```
mysql> use mydb;
Database changed
mysql> show tables;
+------------------+
| Tables_in_mydb   |
+------------------+
| student          |
| tbl_countries    |
| tbl_dup_countries |
| tbl_employee     |
| tbl_jobs         |
+------------------+
5 rows in set (0.00 sec)

mysql> select * from tbl_employee;
+------+---------+---------+
| eid  | ename   | esalary |
+------+---------+---------+
|    1 | Sankar  |    2000 |
|    2 | Aravind |    2000 |
|    3 | Madhan  |    2000 |
|    4 | NULL    |    2000 |
|    5 | Dom     |    2000 |
+------+---------+---------+
5 rows in set (0.00 sec)

mysql> select eid,ename from tbl_employee;
+------+---------+
| eid  | ename   |
+------+---------+
|    1 | Sankar  |
|    2 | Aravind |
|    3 | Madhan  |
|    4 | NULL    |
|    5 | Dom     |
+------+---------+
5 rows in set (0.00 sec)
```

Alias Query (Using as)
```
mysql> select eid as "Employee Id",ename "Employee Name" from tbl_employee;
+-------------+---------------+
| Employee Id | Employee Name |
+-------------+---------------+
|           1 | Sankar        |
|           2 | Aravind       |
|           3 | Madhan        |
|           4 | NULL          |
|           5 | Dom           |
+-------------+---------------+
5 rows in set (0.00 sec)
```

To Display date & Time
```
mysql> select now();
+---------------------+
| now()               |
+---------------------+
| 2023-10-03 09:53:18 |
+---------------------+
1 row in set (0.00 sec)
```

Subqueries
Inserting new column
```
mysql> alter table tbl_employee add edno int (10);
Query OK, 0 rows affected, 1 warning (0.01 sec)
Records: 0  Duplicates: 0  Warnings: 1
```

```
mysql> update tbl_employee set edno=10 where eid in(1,2);
Query OK, 2 rows affected (0.00 sec)
Rows matched: 2  Changed: 2  Warnings: 0

mysql> update tbl_employee set edno=20 where eid in(3,4);
Query OK, 2 rows affected (0.01 sec)
Rows matched: 2  Changed: 2  Warnings: 0

mysql> select * from employee;
ERROR 1146 (42S02): Table 'mydb.employee' doesn't exist
mysql> select * from tbl_employee;
+------+---------+---------+------+
| eid  | ename   | esalary | edno |
+------+---------+---------+------+
|    1 | Sankar  |    2000 |   10 |
|    2 | Aravind |    2000 |   10 |
|    3 | Madhan  |    2000 |   20 |
|    4 | NULL    |    2000 |   20 |
|    5 | Dom     |    2000 | NULL |
+------+---------+---------+------+
5 rows in set (0.00 sec)

mysql> create table tbl_dept;
ERROR 4028 (HY000): A table must have at least one visible column.
mysql> create table tbl_dept(dno int(4),dname varchar(20));
Query OK, 0 rows affected, 1 warning (0.02 sec)

mysql> insert into tbl_dept(dno,dname) values(10,"L&D"),(20,"Project");
Query OK, 2 rows affected (0.01 sec)
Records: 2  Duplicates: 0  Warnings: 0

mysql> select * from tbl_dept;
+------+---------+
| dno  | dname   |
+------+---------+
|   10 | L&D     |
|   20 | Project |
+------+---------+
2 rows in set (0.00 sec)

mysql> select dno from tbl_dept where dname="L&D";
+------+
| dno  |
+------+
|   10 |
+------+
1 row in set (0.00 sec)
```

Subquery
```
mysql> select * from tbl_employee where edno=(select dno from tbl_dept where dname="L&D");
+------+---------+---------+------+
| eid  | ename   | esalary | edno |
+------+---------+---------+------+
|    1 | Sankar  |    2000 |   10 |
|    2 | Aravind |    2000 |   10 |
+------+---------+---------+------+
2 rows in set (0.00 sec)

mysql> select dname from tbl_dept where dno=(select edno from tbl_employee where
ename="Madhan");
+---------+
| dname   |
+---------+
| Project |
+---------+
1 row in set (0.00 sec)
```

