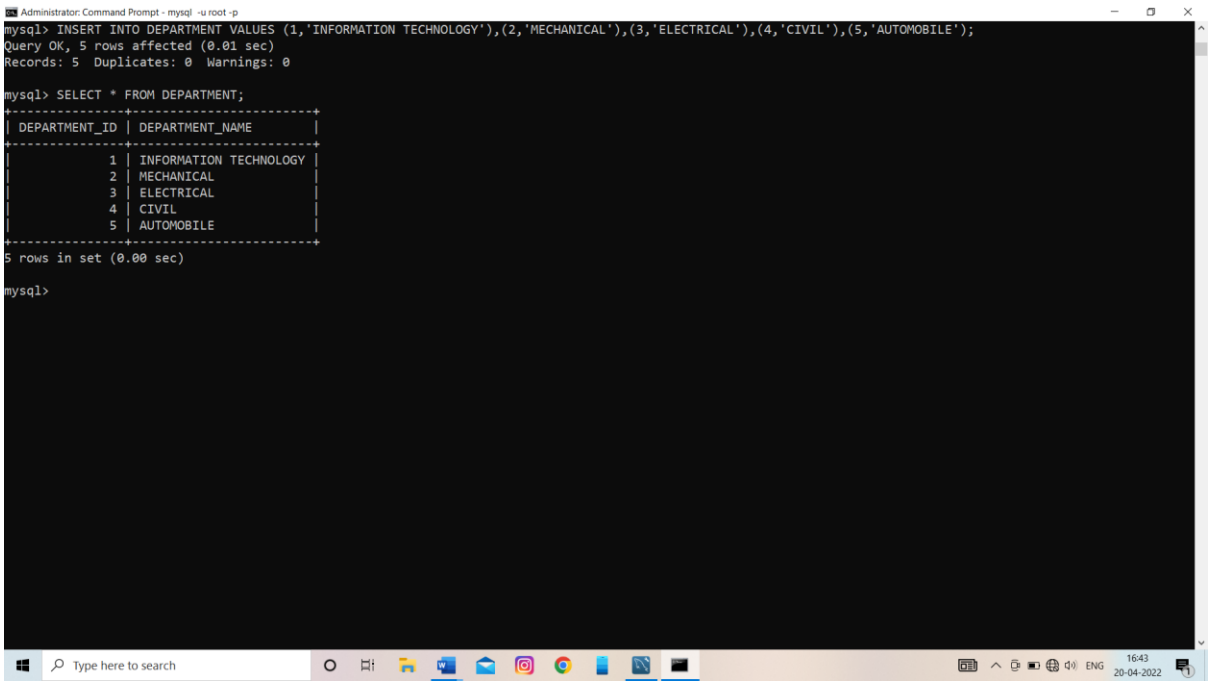
- **Create two columns in the Department table as Department_ID and Department_name, Apply Primary key on Department_ID column and Insert records**



- **Verifying if Table is Created or Not**



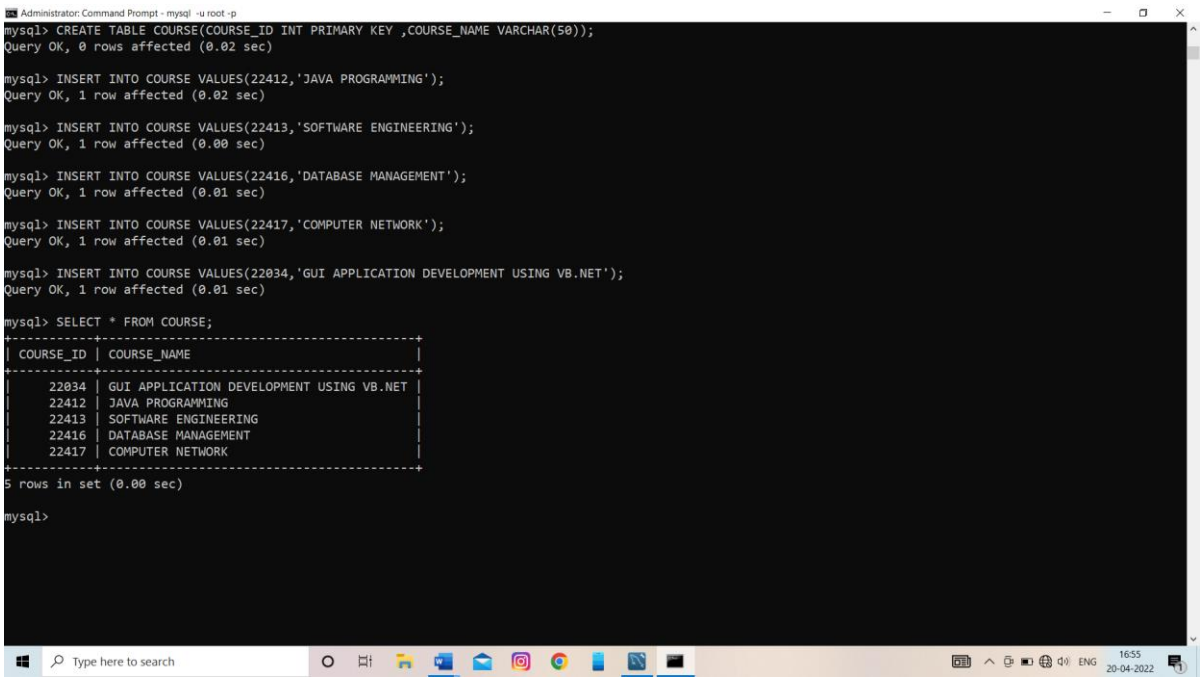
- **Inserting Data Into Table**



o Table – 2: Course

- **Create two columns in Course table as Course_ID,Course_Name. Apply Primary Key on Course_ID column and Insert Record.**

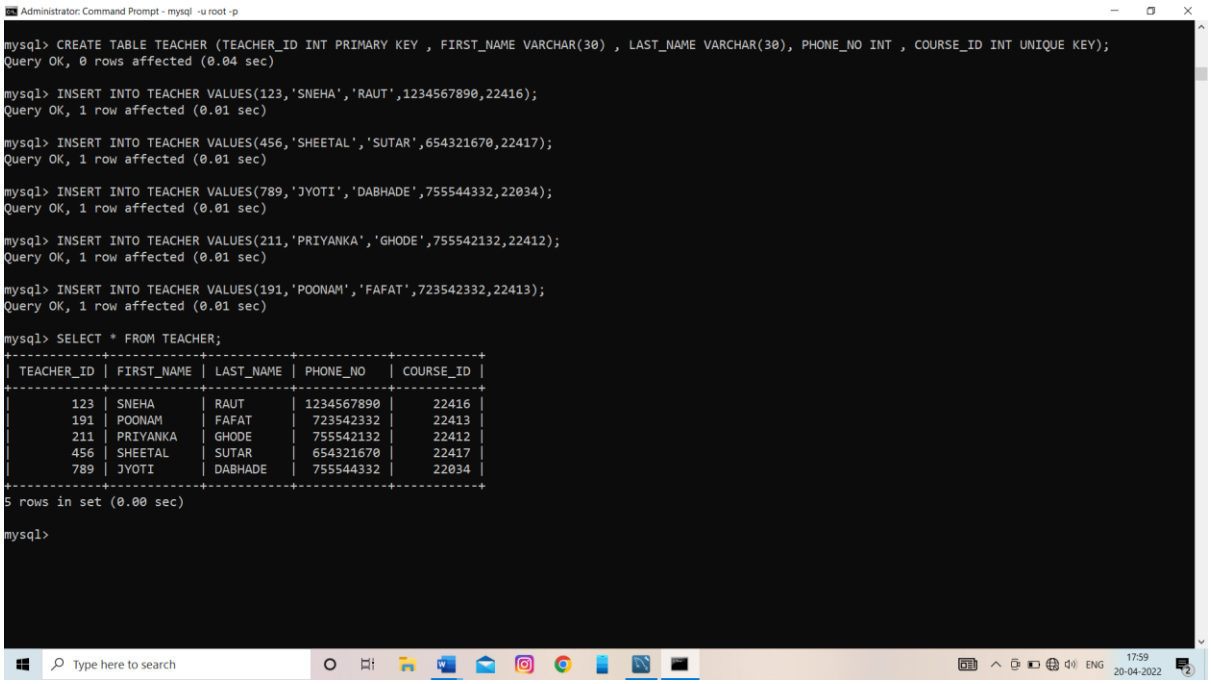
- **Creating Table and Inserting Data/Records**



o Table – 3 : Teacher

- **Create Four column in Teacher table as Teacher_ID,Teacher_Name. Apply Primary Key on Teacher_ID column and Insert record.**

