```
mysql> show databases;

mysql> create database advance_java;

mysql> use advance_java;

mysql> show tables;

mysql> create table emp(id int, name varchar(50), salary int);

mysql> select * from emp;

mysql> insert into emp values(1, 'abc', 1000);

mysql> insert into emp(id, name) values(2, 'xyz');

mysql> update emp set salary = 5500 where id = 1;

mysql> delete from emp where id = 2;

mysql> select * from emp where id = 1;

mysql> select id from emp;

mysql> select id, name from emp;

mysql> select name, id from emp;

mysql> drop table emp;

mysql> drop database advance_java;

mysql> alter table emp add salary int;
```

=================================================

## Primary Key with table creation:

```
mysql> create table emp(id int primary key, name varchar(50), salary int);
```

=================================================

## Primary Key after table creation:

```
mysql> create table emp(id int, name varchar(50), salary int);

mysql> alter table emp add primary key(id);
```

=================================================

## foreign key without on update cascade & on delete cascade

```
mysql> create table emp(id int primary key, name varchar(50), salary int);

mysql> create table dept(id int primary key, dept_name varchar(50));

mysql> alter table emp add dept_id int;

mysql> alter table emp add foreign key(dept_id) references dept(id);

mysql> drop table emp;

mysql> drop table dept;
```

```
================================================

## foreign key with on update cascade & on delete cascade

mysql> create table emp(id int primary key, name varchar(50), salary int);

mysql> create table dept(id int primary key, dept_name varchar(50));

mysql> alter table emp add dept_id int;

mysql> alter table emp add foreign key(dept_id) references dept(id) on update
cascade on delete cascade;

mysql> drop table emp;

mysql> drop table dept;

================================================

## foreign in single sql query with on update cascade & on delete cascade

mysql> create table dept(id int primary key, dept_name varchar(50));

mysql> create table emp(id int primary key, name varchar(50), salary int,
dept_id int, foreign key(dept_id) references dept(id) on update cascade on
delete cascade);

=================================================

mysql> use advance_java;

mysql> drop table emp;

mysql> drop table dept;

mysql> create table emp(id int primary key, name varchar(50), salary int);

mysql> select max(salary) from emp;

mysql> select min(salary) from emp;

mysql> select sum(salary) from emp;

mysql> select count(salary) from emp;

mysql> select count(*) from emp;

mysql> select * from emp;

mysql> select * from emp order by salary;

mysql> select * from emp order by salary desc;

mysql> select * from emp order by name;

mysql> select * from emp order by name desc;

mysql> select * from emp where id = 1;

mysql> select * from emp where name = 'abc';

mysql> select * from emp where name = 'a';
```

```
mysql> select * from emp where name like 'a';

mysql> select * from emp where name like 'a%';

==========================================

## limit

mysql> select * from emp;

mysql> select * from emp limit 0, 2;

mysql> select * from emp limit 2, 2;

============================================

## highest salary with limit & without limit

mysql> select * from emp;

mysql> select * from emp order by salary;

mysql> select * from emp order by salary desc;

mysql> select * from emp order by salary desc limit 0, 1;

mysql> select * from emp order by salary desc limit 1, 1;

mysql> select * from emp order by salary desc limit 0, 2;

mysql> select max(salary) from emp;

mysql> select max(salary) from emp where salary < (select max(salary) from emp);

mysql> select * from emp where salary = (select max(salary) from emp where
salary < (select max(salary) from emp));

mysql> select * from emp where salary = (select max(salary) from emp where
salary < (select max(salary) from emp where salary < (select max(salary) from
emp)));

=====================================================

## lowest salary with limit & without limit

mysql> select * from emp;

mysql> select * from emp order by salary;

mysql> select * from emp order by salary;

mysql> select * from emp order by salary limit 0, 1;

mysql> select * from emp order by salary limit 1, 1;

mysql> select * from emp order by salary limit 0, 2;

mysql> select min(salary) from emp;

mysql> select min(salary) from emp where salary > (select min(salary) from emp);

mysql> select * from emp where salary = (select min(salary) from emp where
salary > (select min(salary) from emp));
```

```
mysql> select * from emp where salary = (select min(salary) from emp where
salary > (select min(salary) from emp where salary > (select min(salary) from
emp)));
```

======================================================

## aliases

```
mysql> select emp.id as emp_id, name, salary from emp;

mysql> select emp.id as emp_id, name as emp_name, salary as emp_salary from emp;

mysql> select e.id as emp_id, name as emp_name, salary as emp_salary from emp as
e;

mysql> select e.id  emp_id, name emp_name, salary emp_salary from emp e;

mysql> select e.id as emp_id, name as emp_name, salary as emp_salary, d.id as
dept_id, dept_name as dept_namee from emp as e, dept as d where e.dept_id =
d.id;
```