Single row subquery
```
mysql> update tbl_employee set esalary=esalary+200 where edno=(select dno from tbl_dept where
dname="L&D");
Query OK, 2 rows affected (0.01 sec)
Rows matched: 2  Changed: 2  Warnings: 0

mysql> select * from tbl_employee;
+------+---------+---------+------+
| eid  | ename   | esalary | edno |
+------+---------+---------+------+
|    1 | Sankar  |    2200 |   10 |
|    2 | Aravind |    2200 |   10 |
|    3 | Madhan  |    2000 |   20 |
|    4 | NULL    |    2000 |   20 |
|    5 | Dom     |    2000 | NULL |
+------+---------+---------+------+
5 rows in set (0.00 sec)
```

Multi Row Subquery
```
mysql> select dname from tbl_dept where dno in (select edno from tbl_employee where eid
in(1,3));
+---------+
| dname   |
+---------+
| L&D     |
| Project |
+---------+
2 rows in set (0.00 sec)
```

Constraints : NOT NULL, CHECK, DEFAULT, PRIMARY KEY, AUTO_INCREMENT, UNIQUE
```
mysql> create table tbl_student(rno int(5) primary key,sname varchar(20) not null, smarks int(3)
check (smarks>0), smno int(10)unique, sage int(3) default 15);
Query OK, 0 rows affected, 4 warnings (0.03 sec)

mysql> insert into tbl_student (rno,smarks,smno) values(101,60,987);
ERROR 1364 (HY000): Field 'sname' doesn't have a default value
mysql> insert into tbl_student(rno,sname,smarks,smno) values (101,shiva,60,987);
ERROR 1054 (42S22): Unknown column 'shiva' in 'field list'
mysql> insert into tbl_student(rno,sname,smarks,smno) values (101,"Shiva",60,987);
Query OK, 1 row affected (0.00 sec)

mysql> select * from tbl_student;
+-----+-------+--------+------+------+
| rno | sname | smarks | smno | sage |
+-----+-------+--------+------+------+
| 101 | Shiva |     60 |  987 |   15 |
+-----+-------+--------+------+------+
1 row in set (0.00 sec)

mysql> insert into tbl_student(rno,sname,smarks,smno) values(102,"Sankar",-70,986);
```
ERROR 3819 (HY000): Check constraint 'tbl_student_chk_1' is violated.
```
mysql> insert into tbl_student(rno,sname,smarks,smno) values(102,"Sankar",70,987);
```
ERROR 1062 (23000): Duplicate entry '987' for key 'tbl_student.smno'
```
mysql> insert into tbl_student(rno,sname,smarks,smno) values(102,"Sankar",70,986);
Query OK, 1 row affected (0.00 sec)

mysql> insert into tbl_student(rno,sname,smarks,smno) values(102,"Sankar",70,986);
```
ERROR 1062 (23000): Duplicate entry '102' for key 'tbl_student.PRIMARY'
```
mysql> drop table tbl_student;
Query OK, 0 rows affected (0.02 sec)

mysql> create table tbl_student (srno int(5) primary key auto_increment, sname varchar(20),
smarks int(3));
Query OK, 0 rows affected, 2 warnings (0.02 sec)
```

```
mysql> insert into tbl_student (sname,smarks) values("sankar",21);
Query OK, 1 row affected (0.02 sec)

mysql> select *from tbl_student;
+------+--------+--------+
| srno | sname  | smarks |
+------+--------+--------+
|    1 | sankar |     21 |
+------+--------+--------+
1 row in set (0.00 sec)
```