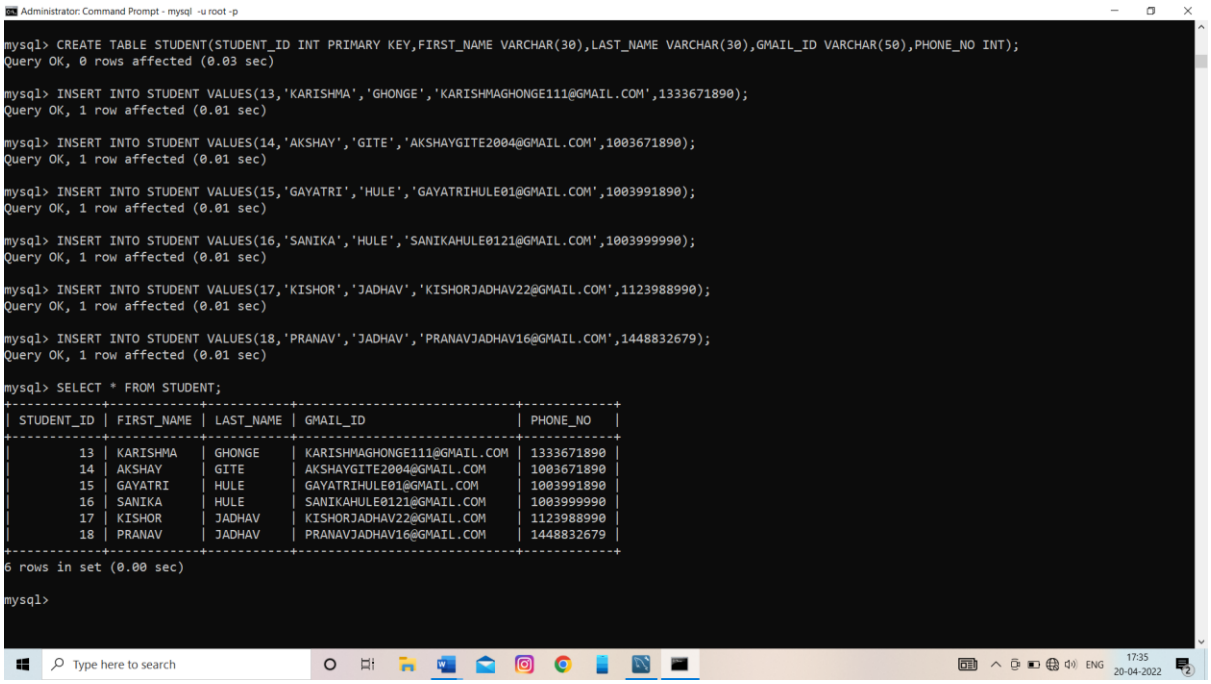
- **Creating Table and Inserting Data/Records**



o Table – 4: Student

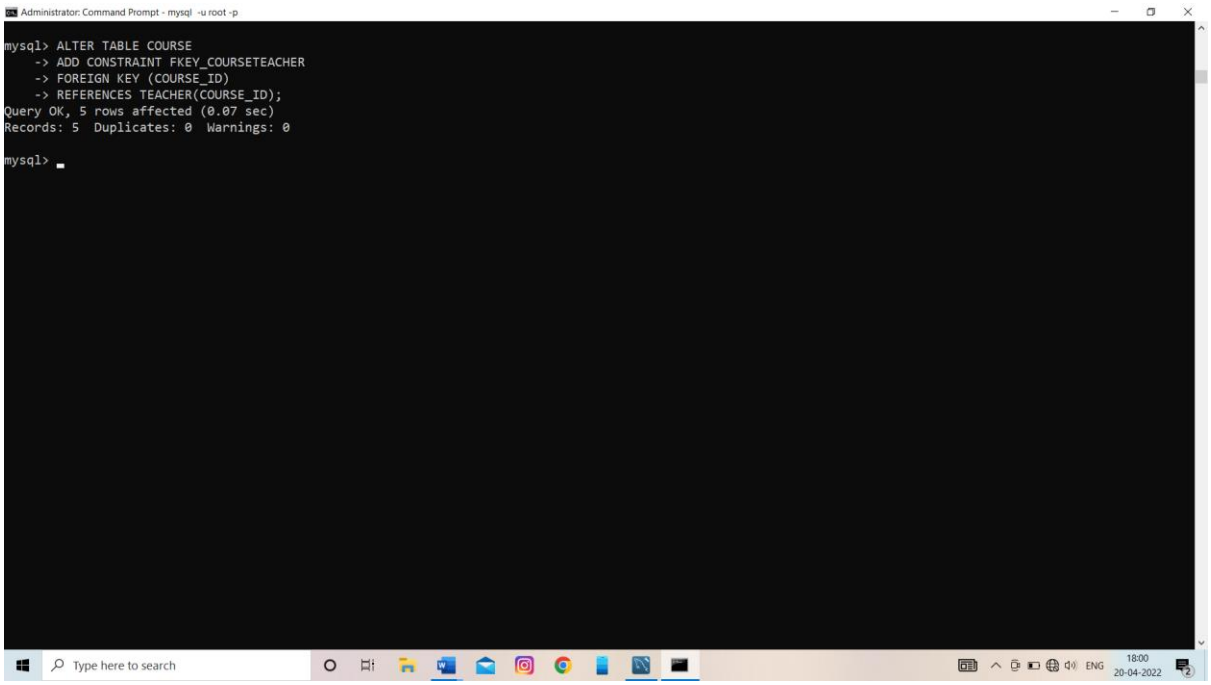
- **Create Four column in Student table as Student_ID, Student_Name, Gmail_ID, Phone_No. Apply Primary Key on Student_ID column and Insert records.**

- **Creating Table and Inserting Data/Records**

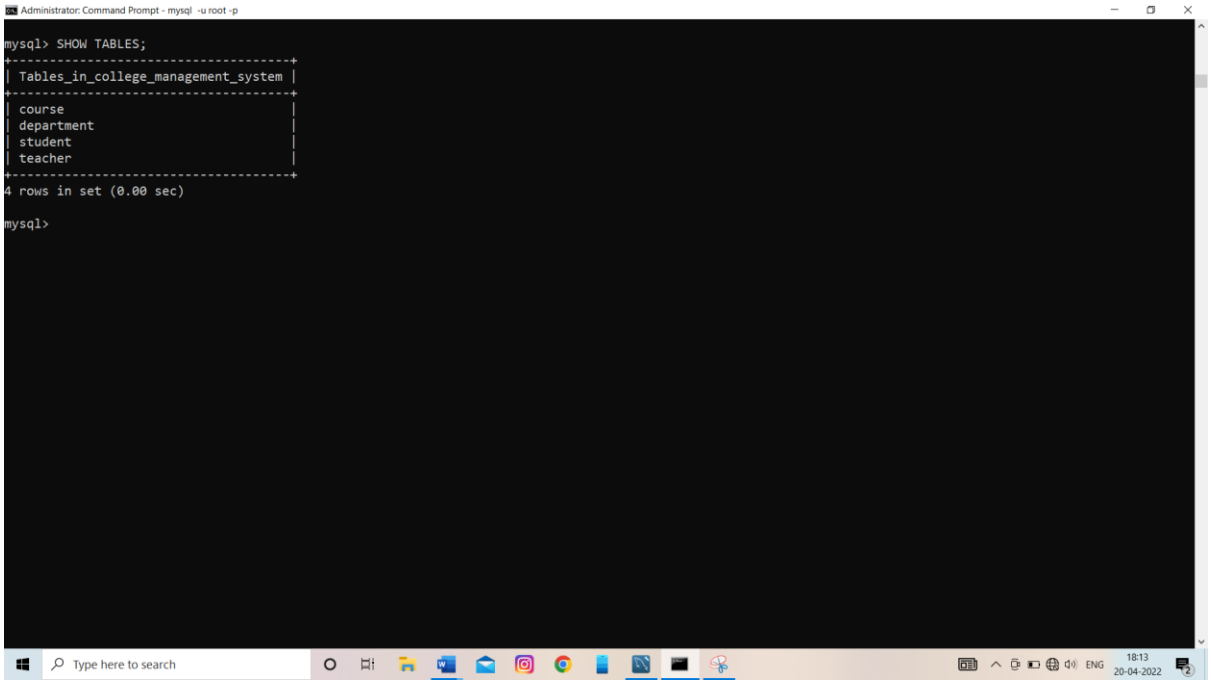


➢ Foreign Key

- **COURSE TO TEACHER**



➢ Tables In Database



➢ All Table Views

- **DEPARTMENT**

Administrator: Command Prompt - mysql -u root -p

```
mysql> SELECT * FROM DEPARTMENT;
+---------------+-------------------------+
| DEPARTMENT_ID | DEPARTMENT_NAME         |
+---------------+-------------------------+
|             1 | INFORMATION TECHNOLOGY  |
|             2 | MECHANICAL              |
|             3 | ELECTRICAL              |
|             4 | CIVIL                   |
|             5 | AUTOMOBILE              |
+---------------+-------------------------+
5 rows in set (0.01 sec)
```

- **COURSE**

Administrator: Command Prompt - mysql -u root -p

```
mysql> SELECT * FROM COURSE;
+-----------+-----------------------------------------+
| COURSE_ID | COURSE_NAME                             |
+-----------+-----------------------------------------+
|     22034 | GUI APPLICATION DEVELOPMENT USING VB.NET |
|     22412 | JAVA PROGRAMMING                        |
|     22413 | SOFTWARE ENGINEERING                    |
|     22416 | DATABASE MANAGEMENT                     |
|     22417 | COMPUTER NETWORK                        |
+-----------+-----------------------------------------+
5 rows in set (0.00 sec)
```

- **TEACHER**

Administrator: Command Prompt - mysql -u root -p

```
mysql> SELECT * FROM TEACHER;
+------------+------------+-----------+------------+-----------+
| TEACHER_ID | FIRST_NAME | LAST_NAME | PHONE_NO   | COURSE_ID |
+------------+------------+-----------+------------+-----------+
|        123 | SNEHA      | RAUT      | 1234567890 |     22416 |
|        191 | POONAM     | FAFAT     |  723542332 |     22413 |
|        211 | PRIYANKA   | GHODE     |  755542132 |     22412 |
|        456 | SHEETAL    | SUTAR     |  654321670 |     22417 |
|        789 | JYOTI      | DABHADE   |  755544332 |     22034 |
+------------+------------+-----------+------------+-----------+
5 rows in set (0.01 sec)
```