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## joins

```
mysql> select * from emp;
+----+-----------+--------+
| id | name      | salary |
+----+-----------+--------+
|  1 | abc       |   1000 |
|  2 | xyz       |    100 |
|  3 | pqr       |    700 |
+----+-----------+--------+

mysql> select * from dept;
+-----+-----------+
| id  | dept_name |
+-----+-----------+
|   1 | sales     |
|   2 | marketing |
|   3 | it        |
| 100 | accounts  |
+-----+-----------+

mysql> select * from emp inner join dept on emp.id = dept.id;
+----+------+--------+----+-----------+
| id | name | salary | id | dept_name |
+----+------+--------+----+-----------+
|  1 | abc  |   1000 |  1 | sales     |
|  2 | xyz  |    100 |  2 | marketing |
|  3 | pqr  |    700 |  3 | it        |
+----+------+--------+----+-----------+

mysql> select * from emp left join dept on emp.id = dept.id;
+----+-----------+--------+------+-----------+
| id | name      | salary | id   | dept_name |
+----+-----------+--------+------+-----------+
|  1 | abc       |   1000 |    1 | sales     |
|  2 | xyz       |    100 |    2 | marketing |
|  3 | pqr       |    700 |    3 | it        |
|  4 | vinjan    |   1700 | NULL | NULL      |
|  5 | suraj     |   1100 | NULL | NULL      |
|  6 | priya     |   2100 | NULL | NULL      |
|  7 | madhumita |   1200 | NULL | NULL      |
```

```
+----+----------+--------+------+-----------+

mysql> select * from emp right join dept on emp.id = dept.id;
+------+------+--------+-----+-----------+
| id   | name | salary | id  | dept_name |
+------+------+--------+-----+-----------+
|    1 | abc  |   1000 |   1 | sales     |
|    2 | xyz  |    100 |   2 | marketing |
|    3 | pqr  |    700 |   3 | it        |
| NULL | NULL |   NULL | 100 | accounts  |
+------+------+--------+-----+-----------+

mysql> select * from emp left join dept on emp.id = dept.id union select * from
emp right join dept on emp.id = dept.id;
+------+-----------+--------+------+-----------+
| id   | name      | salary | id   | dept_name |
+------+-----------+--------+------+-----------+
|    1 | abc       |   1000 |    1 | sales     |
|    2 | xyz       |    100 |    2 | marketing |
|    3 | pqr       |    700 |    3 | it        |
|    4 | vinjan    |   1700 | NULL | NULL      |
|    5 | suraj     |   1100 | NULL | NULL      |
|    6 | priya     |   2100 | NULL | NULL      |
|    7 | madhumita |   1200 | NULL | NULL      |
| NULL | NULL      |   NULL |  100 | accounts  |
+------+-----------+--------+------+-----------+

mysql> select * from emp left join dept on emp.id = dept.id where dept.id is
null union select * from emp right join dept on emp.id = dept.id where emp.id is
null;
+------+-----------+--------+------+-----------+
| id   | name      | salary | id   | dept_name |
+------+-----------+--------+------+-----------+
|    4 | vinjan    |   1700 | NULL | NULL      |
|    5 | suraj     |   1100 | NULL | NULL      |
|    6 | priya     |   2100 | NULL | NULL      |
|    7 | madhumita |   1200 | NULL | NULL      |
| NULL | NULL      |   NULL |  100 | accounts  |
+------+-----------+--------+------+-----------+

===============================================================================

# testing

mysql> select * from emp left join dept on emp.id = dept.id;
+----+-----------+--------+------+-----------+
| id | name      | salary | id   | dept_name |
+----+-----------+--------+------+-----------+
|  1 | abc       |   1000 |    1 | sales     |
|  2 | xyz       |    100 |    2 | marketing |
|  3 | pqr       |    700 |    3 | it        |
|  4 | vinjan    |   1700 | NULL | NULL      |
|  5 | suraj     |   1100 | NULL | NULL      |
|  6 | priya     |   2100 | NULL | NULL      |
|  7 | madhumita |   1200 | NULL | NULL      |
+----+-----------+--------+------+-----------+

mysql> select * from emp left join dept on emp.id = dept.id where dept.id is
null;
+----+-----------+--------+------+-----------+
| id | name      | salary | id   | dept_name |
+----+-----------+--------+------+-----------+
|  4 | vinjan    |   1700 | NULL | NULL      |
|  5 | suraj     |   1100 | NULL | NULL      |
```

```
| 6 | priya     |   2100 | NULL | NULL       |
| 7 | madhumita |   1200 | NULL | NULL       |
+----+-----------+--------+------+-----------+

mysql> select * from emp right join dept on emp.id = dept.id;
+------+------+--------+-----+-----------+
| id   | name | salary | id  | dept_name |
+------+------+--------+-----+-----------+
|    1 | abc  |   1000 |   1 | sales     |
|    2 | xyz  |    100 |   2 | marketing |
|    3 | pqr  |    700 |   3 | it        |
| NULL | NULL |   NULL | 100 | accounts  |
+------+------+--------+-----+-----------+

mysql> select * from emp right join dept on emp.id = dept.id where emp.id is
null;
+------+------+--------+-----+-----------+
| id   | name | salary | id  | dept_name |
+------+------+--------+-----+-----------+
| NULL | NULL |   NULL | 100 | accounts  |
+------+------+--------+-----+-----------+