To make relationship between tables
```
mysql> create table tbl_dept(dno int primary key, dname varchar(20));
Query OK, 0 rows affected (0.02 sec)

mysql> create table tbl_employee(id int primary key, name varchar(20), salary int, dno int,
foreign key(dno) references tbl_dept(dno));
Query OK, 0 rows affected (0.03 sec)

mysql> desc tbl_dept;
+-------+-------------+------+-----+---------+-------+
| Field | Type        | Null | Key | Default | Extra |
+-------+-------------+------+-----+---------+-------+
| dno   | int         | NO   | PRI | NULL    |       |
| dname | varchar(20) | YES  |     | NULL    |       |
+-------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql> desc tbl_employee;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| id     | int         | NO   | PRI | NULL    |       |
| name   | varchar(20) | YES  |     | NULL    |       |
| salary | int         | YES  |     | NULL    |       |
| dno    | int         | YES  | MUL | NULL    |       |
+--------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)


mysql> insert into tbl_employee values(101,"Sankar",3000,10);
ERROR 1452 (23000): Cannot add or update a child row: a foreign key constraint fails
(`mydb`.`tbl_employee`, CONSTRAINT `tbl_employee_ibfk_1` FOREIGN KEY (`dno`) REFERENCES
`tbl_dept` (`dno`))
mysql> insert into tbl_dept values(101,"LD");
Query OK, 1 row affected (0.01 sec)

mysql> insert into tbl_employee values(101,"Sankar",3000,10);
ERROR 1452 (23000): Cannot add or update a child row: a foreign key constraint fails
(`mydb`.`tbl_employee`, CONSTRAINT `tbl_employee_ibfk_1` FOREIGN KEY (`dno`) REFERENCES
`tbl_dept` (`dno`))

mysql> insert into tbl_employee values(1,"Sankar",3000,101);
Query OK, 1 row affected (0.00 sec)
```

ORDER BY
```
mysql> select * from tbl_employee1;
+----+--------+--------+------+
| id | name   | salary | dno  |
+----+--------+--------+------+
|  1 | Sankar |   3000 |  101 |
|  2 | Shiva  |   2000 |  101 |
|  3 | Raju   |   4000 |  100 |
|  4 | Vijay  |   4000 |  100 |
|  5 | Tamil  |   5000 |  100 |
|  6 | Sam    |   7000 |  100 |
+----+--------+--------+------+
```

```
6 rows in set (0.00 sec)

mysql> select dno, count(*) from tbl_employee1 group by dno;
+------+----------+
| dno  | count(*) |
+------+----------+
| 101  |        2 |
| 100  |        4 |
+------+----------+
2 rows in set (0.00 sec)

mysql> select dno,count(*) from tbl_employee1 group by dno having min(salary)=3000;
Empty set (0.00 sec)

mysql> select dno,count(*) from tbl_employee1 group by dno having min(salary)=2000;
+------+----------+
| dno  | count(*) |
+------+----------+
| 101  |        2 |
+------+----------+
1 row in set (0.00 sec)
```

UPPERCASE
```
mysql> select upper(name) from tbl_employee1;
+-------------+
| upper(name) |
+-------------+
| SANKAR      |
| SHIVA       |
| RAJU        |
| VIJAY       |
| TAMIL       |
| SAM         |
+-------------+
6 rows in set (0.00 sec)
```