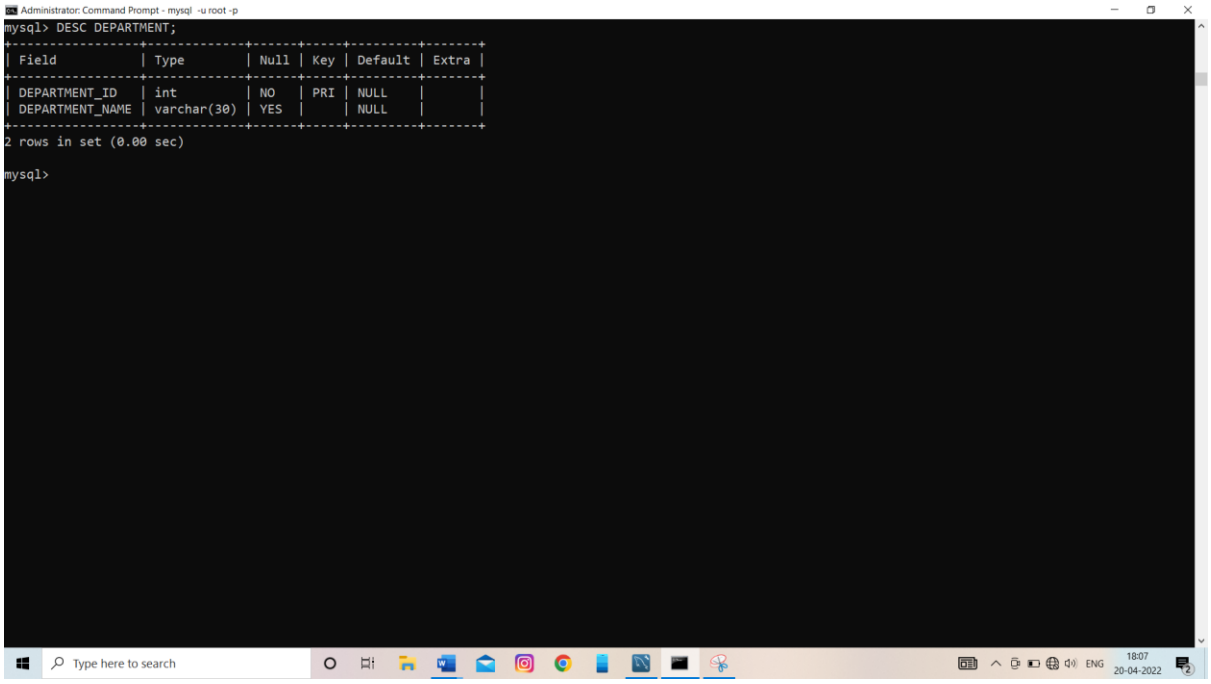
- **STUDENT**

Administrator: Command Prompt - mysql -u root -p

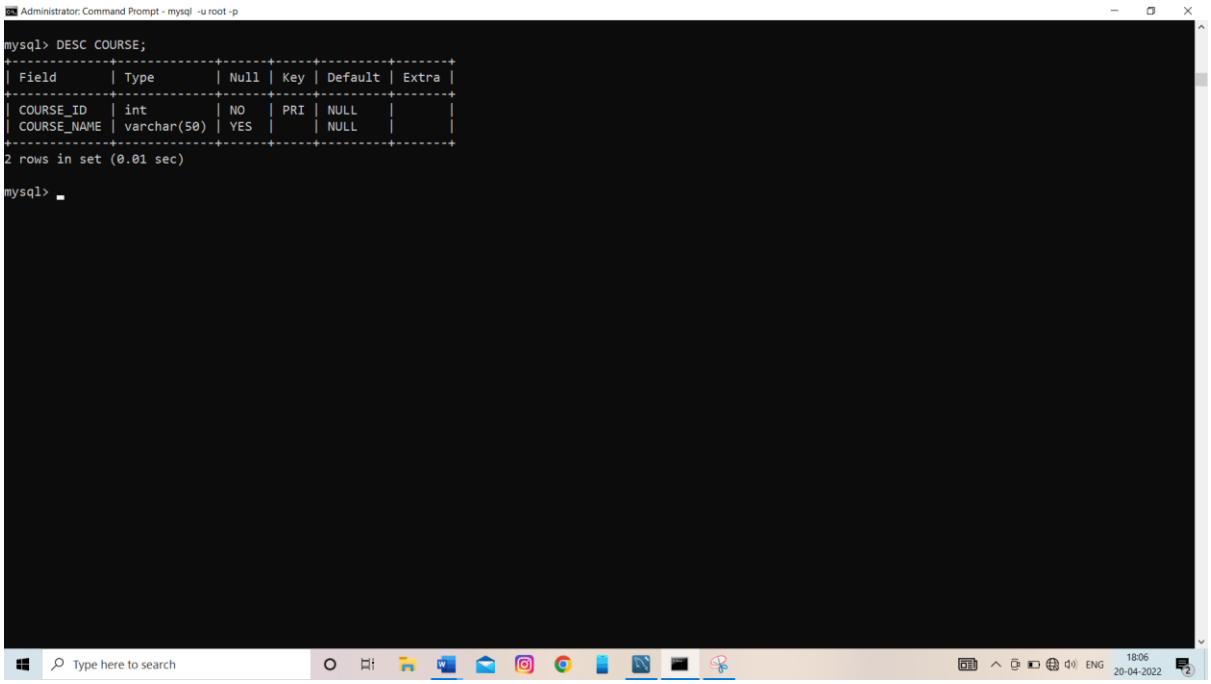
```
mysql> SELECT * FROM STUDENT;
+------------+------------+-----------+-----------------------------+------------+
| STUDENT_ID | FIRST_NAME | LAST_NAME | GMAIL_ID                    | PHONE_NO   |
+------------+------------+-----------+-----------------------------+------------+
|         13 | KARISHMA   | GHONGE    | KARISHMAGHONGE111@GMAIL.COM | 1333671890 |
|         14 | AKSHAY     | GITE      | AKSHAYGITE2004@GMAIL.COM    | 1003671890 |
|         15 | GAYATRI    | HULE      | GAYATRIHULE01@GMAIL.COM     | 1003991890 |
|         16 | SANIKA     | HULE      | SANIKAHULE0121@GMAIL.COM    | 1003999990 |
|         17 | KISHOR     | JADHAV    | KISHORJADHAV22@GMAIL.COM    | 1123988990 |
|         18 | PRANAV     | JADHAV    | PRANAVJADHAV16@GMAIL.COM    | 1448832679 |
+------------+------------+-----------+-----------------------------+------------+
6 rows in set (0.01 sec)
```

➢ All Tables Schemas (DESC)