mysql> select * from emp left join dept on emp.id = dept.id where dept.id is
null union select * from emp right join dept on emp.id = dept.id where emp.id is
null;
+------+-----------+--------+------+-----------+
| id   | name      | salary | id   | dept_name |
+------+-----------+--------+------+-----------+
|    4 | vinjan    |   1700 | NULL | NULL      |
|    5 | suraj     |   1100 | NULL | NULL      |
|    6 | priya     |   2100 | NULL | NULL      |
|    7 | madhumita |   1200 | NULL | NULL      |
| NULL | NULL      |   NULL |  100 | accounts  |
+------+-----------+--------+------+-----------+


================================================================

mysql> create table marksheet(id int primary key, roll_no int, name varchar(30),
physics int, chemistry int, maths int);

mysql> select * from marksheet;
+----+---------+-----------+---------+-----------+-------+
| id | roll_no | name      | physics | chemistry | maths |
+----+---------+-----------+---------+-----------+-------+
| 1  |     101 | vinjal    |      76 |        78 |    98 |
| 2  |     102 | suraj     |      78 |        88 |    99 |
| 3  |     103 | priya     |      67 |        66 |    89 |
| 4  |     104 | madhumita |      78 |        67 |    89 |
| 5  |     105 | abc       |      11 |        22 |    33 |
| 6  |     106 | xyz       |      23 |        43 |    52 |
+----+---------+-----------+---------+-----------+-------+

mysql> select *, (physics + chemistry + maths) as total from marksheet;
+----+---------+-----------+---------+-----------+-------+-------+
| id | roll_no | name      | physics | chemistry | maths | total |
+----+---------+-----------+---------+-----------+-------+-------+
| 1  |     101 | vinjal    |      76 |        78 |    98 |   252 |
| 2  |     102 | suraj     |      78 |        88 |    99 |   265 |
| 3  |     103 | priya     |      67 |        66 |    89 |   222 |
| 4  |     104 | madhumita |      78 |        67 |    89 |   234 |
| 5  |     105 | abc       |      11 |        22 |    33 |    66 |
| 6  |     106 | xyz       |      23 |        43 |    52 |   118 |
+----+---------+-----------+---------+-----------+-------+-------+
```

```
mysql> select *, (physics + chemistry + maths) as total from marksheet order by
total;
+----+---------+-----------+---------+-----------+-------+-------+
| id | roll_no | name      | physics | chemistry | maths | total |
+----+---------+-----------+---------+-----------+-------+-------+
|  5 |     105 | abc       |      11 |        22 |    33 |    66 |
|  6 |     106 | xyz       |      23 |        43 |    52 |   118 |
|  3 |     103 | priya     |      67 |        66 |    89 |   222 |
|  4 |     104 | madhumita |      78 |        67 |    89 |   234 |
|  1 |     101 | vinjal    |      76 |        78 |    98 |   252 |
|  2 |     102 | suraj     |      78 |        88 |    99 |   265 |
+----+---------+-----------+---------+-----------+-------+-------+

mysql> select *, (physics + chemistry + maths) as total from marksheet order by
total desc;
+----+---------+-----------+---------+-----------+-------+-------+
| id | roll_no | name      | physics | chemistry | maths | total |
+----+---------+-----------+---------+-----------+-------+-------+
|  2 |     102 | suraj     |      78 |        88 |    99 |   265 |
|  1 |     101 | vinjal    |      76 |        78 |    98 |   252 |
|  4 |     104 | madhumita |      78 |        67 |    89 |   234 |
|  3 |     103 | priya     |      67 |        66 |    89 |   222 |
|  6 |     106 | xyz       |      23 |        43 |    52 |   118 |
|  5 |     105 | abc       |      11 |        22 |    33 |    66 |
+----+---------+-----------+---------+-----------+-------+-------+

mysql> select *, (physics + chemistry + maths) as total from marksheet order by
total desc limit 0, 3;
+----+---------+-----------+---------+-----------+-------+-------+
| id | roll_no | name      | physics | chemistry | maths | total |
+----+---------+-----------+---------+-----------+-------+-------+
|  2 |     102 | suraj     |      78 |        88 |    99 |   265 |
|  1 |     101 | vinjal    |      76 |        78 |    98 |   252 |
|  4 |     104 | madhumita |      78 |        67 |    89 |   234 |
+----+---------+-----------+---------+-----------+-------+-------+

mysql> select *, (physics + chemistry + maths) as total from marksheet where
physics >= 33 and chemistry >= 33 and maths >=33 order by total desc limit 0, 3;
+----+---------+-----------+---------+-----------+-------+-------+
| id | roll_no | name      | physics | chemistry | maths | total |
+----+---------+-----------+---------+-----------+-------+-------+
|  2 |     102 | suraj     |      78 |        88 |    99 |   265 |
|  1 |     101 | vinjal    |      76 |        78 |    98 |   252 |
|  4 |     104 | madhumita |      78 |        67 |    89 |   234 |
+----+---------+-----------+---------+-----------+-------+-------+

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mysql> select salary, count(*) from emp group by salary;
```