VIEWS
```
mysql> create view myview as select * from tbl_employee1 where dno=100;
Query OK, 0 rows affected (0.01 sec)

mysql> select * from myview;
+----+-------+--------+------+
| id | name  | salary | dno  |
+----+-------+--------+------+
|  3 | Raju  |   4000 |  100 |
|  4 | Vijay |   4000 |  100 |
|  5 | Tamil |   5000 |  100 |
|  6 | Sam   |   7000 |  100 |
+----+-------+--------+------+
4 rows in set (0.00 sec)

mysql> update myview set salary=3000 where id=3;
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from myview;
+----+-------+--------+------+
| id | name  | salary | dno  |
+----+-------+--------+------+
|  3 | Raju  |   3000 |  100 |
|  4 | Vijay |   4000 |  100 |
|  5 | Tamil |   5000 |  100 |
|  6 | Sam   |   7000 |  100 |
+----+-------+--------+------+
4 rows in set (0.00 sec)

mysql> select * from tbl_employee1;
```

```
+----+--------+--------+------+
| id | name   | salary | dno  |
+----+--------+--------+------+
|  1 | Sankar |   3000 |  101 |
|  2 | Shiva  |   2000 |  101 |
|  3 | Raju   |   3000 |  100 |
|  4 | Vijay  |   4000 |  100 |
|  5 | Tamil  |   5000 |  100 |
|  6 | Sam    |   7000 |  100 |
+----+--------+--------+------+
6 rows in set (0.00 sec)

mysql> update tbl_employee1 set salary=6000 where id=6;
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from myview;
+----+--------+--------+------+
| id | name   | salary | dno  |
+----+--------+--------+------+
|  3 | Raju   |   3000 |  100 |
|  4 | Vijay  |   4000 |  100 |
|  5 | Tamil  |   5000 |  100 |
|  6 | Sam    |   6000 |  100 |
+----+--------+--------+------+
4 rows in set (0.00 sec)

mysql> select * from tbl_employee1;
+----+--------+--------+------+
| id | name   | salary | dno  |
+----+--------+--------+------+
|  1 | Sankar |   1000 |  101 |
|  2 | Shiva  |   2000 |  101 |
|  3 | Raju   |   3000 |  100 |
|  4 | Vijay  |   4000 |  100 |
|  5 | Tamil  |   5000 |  100 |
|  6 | Sam    |   6000 |  100 |
+----+--------+--------+------+
6 rows in set (0.00 sec)
```

JOINS
```
mysql> create table tbl_agents;
ERROR 4028 (HY000): A table must have at least one visible column.
mysql> create table tbl_agents(agent_code varchar(10),agent_name varchar(10),working_area
varchar(20));
Query OK, 0 rows affected (0.02 sec)

mysql> desc tbl_agents;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| agent_code   | varchar(10) | YES  |     | NULL    |       |
| agent_name   | varchar(10) | YES  |     | NULL    |       |
| working_area | varchar(20) | YES  |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql> insert into tbl_agents values('A101','Agent1','Chennai');
Query OK, 1 row affected (0.01 sec)

mysql> insert into tbl_agents values('A102','Agent2','Chennai');
Query OK, 1 row affected (0.00 sec)

mysql> insert into tbl_agents values('A103','Agent3','Bangalore');
Query OK, 1 row affected (0.00 sec)

mysql> insert into tbl_agents values('A104','Agent4','Bangalore');
```

```
Query OK, 1 row affected (0.00 sec)

mysql> select * from tbl_agents;
+------------+------------+--------------+
| agent_code | agent_name | working_area |
+------------+------------+--------------+
| A101       | Agent1     | Chennai      |
| A102       | Agent2     | Chennai      |
| A103       | Agent3     | Bangalore    |
| A104       | Agent4     | Bangalore    |
+------------+------------+--------------+
4 rows in set (0.00 sec)

mysql> create table tbl_customers(Customer_code varchar(10),Customer_name
varchar(10),Customer_area varchar(20));
Query OK, 0 rows affected (0.02 sec)

mysql> insert into tbl_customers
values('C101','Customer1','Chennai'),('C102','Customer2','Chennai'),('C103','Customer3','Chennai
'),('C104','Customer4','Bangalore'),('C105','Customer5','Bangalore');
Query OK, 5 rows affected (0.01 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> select * from tbl_customers;
+---------------+---------------+---------------+
| Customer_code | Customer_name | Customer_area |
+---------------+---------------+---------------+
| C101          | Customer1     | Chennai       |
| C102          | Customer2     | Chennai       |
| C103          | Customer3     | Chennai       |
| C104          | Customer4     | Bangalore     |
| C105          | Customer5     | Bangalore     |
+---------------+---------------+---------------+
5 rows in set (0.00 sec)

mysql> select a.agent_code,a.agent_name,c.Customer_name from agents a,customers c where
a.working_area=c.Customer_area;
+------------+------------+---------------+
| agent_code | agent_name | Customer_name |
+------------+------------+---------------+
| A102       | Agent2     | Customer1     |
| A101       | Agent1     | Customer1     |
| A102       | Agent2     | Customer2     |
| A101       | Agent1     | Customer2     |
| A102       | Agent2     | Customer3     |
| A101       | Agent1     | Customer3     |
| A104       | Agent4     | Customer4     |
| A103       | Agent3     | Customer4     |
| A104       | Agent4     | Customer5     |
| A103       | Agent3     | Customer5     |
+------------+------------+---------------+
10 rows in set (0.00 sec)

mysql> select tbl_agents.agent_code,tbl_agents.agent_name,tbl_customers.Customer_name from
tbl_agents,tbl_customers where tbl_agents.working_area=tbl_customers.Customer_area;
+------------+------------+---------------+
| agent_code | agent_name | Customer_name |
+------------+------------+---------------+
| A102       | Agent2     | Customer1     |
| A101       | Agent1     | Customer1     |
| A102       | Agent2     | Customer2     |
| A101       | Agent1     | Customer2     |
| A102       | Agent2     | Customer3     |
| A101       | Agent1     | Customer3     |
| A104       | Agent4     | Customer4     |
| A103       | Agent3     | Customer4     |
| A104       | Agent4     | Customer5     |
```

```
| A103       | Agent3     | Customer5     |
+-----------+-----------+--------------+
10 rows in set (0.00 sec)
```