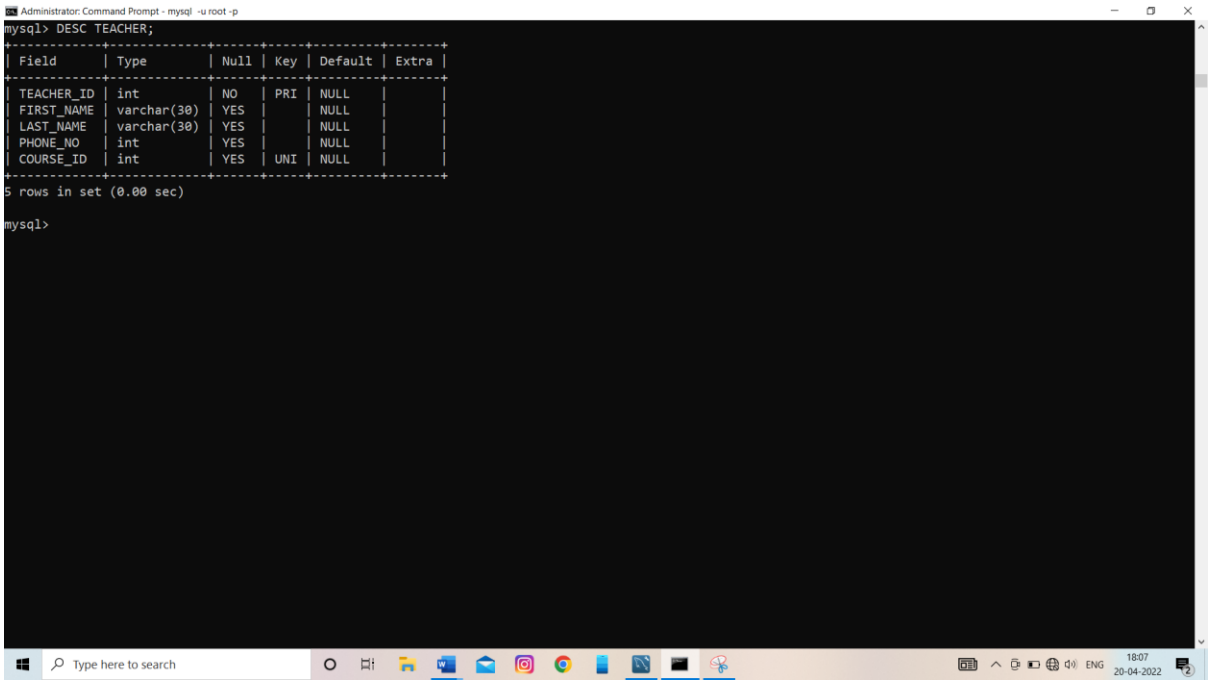
- **DEPARTMENT**



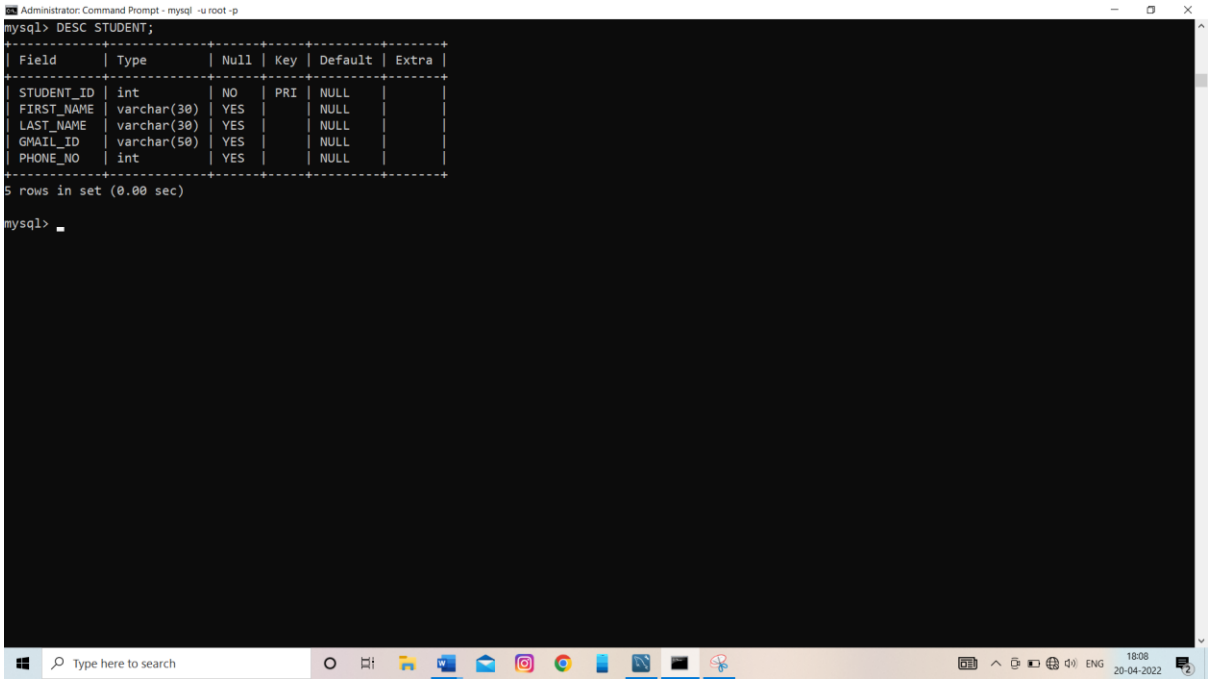
- **COURSE**



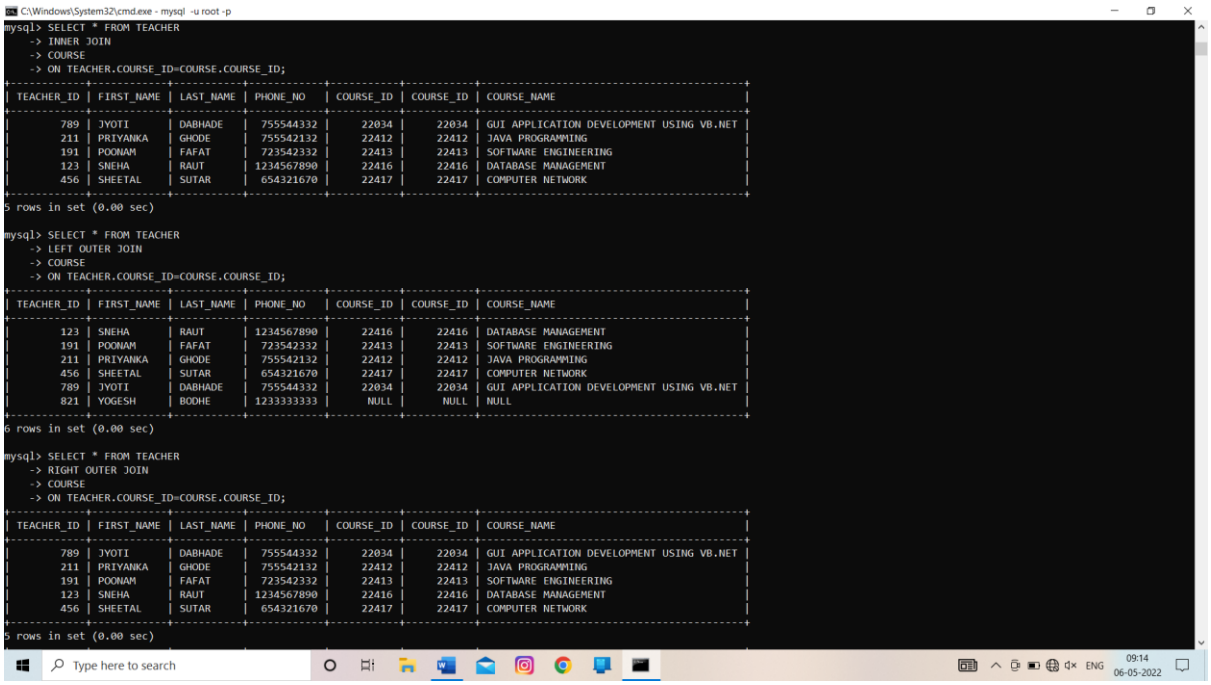
- **TEACHER**



- **STUDENT**

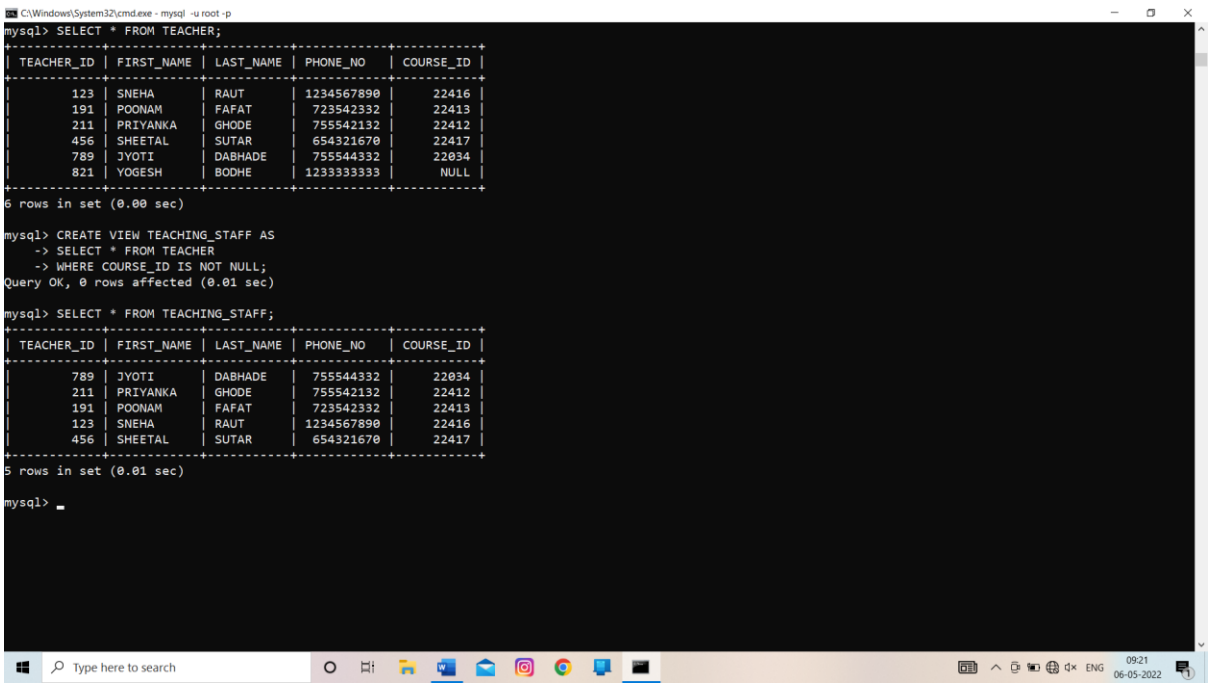


➢ Join Operations



```
C:\Windows\System32\cmd.exe - mysql -u root -p
mysql> SELECT * FROM TEACHER
    -> INNER JOIN
    -> COURSE
    -> ON TEACHER.COURSE_ID=COURSE.COURSE_ID;
+------------+------------+-----------+------------+-----------+-----------+---------------------------------------+
| TEACHER_ID | FIRST_NAME | LAST_NAME | PHONE_NO   | COURSE_ID | COURSE_ID | COURSE_NAME                           |
+------------+------------+-----------+------------+-----------+-----------+---------------------------------------+
|        789 | JYOTI      | DABHADE   |  755544332 |     22034 |     22034 | GUI APPLICATION DEVELOPMENT USING VB.NET |
|        211 | PRIYANKA   | GHODE     |  755542132 |     22412 |     22412 | JAVA PROGRAMMING                      |
|        191 | POONAM     | FAFAT     |  723542332 |     22413 |     22413 | SOFTWARE ENGINEERING                  |
|        123 | SNEHA      | RAUT      | 1234567890 |     22416 |     22416 | DATABASE MANAGEMENT                   |
|        456 | SHEETAL    | SUTAR     |  654321670 |     22417 |     22417 | COMPUTER NETWORK                      |
+------------+------------+-----------+------------+-----------+-----------+---------------------------------------+
5 rows in set (0.00 sec)

mysql> SELECT * FROM TEACHER
    -> LEFT OUTER JOIN
    -> COURSE
    -> ON TEACHER.COURSE_ID=COURSE.COURSE_ID;
+------------+------------+-----------+------------+-----------+-----------+---------------------------------------+
| TEACHER_ID | FIRST_NAME | LAST_NAME | PHONE_NO   | COURSE_ID | COURSE_ID | COURSE_NAME                           |
+------------+------------+-----------+------------+-----------+-----------+---------------------------------------+
|        123 | SNEHA      | RAUT      | 1234567890 |     22416 |     22416 | DATABASE MANAGEMENT                   |
|        191 | POONAM     | FAFAT     |  723542332 |     22413 |     22413 | SOFTWARE ENGINEERING                  |
|        211 | PRIYANKA   | GHODE     |  755542132 |     22412 |     22412 | JAVA PROGRAMMING                      |
|        456 | SHEETAL    | SUTAR     |  654321670 |     22417 |     22417 | COMPUTER NETWORK                      |
|        789 | JYOTI      | DABHADE   |  755544332 |     22034 |     22034 | GUI APPLICATION DEVELOPMENT USING VB.NET |
|        821 | YOGESH     | BODHE     | 1233333333 |      NULL |      NULL | NULL                                  |
+------------+------------+-----------+------------+-----------+-----------+---------------------------------------+
6 rows in set (0.00 sec)

mysql> SELECT * FROM TEACHER
    -> RIGHT OUTER JOIN
    -> COURSE
    -> ON TEACHER.COURSE_ID=COURSE.COURSE_ID;
+------------+------------+-----------+------------+-----------+-----------+---------------------------------------+
| TEACHER_ID | FIRST_NAME | LAST_NAME | PHONE_NO   | COURSE_ID | COURSE_ID | COURSE_NAME                           |
+------------+------------+-----------+------------+-----------+-----------+---------------------------------------+
|        789 | JYOTI      | DABHADE   |  755544332 |     22034 |     22034 | GUI APPLICATION DEVELOPMENT USING VB.NET |
|        211 | PRIYANKA   | GHODE     |  755542132 |     22412 |     22412 | JAVA PROGRAMMING                      |
|        191 | POONAM     | FAFAT     |  723542332 |     22413 |     22413 | SOFTWARE ENGINEERING                  |
|        123 | SNEHA      | RAUT      | 1234567890 |     22416 |     22416 | DATABASE MANAGEMENT                   |
|        456 | SHEETAL    | SUTAR     |  654321670 |     22417 |     22417 | COMPUTER NETWORK                      |
+------------+------------+-----------+------------+-----------+-----------+---------------------------------------+
5 rows in set (0.00 sec)
```

