



Chandigarh Engineering College Jhanjeri

Mohali-140307

Department of Artificial Intelligence (AI) and Data Sciences

Practical File

Database Management System (DMS)

Subject Code: CSE-204P

BACHELOR OF TECHNOLOGY
Artificial Intelligence and Data Sciences



SUBMITTED BY:

Aditya Arora
2420640

Under the Guidance of Dr.

Ravneet Kaur

**Department of Computer Science & Engineering
Chandigarh Engineering College
Jhanjeri, Mohali - 140307**



Chandigarh Engineering College Jhanjeri

Mohali-140307

Department of Artificial Intelligence (AI) and Data Sciences

Experiment-1

Experiment Name:

Introduction to SQL and database creation

Objective:

To learn basic SQL commands

Prerequisites:

- Basic computer and OS knowledge.
- Familiarity with data concepts (tables, fields).

Key Terms: SQL, DML, DDL

System requirements:

- 4-8 GB RAM, 10-15 disk space, Windows OS
- MySQL Workbench 8.0 CE

Theory and Application:

SQL stands for Structured Query Language. It's a language that we use to talk to database. In SQL we can store, update, retrieve and delete information from the database whenever we need it.

For example, apps like banking systems, college portals, e-commerce platforms, and social media use SQL in the background to manage huge amount of data.

SQL works with relational database systems such as:

- MySQL
- PostgreSQL
- Oracle
- SQL Server
- SQLite

A database is simply a place where data is stored in an organized way so it can be used later. Instead of keeping information on paper or in a random file, a database stores it nearly in tables.

For example, a college database may keep data about:

- Students
- Marks
- Courses
- Attendance

All these are related and can be connected to each other, which makes retrieving information fast and efficient.



❖ MySQL

MySQL is an open-source relational database management system (RDBMS) that uses SQL to store and manage data. It has become one of the most popular database systems because it is fast, reliable, secure, and free to use. For this reason, MySQL is widely used in websites, software applications, and online services.

MySQL stores data in tables, which are organized into rows and columns. Different tables can be linked together through keys, making it easier to structure and retrieve related information.

Key Features of MySQL

- Open-source: Anyone can download and use it without cost.
- Relational: Data is stored in tables and can be linked through relationships.
- SQL-based: Uses SQL commands for all major operations.
- Scalable & Efficient: Handles large amounts of data without performance issues.
- Cross-platform: Runs on Windows, macOS, Linux, and other systems.
- Secure: Allows access control through authentication and privileges.
- High Performance: Well-optimized for applications that read data frequently, such as websites.

Where MySQL is Used

MySQL is commonly used in:

- Web applications
- E-commerce platforms
- Content management systems (CMS)
- Banking and finance
- Educational institutions
- Inventory and billing systems

Advantages of MySQL

- Free and open-source
- Easy to use and beginner-friendly
- Works well with large data
- Cross-platform and portable



Chandigarh Engineering College Jhanjeri
Mohali-140307
Department of Artificial Intelligence (AI) and Data Sciences