INNER JOIN

```
mysql> select a.agent_code,a.agent_name,c.Customer_name from agents a join customers c on
a.working_area=c.Customer_area;
+-----------+-----------+--------------+
| agent_code | agent_name | Customer_name |
+-----------+-----------+--------------+
| A102       | Agent2     | Customer1     |
| A101       | Agent1     | Customer1     |
| A102       | Agent2     | Customer2     |
| A101       | Agent1     | Customer2     |
| A102       | Agent2     | Customer3     |
| A101       | Agent1     | Customer3     |
| A104       | Agent4     | Customer4     |
| A103       | Agent3     | Customer4     |
| A104       | Agent4     | Customer5     |
| A103       | Agent3     | Customer5     |
+-----------+-----------+--------------+
10 rows in set (0.00 sec)
```

EQUI JOIN

```
mysql> select a.agent_code,a.agent_name,c.Customer_name from agents a inner join customers c on
a.working_area=c.Customer_area;
+-----------+-----------+--------------+
| agent_code | agent_name | Customer_name |
+-----------+-----------+--------------+
| A102       | Agent2     | Customer1     |
| A101       | Agent1     | Customer1     |
| A102       | Agent2     | Customer2     |
| A101       | Agent1     | Customer2     |
| A102       | Agent2     | Customer3     |
| A101       | Agent1     | Customer3     |
| A104       | Agent4     | Customer4     |
| A103       | Agent3     | Customer4     |
| A104       | Agent4     | Customer5     |
| A103       | Agent3     | Customer5     |
+-----------+-----------+--------------+
10 rows in set (0.00 sec)
```

NON_EQUI JOIN

```
mysql> select a.agent_code,a.agent_name,c.Customer_name from agents a inner join customers c on
a.working_area!=c.Customer_area;
+-----------+-----------+--------------+
| agent_code | agent_name | Customer_name |
+-----------+-----------+--------------+
| A104       | Agent4     | Customer1     |
| A103       | Agent3     | Customer1     |
| A104       | Agent4     | Customer2     |
| A103       | Agent3     | Customer2     |
| A104       | Agent4     | Customer3     |
| A103       | Agent3     | Customer3     |
| A102       | Agent2     | Customer4     |
| A101       | Agent1     | Customer4     |
| A102       | Agent2     | Customer5     |
| A101       | Agent1     | Customer5     |
+-----------+-----------+--------------+
10 rows in set (0.00 sec)
```