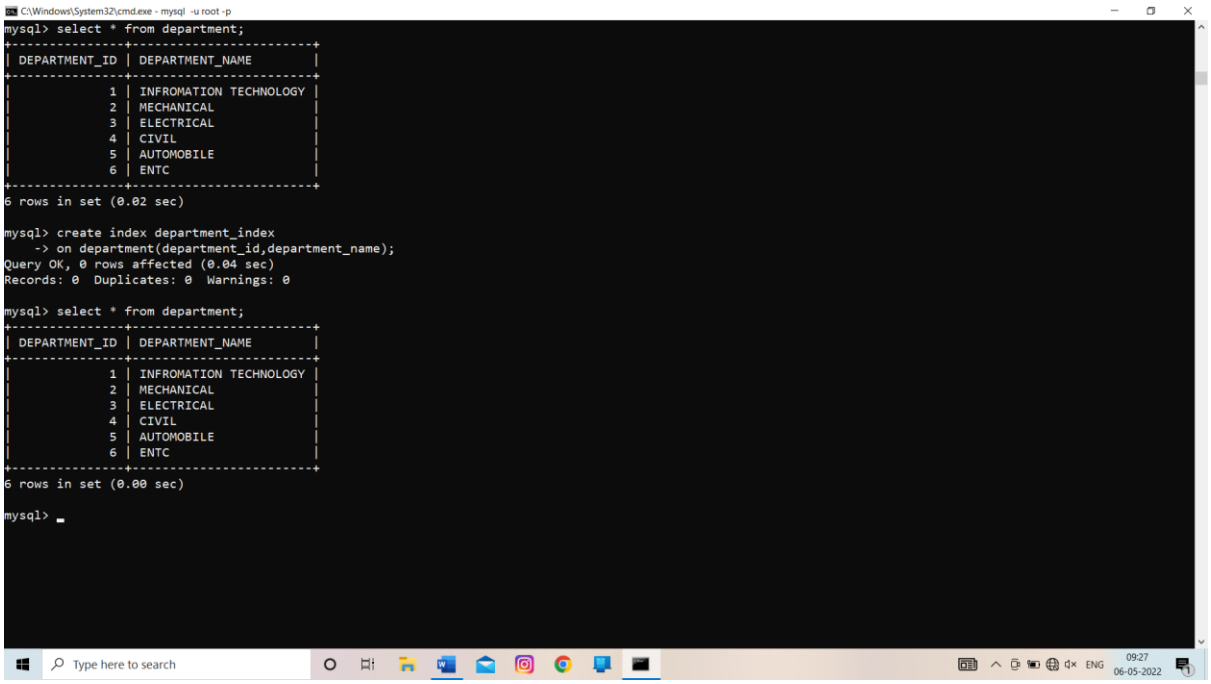
➢ Creating View



```
C:\Windows\System32\cmd.exe - mysql -u root -p
mysql> SELECT * FROM TEACHER;
+------------+------------+-----------+------------+-----------+
| TEACHER_ID | FIRST_NAME | LAST_NAME | PHONE_NO   | COURSE_ID |
+------------+------------+-----------+------------+-----------+
|        123 | SNEHA      | RAUT      | 1234567890 |     22416 |
|        191 | POONAM     | FAFAT     |  723542332 |     22413 |
|        211 | PRIYANKA   | GHODE     |  755542132 |     22412 |
|        456 | SHEETAL    | SUTAR     |  654321670 |     22417 |
|        789 | JYOTI      | DABHADE   |  755544332 |     22034 |
|        821 | YOGESH     | BODHE     | 1233333333 |      NULL |
+------------+------------+-----------+------------+-----------+
6 rows in set (0.00 sec)

mysql> CREATE VIEW TEACHING_STAFF AS
    -> SELECT * FROM TEACHER
    -> WHERE COURSE_ID IS NOT NULL;
Query OK, 0 rows affected (0.01 sec)

mysql> SELECT * FROM TEACHING_STAFF;
+------------+------------+-----------+------------+-----------+
| TEACHER_ID | FIRST_NAME | LAST_NAME | PHONE_NO   | COURSE_ID |
+------------+------------+-----------+------------+-----------+
|        789 | JYOTI      | DABHADE   |  755544332 |     22034 |
|        211 | PRIYANKA   | GHODE     |  755542132 |     22412 |
|        191 | POONAM     | FAFAT     |  723542332 |     22413 |
|        123 | SNEHA      | RAUT      | 1234567890 |     22416 |
|        456 | SHEETAL    | SUTAR     |  654321670 |     22417 |
+------------+------------+-----------+------------+-----------+
5 rows in set (0.01 sec)

mysql>
```