MySQL – Opening a existing connection

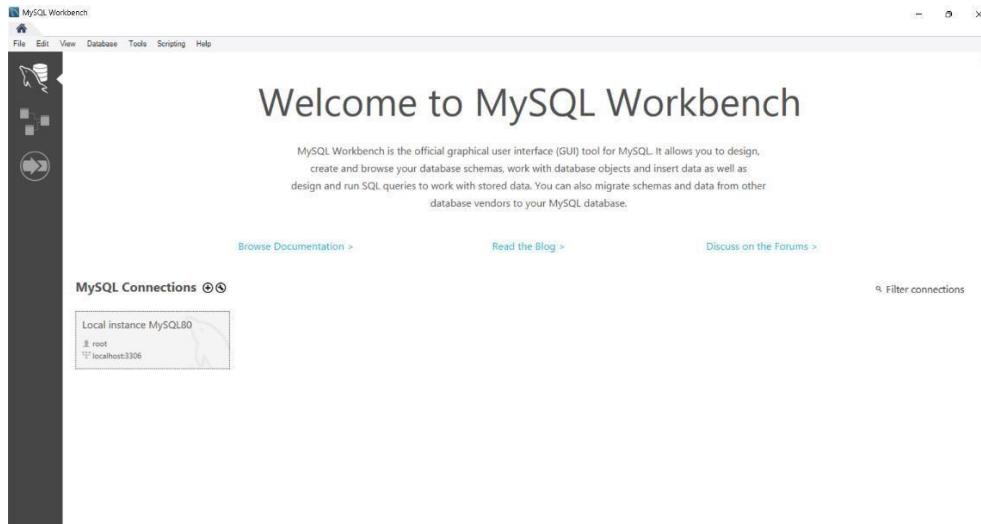


Figure 1: Opening existing connection

MySQL – Login

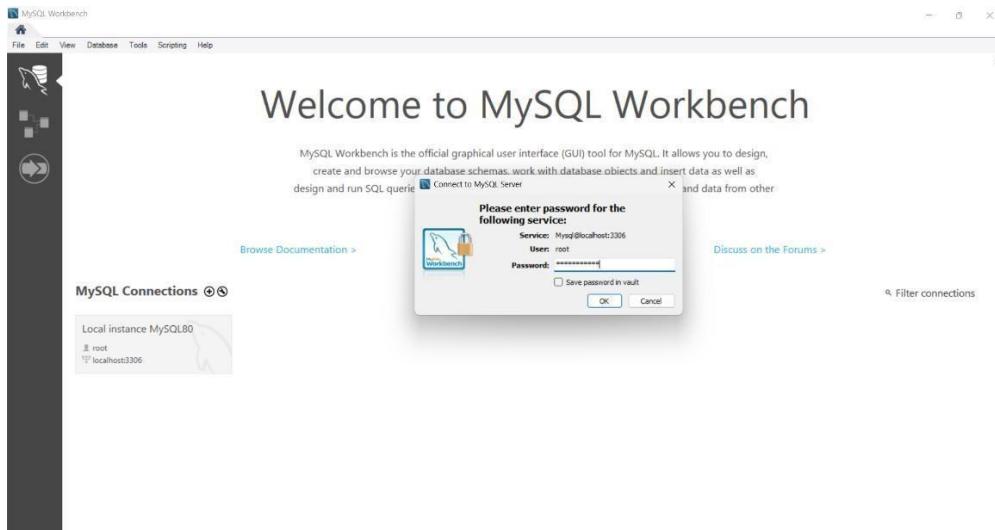


Figure 2: MySQL login

Basic SQL commands:

1. **CREATE**
2. **DROP**



Chandigarh Engineering College Jhanjeri
Mohali-140307
Department of Artificial Intelligence (AI) and Data Sciences

➤ **CREATE & DROP Database**

- CREATE database db; (#Run the query)

The screenshot shows the MySQL Workbench interface. In the SQL editor tab, the query `CREATE database db;` is entered and executed. The output pane shows the execution details:

#	Time	Action	Message	Duration / Fetch
1	23:57:32	CREATE database db	1 row(s) affected	0.000 sec

Figure 3:Creating a database

- DROP database db; (#Run the query)

The screenshot shows the MySQL Workbench interface. The previous query has been run, creating the database 'db'. Now, the query `DROP database db;` is entered and executed. The output pane shows the execution details:

#	Time	Action	Message	Duration / Fetch
1	23:57:32	CREATE database db	1 row(s) affected	0.000 sec
2	23:59:19	DROP database db	0 row(s) affected	0.000 sec

Figure 4:Drop a database



Chandigarh Engineering College Jhanjeri

Mohali-140307

Department of Artificial Intelligence (AI) and Data Sciences

➤ Creating a table in database

CREATE database db;

USE db;

CREATE table Students(name varchar(100), roll_no int, DOB int, Stream varchar(100));

The screenshot shows the MySQL Workbench interface. In the SQL editor pane, three commands are run:

```
1 • CREATE database db;
2 • USE db;
3 • CREATE table Students(name varchar(100), roll_no int, DOB int, Stream varchar(100));
```

The Output pane shows the results of these queries:

#	Time	Action	Message	Duration / Fetch
1	00:04:12	CREATE database db	1 row(s) affected	0.000 sec
2	00:04:12	USE db	0 row(s) affected	0.000 sec
3	00:04:12	CREATE table Students(name varchar(100), roll_no int, DOB int, Stream varchar(100))	0 row(s) affected	0.031 sec

Figure 5:Creating a table

➤ Describing a table in database

describe table db.Students;

The screenshot shows the MySQL Workbench interface. The Navigator pane displays the database structure, including the 'students' table under the 'db' schema.

The Output pane shows the results of the 'describe' command:

```
1 • DESCRIBE `db`.`students`;
```

The Output pane also shows the results of dropping and recreating the database and table:

#	Time	Action	Message	Duration / Fetch
1	00:08:15	DROP DATABASE 'db'	1 row(s) affected	0.016 sec
2	00:08:16	CREATE database db	1 row(s) affected	0.000 sec
3	00:08:16	USE db	0 row(s) affected	0.000 sec
4	00:08:16	CREATE table Students(name varchar(100), roll_no int, DOB int, Stream varchar(100))	0 row(s) affected	0.016 sec

Figure 6:Output in MySQL



Chandigarh Engineering College Jhanjeri
Mohali-140307

Department of Artificial Intelligence (AI) and Data Sciences

A screenshot of a terminal window titled "MySQL 8.0 Command Line Cli". The window shows the MySQL monitor welcome message, copyright information, and a "help" message. A DESCRIBE command is run against the "db.Students" table, displaying its structure. The output includes columns for id, select_type, table, partitions, type, possible_keys, key, key_len, ref, rows, filtered, and Extra.

```
MySQL 8.0 Command Line Cli  X + ^ Enter password: ***** Welcome to the MySQL monitor.  Commands end with ; or \g. Your MySQL connection id is 15 Server version: 8.0.44 MySQL Community Server - GPL Copyright (c) 2000, 2025, Oracle and/or its affiliates. Oracle is a registered trademark of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners. Type 'help;' or '\h' for help. Type '\c' to clear the current input statement. mysql> describe table db.Students; +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+ | id | select_type | table | partitions | type | possible_keys | key | key_len | ref | rows | filtered | Extra | +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+ | 1 | SIMPLE | Students | NULL | ALL | NULL | NULL | NULL | NULL | 1 | 100.00 | NULL | +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+ 1 row in set, 1 warning (0.00 sec) mysql> |
```

Figure 7:Output in Command Line Client