

CC-215

LABORATORY 05

DBMS

SUBMITTED TO:

SEHRISH KHAN

SUBMITTED BY:

NEELAM SHAHZADI

ROLL NO:

110852

**Department of Information technology
University of the Punjab Lahore,
Pakistan**

CONTENTS:

COMMANDS:

- **CREATE**
 - **DESCRIBE**
 - **INSERT INTO**
 - **UPDATE**
 - **AS**
 - **DSITINCT**
 - **ORDER BY**
 - **WHERE clause**
 - **SELECT COMMAND**
 - **ARITHMETIC OPERATORS**
 - **RELATIONAL OPERATORS**
 - **LOGICAL OPERATORS**
-

IMPLEMENTATIONS OF DIFFERENT COMMANDS ON MYSQL ;

○ COMPANT DATABASE:

First of all create database which you want to made as per according to your desire by using the syntax.

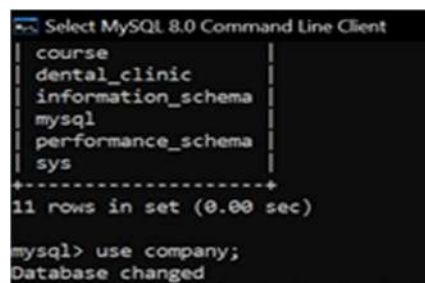
Syntax:

CREATE DATABASE DATABASE_NAME;

- Use your already made database as by use the words as;

Syntax:

USE database_name;



```

Select MySQL 8.0 Command Line Client
+-----+
| course |
| dental_clinic |
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
11 rows in set (0.00 sec)

mysql> use company;
Database changed
  
```

➤ CREATE command:

It's used for the creation of tables.

Evolving the following statement;

Syntax:

CREATE TABLE TABLE_NAME(COLUMN_1,COLUMN_2.....);

Example:

Create tables of employee, department and grade .

Grade table:

```
mysql> use company;
Database changed
mysql> create table grade( Grade_id INT(4) PRIMARY KEY , Low_Salary INT(254) NOT NULL ,Higher_salary INT(254) NOT NULL);
Query OK, 0 rows affected, 3 warnings (0.04 sec)

mysql> show grades;
```

Department table:

```
mysql> create table department(dep_no INT(8) PRIMARY KEY , dep_name varchar(254) NOT NULL);
Query OK, 0 rows affected, 1 warning (0.03 sec)
```

- As the department and the grade table are made earlier as before the employee table because their PKs becomes the FKs in that employee table. Additionally they both acts as the parent tables for the child table which is employee.
-

Employee table:

```
mysql> create table employee(e_name varchar(254) NOT NULL, JOB varchar(254) NOT NULL,Hire_date date NOT NULL ,
-> salary varchar(254) NOT NULL,
-> Commission varchar(254) NULL ,
-> dep_no INT NOT NULL ,
-> FOREIGN KEY (dep_no) REFERENCES department(dep_no),
-> Grade_id INT NOT NULL,
-> FOREIGN KEY (Grade_id) REFERENCES grade(Grade_id));
Query OK, 0 rows affected (0.06 sec)
```

Use of DESCRIBE COMMAND:

It's also can be used as the **DESC** shortly.

Syntax:

DESC TABLE_NAME;

Examples:

Employee table:

```
mysql> desc employee;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| e_name | varchar(254) | NO | | NULL | |
| JOB | varchar(254) | NO | | NULL | |
| Hire_date | date | NO | | NULL | |
| salary | varchar(254) | NO | | NULL | |
| Commission | varchar(254) | YES | | NULL | |
| dep_no | int | NO | MUL | NULL | |
| Grade_id | int | NO | MUL | NULL | |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.00 sec)
```

Department and Grade tables:

```
mysql> desc grade;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Grade_id | int | NO | PRI | NULL | |
| Low_Salary | int | NO | | NULL | |
| Higher_salary | int | NO | | NULL | |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.01 sec)

mysql> create table department(dep_no INT(8) PRIMARY KEY , dep_name varchar(254) NOT NULL);
Query OK, 0 rows affected, 1 warning (0.03 sec)

mysql> desc department;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| dep_no | int | NO | PRI | NULL | |
| dep_name | varchar(254) | NO | | NULL | |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

➤ INSERT COMMAND:

Syntax:

INSERT INTO TABLE_NAME VALUES (COLUMN_1'S VALUES,C_2,.....);

Example:

Grade table:

```
mysql> INSERT INTO grade VALUES (1 , 2637,7752),(2,3728,3776),(3,4732,9873);
Query OK, 3 rows affected (0.01 sec)
Records: 3 Duplicates: 0 Warnings: 0
```

Department table:

```
mysql> INSERT INTO department Values(11 , "IT"),(12 , "CS"),(13,"MRKT");
Query OK, 3 rows affected (0.01 sec)
Records: 3 Duplicates: 0 Warnings: 0
```

Employee table:

```
mysql> INSERT INTO employee Values("Arhum","SI","2004-03-09","26537",NULL,11,1,31);
Query OK, 1 row affected (0.01 sec)

mysql> ^C
mysql> ^C
mysql> INSERT INTO employee Values("Murat","CONSTBLE","2003-9-28","7538",NULL,12,2,32);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO employee Values("Faiza","COMMANDO","2007-02-19","9872",NULL,13,3,33);
Query OK, 1 row affected (0.01 sec)
```

➤ **SELECT * command:**

This command is used for the displaying all and every single attribute's **values** on the command prompt.

Syntax:

SELECT * FROM TABLE_NAME;

Example:

Employee table:

```
mysql> select * from employee;
+-----+-----+-----+-----+-----+-----+-----+-----+
| e_name | JOB      | Hire_date | salary | Commession | dep_no | Grade_id | e_no |
+-----+-----+-----+-----+-----+-----+-----+-----+
| Arhum  | SI       | 2004-03-09 | 26537  | NULL       | 11     | 1        | 31   |
| Murat  | CONSTBLE | 2003-09-28 | 7538   | NULL       | 12     | 2        | 32   |
| Faiza  | COMMANDO | 2007-02-19 | 9872   | NULL       | 13     | 3        | 33   |
+-----+-----+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

Department and grade tables:

```

mysql> select * from grade;
+-----+-----+-----+
| Grade_id | Low_Salary | Higher_salary |
+-----+-----+-----+
| 1 | 2637 | 7752 |
| 2 | 3728 | 3776 |
| 3 | 4732 | 9873 |
+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> INSERT INTO department Values(11 , "IT"),(12 ,"CS"),(13,"MRKT");
Query OK, 3 rows affected (0.01 sec)
Records: 3 Duplicates: 0 Warnings: 0

mysql> select * from department;
+-----+-----+
| dep_no | dep_name |
+-----+-----+
| 11 | IT |
| 12 | CS |
| 13 | MRKT |
+-----+-----+
3 rows in set (0.00 sec)

```

➤ **SELECT one/multiple column :**

This command is beneficial at that support while you are dealing with to come out the single one and the multiple attributes from a table rather than all of the attributes. Only a **certain** or **specific** values will be come out by this.

Syntax:

SELECT COLUMN_NAME FROM TABLE_NAME;

Example:

```

mysql> select Grade_id from grade;
+-----+
| Grade_id |
+-----+
| 1 |
| 2 |
| 3 |
+-----+
3 rows in set (0.00 sec)

```

➤ **ALTER command:**

Used to alter the table and including other attributes or **inserts** more data into the table.

Syntax:

ALTER TABLE TABLE_NAME ADD COLUMN_NAME CONSTRAINT;

Example:

```
mysql> ALTER TABLE employee ADD e_no INT AUTO_INCREMENT PRIMARY KEY;
Query OK, 0 rows affected (0.08 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> desc employee;
```

Field	Type	Null	Key	Default	Extra
e_name	varchar(254)	NO		NULL	
JOB	varchar(254)	NO		NULL	
Hire_date	date	NO		NULL	
salary	varchar(254)	NO		NULL	
Commession	varchar(254)	YES		NULL	
dep_no	int	NO	MUL	NULL	
Grade_id	int	NO	MUL	NULL	
e_no	int	NO	PRI	NULL	auto_increment

```
8 rows in set (0.00 sec)
```

Suppose we want to include the already present table EMPLOYEE the PRIMARY KEY. Then for the sack of that purpose we use:

AS COMMAND on MySQL:

This is basically used to make an alias of the attribute. It's helpful where you want to access the already attribute name with the new one as you want.

Syntax:

SELECT COLUMN_NAME AS ALIAS FROM TABLE_NAME;

Example:

```
mysql> select JOB AS publicy from employee;
```

publicy
SI
CONSTBLE
COMMANDO

```
3 rows in set (0.00 sec)
```


➤ **DISTINCT COMMAND:**

This command is used for duplicacy removal from your table if exist.

Syntax:

SELECT DISTINCT COLUMN_NAME FROM TABLE_NAME;

```
mysql> select DISTINCT dep_no from employee;
+-----+
| dep_no |
+-----+
| 11      |
| 12      |
| 13      |
+-----+
```

➤ **WHERE clause in SQL:**

Where command is work as such like fro the condition .