➢ Creating Index

- **We have created Composite Index**

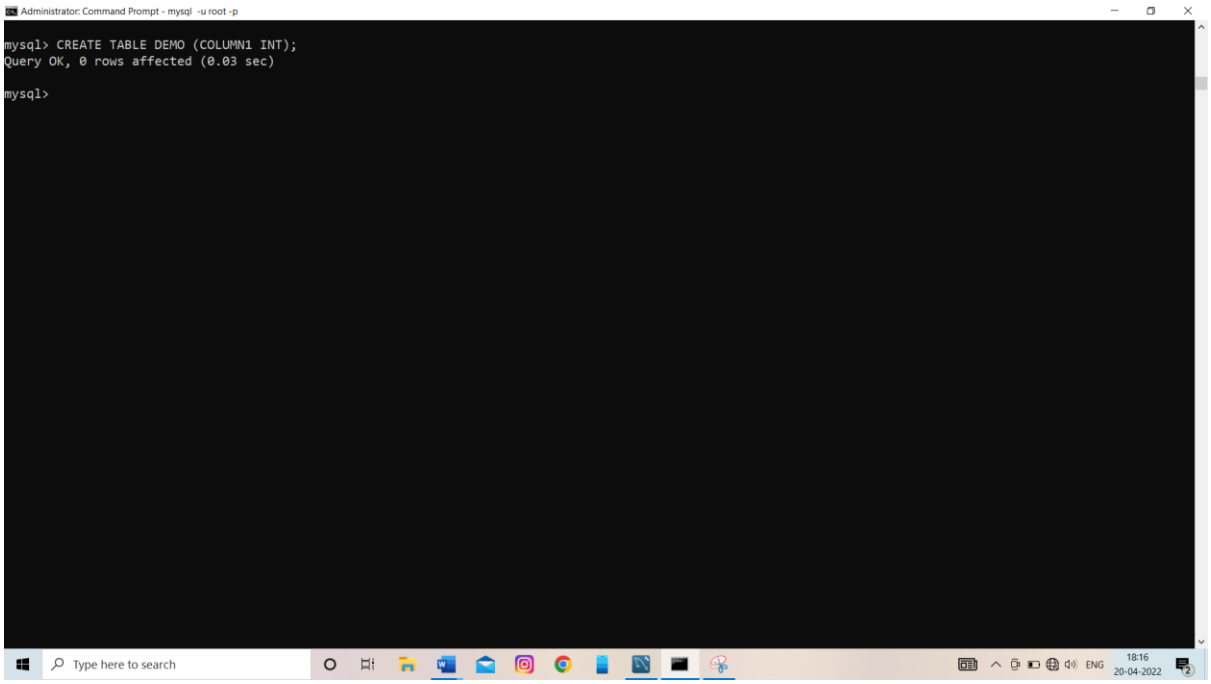


➢ Commands

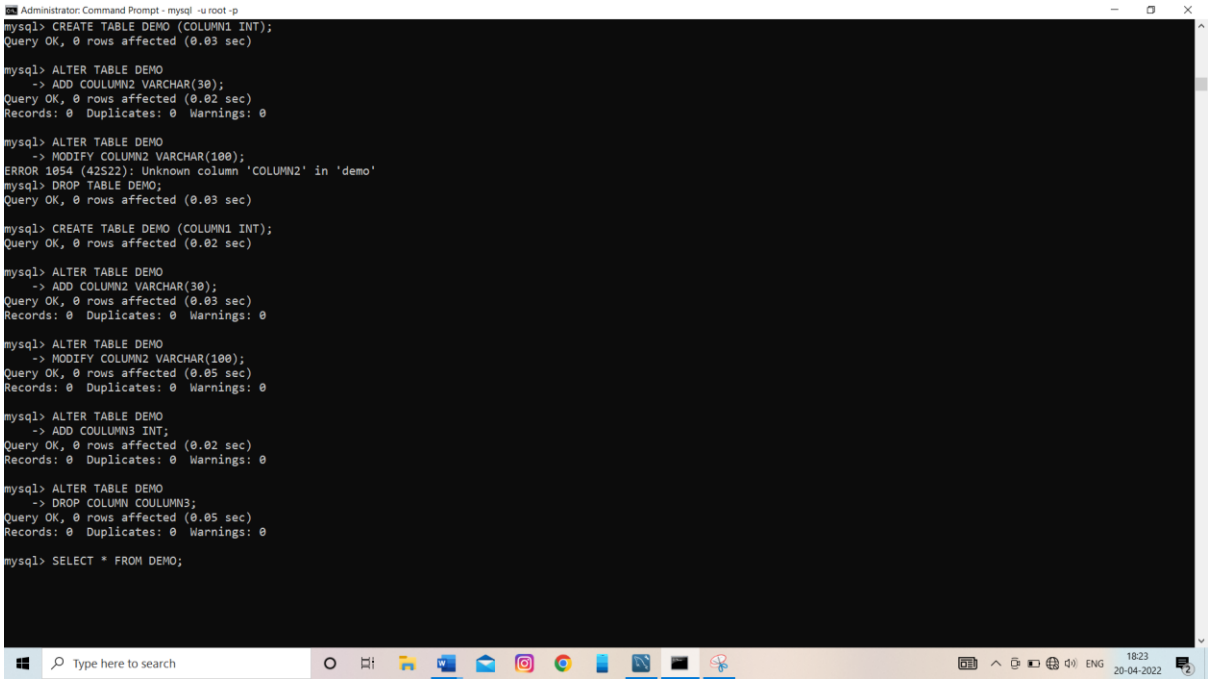
○ DDL - [Data Definition Language]

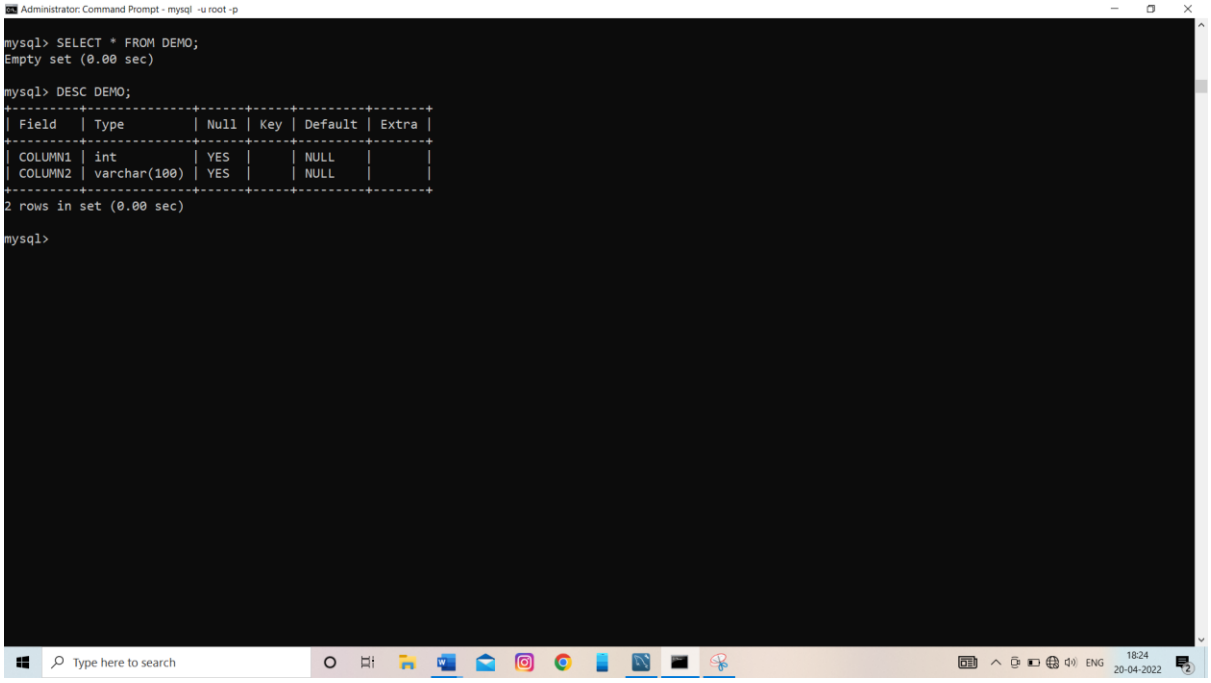
- DDL changes the structure of the table like creating a table, deleting a table, altering a table, etc.
- All the command of DDL are auto-committed that means it permanently save all the changes in the database.

- **CREATE TABLE**

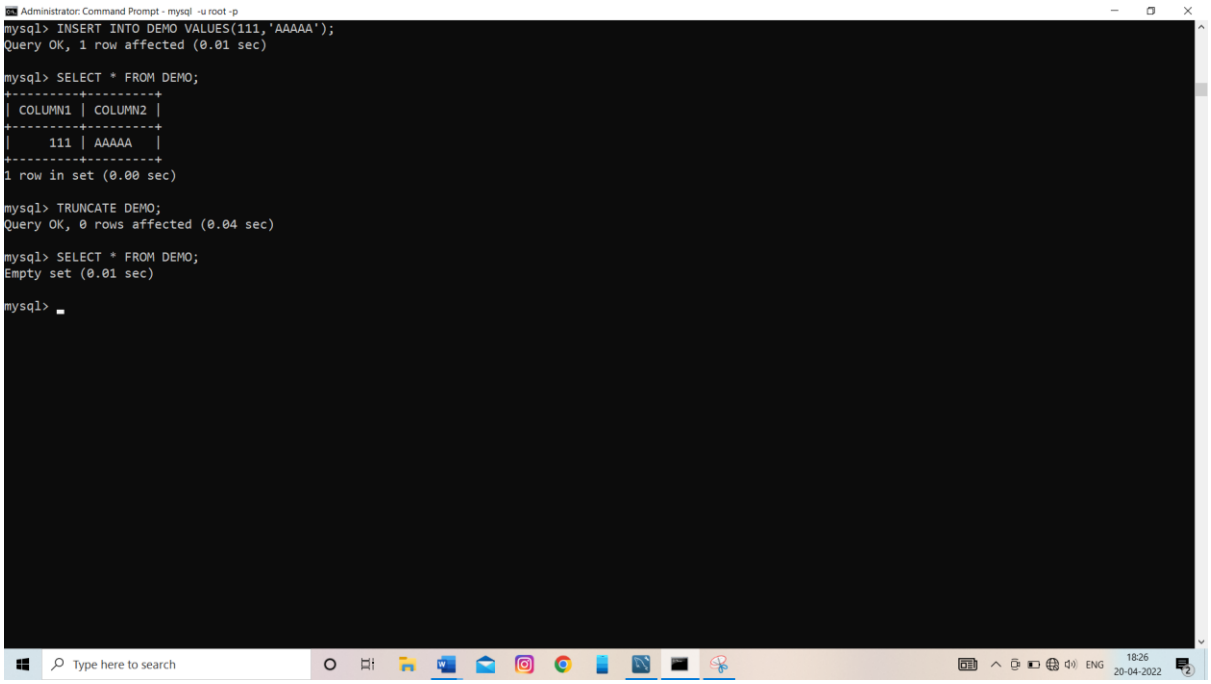


- **ALTER**

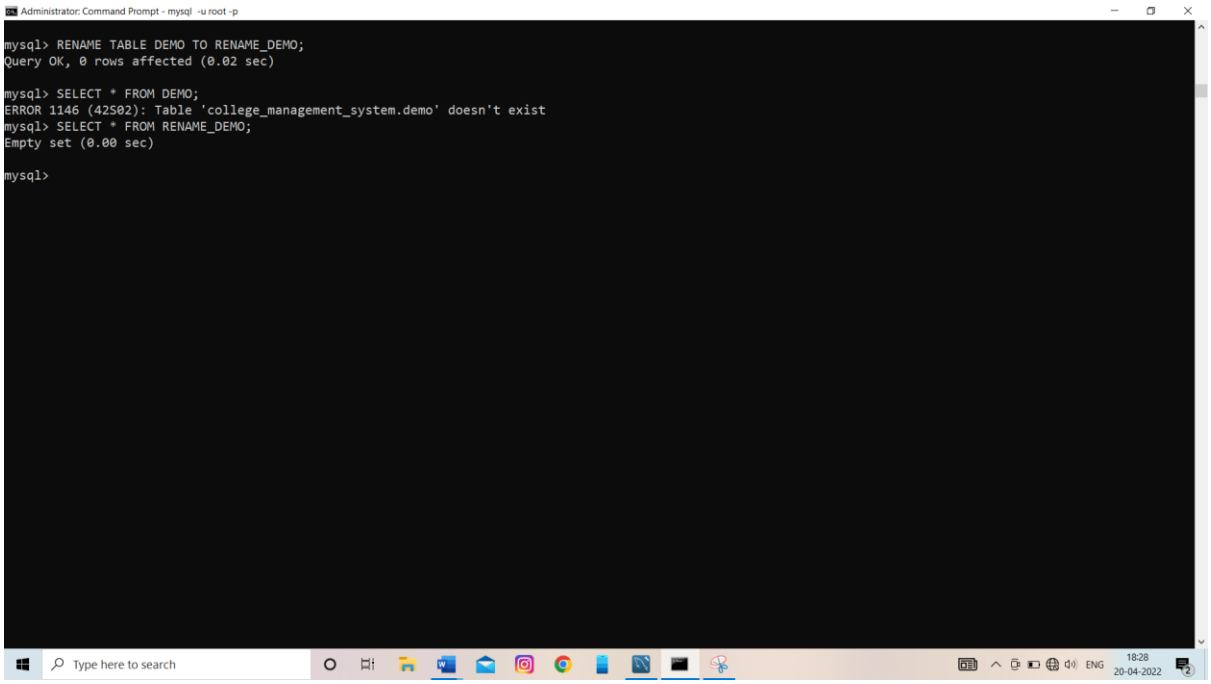

Administrator: Command Prompt - mysql -u root -p
mysql> CREATE TABLE DEMO (COLUMN1 INT);
Query OK, 0 rows affected (0.03 sec)
mysql> ALTER TABLE DEMO
-> ADD COULUMN2 VARCHAR(30);
Query OK, 0 rows affected (0.02 sec)
Records: 0 Duplicates: 0 Warnings: 0
mysql> ALTER TABLE DEMO
-> MODIFY COLUMN2 VARCHAR(100);
ERROR 1054 (42S22): Unknown column 'COLUMN2' in 'demo'
mysql> DROP TABLE DEMO;
Query OK, 0 rows affected (0.03 sec)
mysql> CREATE TABLE DEMO (COLUMN1 INT);
Query OK, 0 rows affected (0.02 sec)
mysql> ALTER TABLE DEMO
-> ADD COLUMN2 VARCHAR(30);
Query OK, 0 rows affected (0.03 sec)
Records: 0 Duplicates: 0 Warnings: 0
mysql> ALTER TABLE DEMO
-> MODIFY COLUMN2 VARCHAR(100);
Query OK, 0 rows affected (0.05 sec)
Records: 0 Duplicates: 0 Warnings: 0
mysql> ALTER TABLE DEMO
-> ADD COULUMN3 INT;
Query OK, 0 rows affected (0.02 sec)
Records: 0 Duplicates: 0 Warnings: 0
mysql> ALTER TABLE DEMO
-> DROP COLUMN COULUMN3;
Query OK, 0 rows affected (0.05 sec)
Records: 0 Duplicates: 0 Warnings: 0
mysql> SELECT * FROM DEMO;
Type here to search
ENG
18:23
20-04-2022


Administrator: Command Prompt - mysql -u root -p
mysql> SELECT * FROM DEMO;
Empty set (0.00 sec)
mysql> DESC DEMO;
+---------+--------------+------+-----+---------+-------+
| Field | Type | Null | Key | Default | Extra |
+---------+--------------+------+-----+---------+-------+
| COLUMN1 | int | YES | | NULL | |
| COLUMN2 | varchar(100) | YES | | NULL | |
+---------+--------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
mysql>
Type here to search
ENG
18:24
20-04-2022

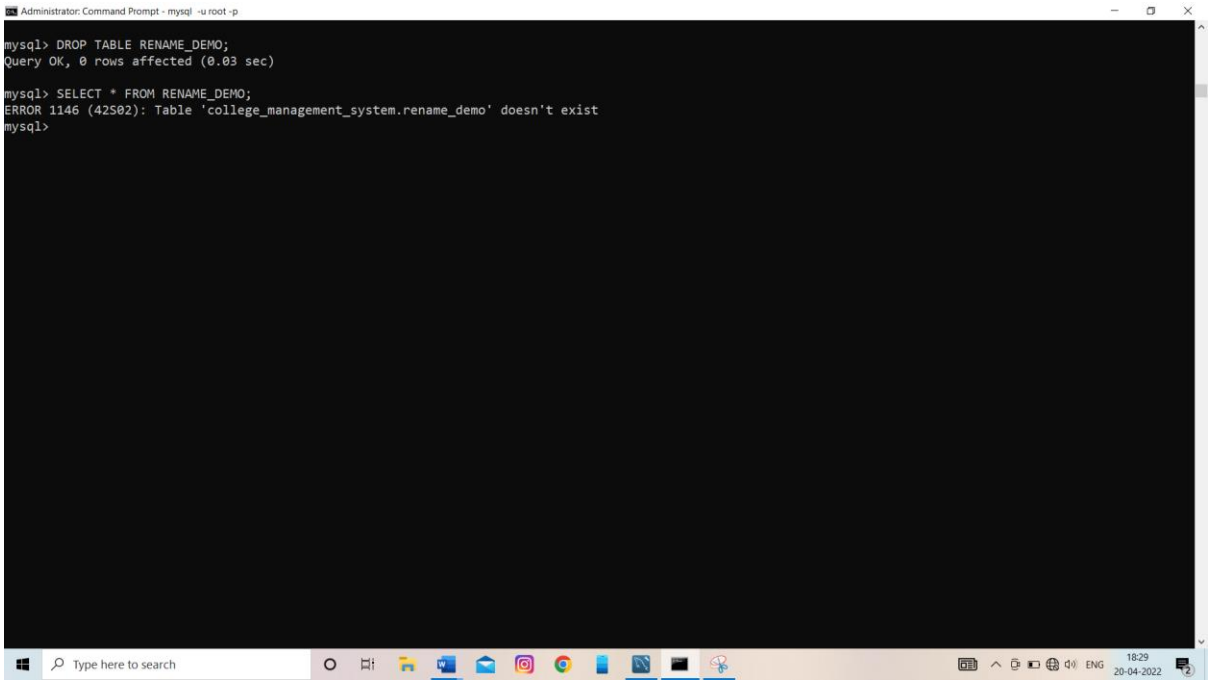
- **TRUNCATE**



- **RENAME**

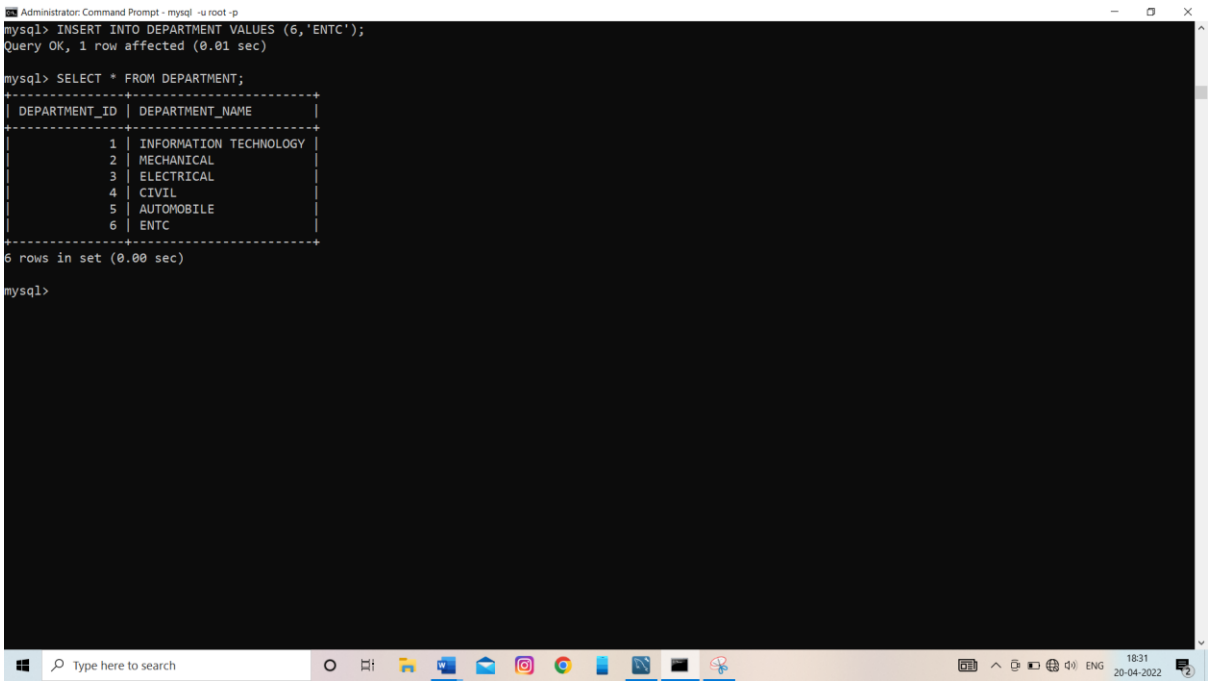


- **DROP**

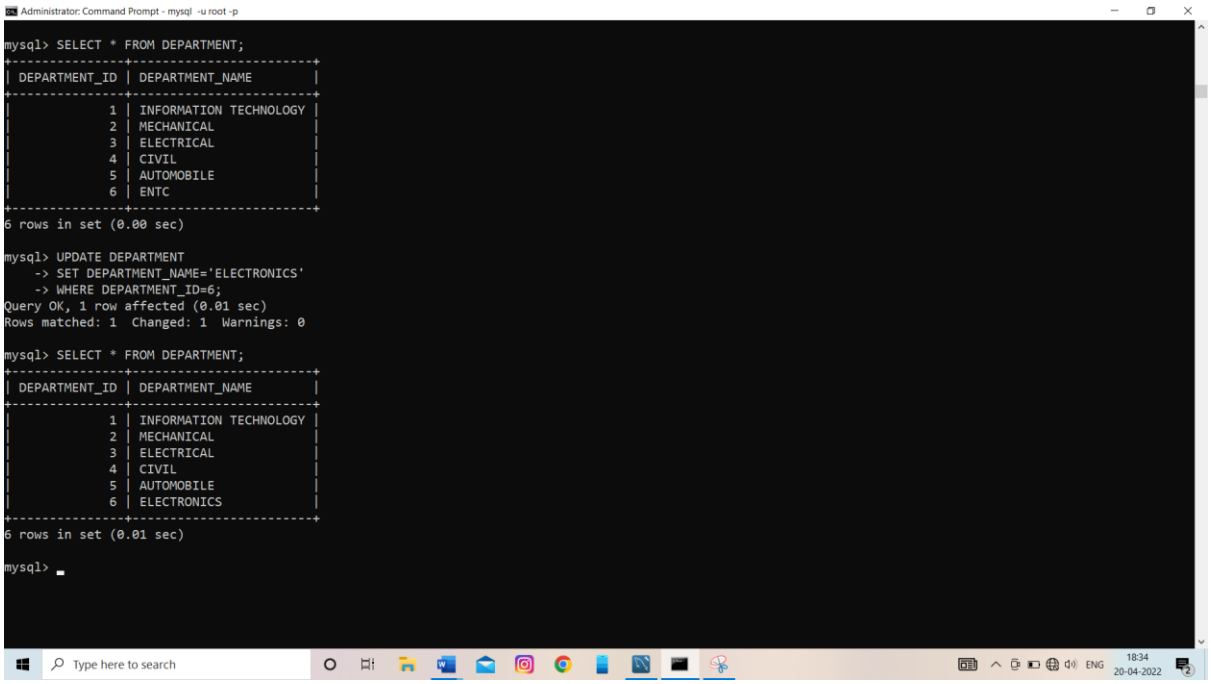

Administrator: Command Prompt - mysql -u root -p
mysql> DROP TABLE RENAME_DEMO;
Query OK, 0 rows affected (0.03 sec)
mysql> SELECT * FROM RENAME_DEMO;
ERROR 1146 (42S02): Table 'college_management_system.rename_demo' doesn't exist
mysql>
Type here to search
ENG
18:29
20-04-2022

- **DML – [Data Manipulation Language]**
  - DML commands are used to modify the database. It is responsible for all form of changes in the database.
  - The command of DML is not auto-committed that means it can't permanently save all the changes in the database. They can be rollback.