Syntax:

SELECT * FROM TABLE_NAME WHERE COLUMN="VALUE";

Example:

```
MySQL 8.0 Command Line Client
+-----+-----+-----+-----+-----+-----+-----+
| e_name | JOB   | Hire_date | salary | Commission | dep_no | Grade_id | e_no |
+-----+-----+-----+-----+-----+-----+-----+
| Arhum  | SI    | 2004-03-09 | 26537  | NULL       | 11     | 1        | 31   |
+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.01 sec)

mysql> select * from employee where dep_no =13;
+-----+-----+-----+-----+-----+-----+-----+
| e_name | JOB      | Hire_date | salary | Commission | dep_no | Grade_id | e_no |
+-----+-----+-----+-----+-----+-----+-----+
| Faiza  | COMMANDO | 2007-02-19 | 9872   | NULL       | 13     | 3        | 33   |
+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> select e_name from employee where dep_no=4;
Empty set (0.00 sec)
```

➤ **ORDER BY command:**

It's used for the ascending or descending order sorting. By default ascending sort is done by the compiler.

Syntax:

SELECT COLUMN_NAME FROM TABLE_NAME ORDER BY COLUMN_2 DESC;

Example:

```
mysql> select JOB ,e_name from employee;
+-----+-----+
| JOB   | e_name |
+-----+-----+
| SI    | Arhum  |
| CONSTBLE | Murat  |
| COMMANDO | Faiza  |
| SI    | Fazan  |
+-----+-----+
4 rows in set (0.00 sec)

mysql> select e_name from employee ORDER BY salary DESC;
+-----+
| e_name |
+-----+
| Faiza  |
| Murat  |
| Fazan  |
| Arhum  |
+-----+
4 rows in set (0.00 sec)
```

➤ **OPERATORS IN SQL:**

Arithmetic operators including (+,-,*,/).

Syntax:

***SELECT COLUMN_NAME OPERATOR FROM TABLE_NAME WHERE
COLUMN_NAME="VALUES";***

Or

SELECT COLUMN_NAME FROM TABLE COLUMN_NAME OPERATOR ANY OPERATION;

```
mysql> select salary*12 from employee;
+-----+
| salary*12 |
+-----+
| 318444 |
| 90456 |
| 118464 |
| 87156 |
+-----+
4 rows in set (0.00 sec)

mysql> select salary*12 AS Annual_salary from employee;
+-----+
| Annual_salary |
+-----+
| 318444 |
| 90456 |
| 118464 |
| 87156 |
+-----+
4 rows in set (0.00 sec)

mysql> select salary+200 from employee;
+-----+
| salary+200 |
+-----+
| 26737 |
| 7738 |
| 10072 |
| 7463 |
+-----+
4 rows in set (0.00 sec)

mysql> select salary-200 from employee where e_no=31;
+-----+
| salary-200 |
+-----+
| 26337 |
+-----+
1 row in set (0.00 sec)
```

```
MySQL 8.0 Command Line Client
4 rows in set (0.00 sec)

mysql> select salary-200 from employee where e_no=31;
+-----+
| salary-200 |
+-----+
| 26337 |
+-----+
1 row in set (0.00 sec)

mysql> select salary+200 from employee where e_no=32;
+-----+
| salary+200 |
+-----+
| 7738 |
+-----+
1 row in set (0.00 sec)

mysql> select salary+250*12 AS annual_salary from employee ;
+-----+
| annual_salary |
+-----+
| 29537 |
| 10538 |
| 12872 |
| 10263 |
+-----+
4 rows in set (0.00 sec)
```

➤ Relational operators:

These operators including (>,<,>=,<=,==,!=)

Syntax:

**SELECT COLUMN_NAME OPERATOR FROM TABLE_NAME WHERE
COLUMN_NAME="VALUES";**

Or

SELECT COLUMN_NAME FROM TABLE_NAME WHERE COLUMN OPERATOR CONDITION;

```
mysql> select salary from employee where salary>1900;
+-----+
| salary |
+-----+
| 26537  |
| 7538   |
| 9872   |
| 7263   |
+-----+
4 rows in set (0.00 sec)
```

```
mysql> select salary<1900 from employee;
+-----+
| salary<1900 |
+-----+
| 0           |
| 0           |
| 0           |
| 0           |
+-----+
4 rows in set (0.00 sec)
```

Logical Operators:

AND ,OR ,NOT.

```
mysql> select * from employee where (e_no =31 AND e_name="Arhum");
+-----+-----+-----+-----+-----+-----+-----+
| e_name | JOB | Hire_date | salary | Commission | dep_no | Grade_id | e_no |
+-----+-----+-----+-----+-----+-----+-----+
| Arhum  | SI  | 2004-03-09 | 26537 | NULL       | 11     | 1        | 31   |
+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> select JOB from employee where (e_no=34 OR Commission=NULL);
ERROR 1054 (42S22): Unknown column 'Commission' in 'where clause'
mysql> select JOB from employee where(e_no=34 OR salary>=1900);
+-----+
| JOB |
+-----+
| SI  |
| CONSTBLE |
| COMMANDO |
| SI  |
+-----+
4 rows in set (0.00 sec)

mysql> select dep_no from department where (dep_no!=12);
+-----+
| dep_no |
+-----+
| 11     |
| 13     |
| 14     |
+-----+
3 rows in set (0.00 sec)

mysql>
```