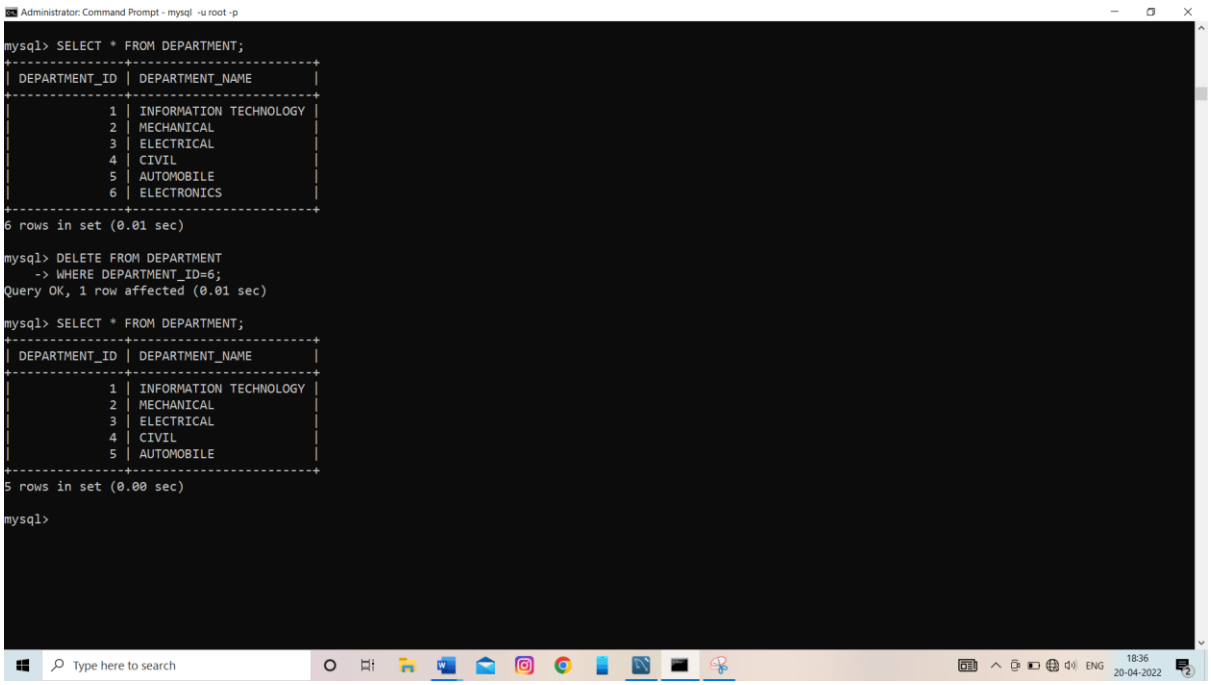
- **INSERT**



- **UPDATE**

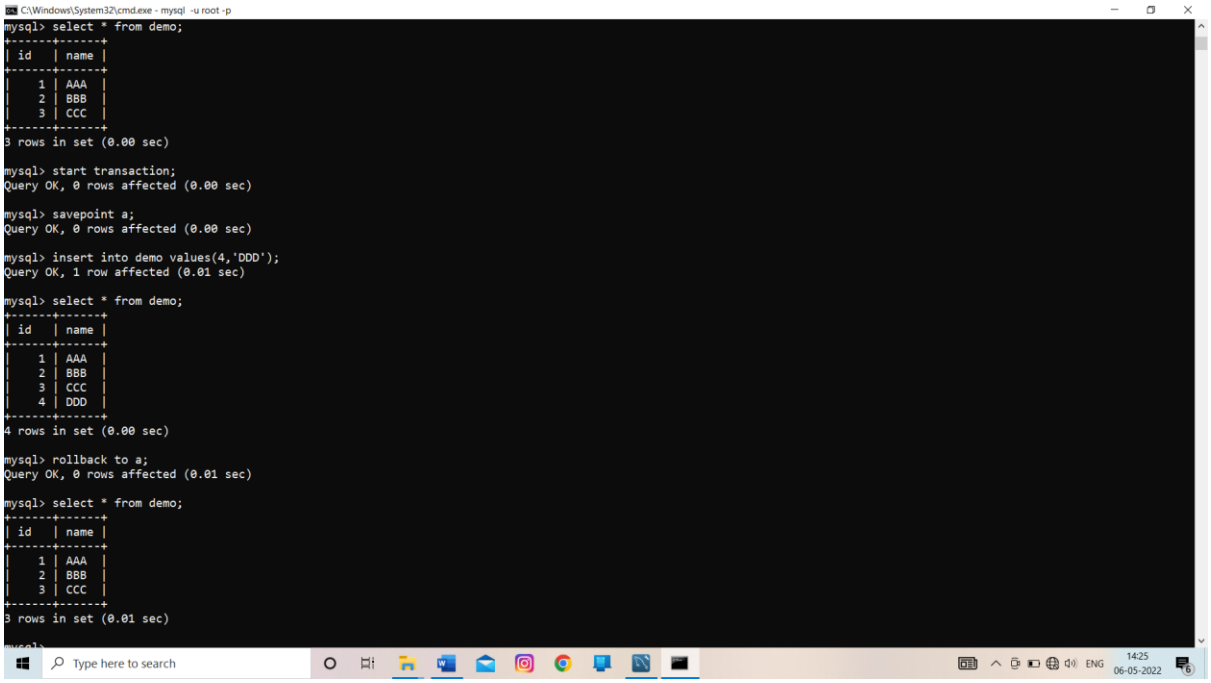


- **DELETE**

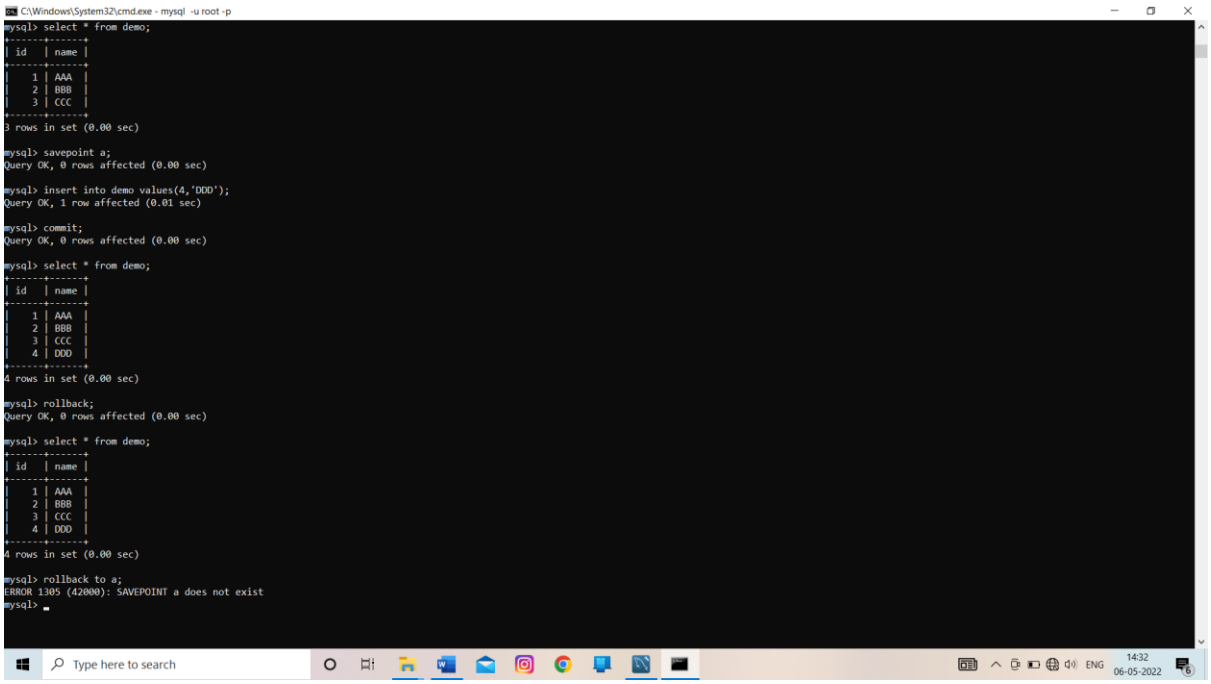


- **TCL – [Transaction Control Language]**
  - This command is used to manage the changes made by DML statements.
  - There are certain commands present in SQL known as TCL commands that help the user manage the transactions that take place in a database.

- **START TRANSACTION , SAVEPOINT , ROLLBACK**



- **COMMIT, ROLLBACK**



- **Conclusion**

The Project is developed using MySQL. The Project College Management System is very Useful to keep Records of College Deprtment Details, Courses Details, Students Details and Teachers Details. This Database is capable of modifying Tables, Columns as per the User requirements using MySQL , So MySQL is Flexible option to Store Text Based Information.