

```
mysql> desc staff
```

```
-> ;
```

Field	Type	Null	Key	Default	Extra
regno	int	YES		NULL	
name	char(30)	YES		NULL	
dept	char(10)	NO	PRI	NULL	
phno	int	YES		NULL	

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

```
mysql> alter table staff add column gender char(1);
Query OK, 0 rows affected (0.03 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> desc staff
-> ;
```

Field	Type	Null	Key	Default	Extra
regno	int	YES		NULL	
name	char(30)	YES		NULL	
dept	char(10)	NO	PRI	NULL	
phno	int	YES		NULL	
gender	char(1)	YES		NULL	

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

1)

```
mysql> SELECT * FROM college;
```

sno	name	regno	dept	age	DOB	facno
1	YUGA	191811316	cse	19	2000	200
2	SRI	191811382	cse	19	2000	201
3	ABDUL	191811362	cse	20	1999	202
4	SUPRIYA	191811322	cse	20	1999	203

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

```
mysql> SELECT * FROM fac1;
```

FacNo	FactName	Gender	DOB	MobileNo	DOJ
1	YUGA	M	2000	123456789	2001

```
1 row in set (0.00 sec)
```

```
mysql> SELECT * FROM department;
```

deptno	deptname	depthead
1	cse	hari

```
1 row in set (0.00 sec)
```

```
mysql> insert into course values(1,'prgm','u',2000,201,2001);  
Query OK, 1 row affected (0.00 sec)
```

```
mysql> select * from course;
```

courseno	coursedesc	coursetype	semno	hallno	Facno
1	prgm	u	2000	201	2001

```
1 row in set (0.00 sec)
```

2)

```
mysql> update student set regno=324 where name='mukesh';  
Query OK, 0 rows affected (0.03 sec)
```

3)

```
mysql> delete from faculty where FacName='Ramu';  
Query OK, 1 row affected (0.00 sec)
```

4)

```
mysql> insert into staff values('192211','kranthi','786545','m');  
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select * from staff  
-> ;
```

regno	name	phno	gender
192211	kranthi	786545	m

```
1 row in set (0.00 sec)
```

```
mysql> desc staff
```

```
-> ;
```

Field	Type	Null	Key	Default	Extra
regno	int	YES		NULL	
name	char(30)	YES		NULL	
dept	char(10)	YES		NULL	
phno	int	YES		NULL	

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

```
mysql> insert into staff values('194411','berry','123456','f');  
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select * from staff;
```

regno	name	phno	gender
192211	kranthi	786545	m
193311	mango	34567364	f
194411	berry	123456	f

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

## Program:-1

```
mysql> DELIMITER //
mysql> CREATE FUNCTION customerLevel(p_CREDITLIMIT INT) RETURNS VARCHAR(10)
-> DETERMINISTIC
-> BEGIN
-> DECLARE lvl varchar(10);
-> IF p_CREDITLIMIT < 50000 THEN
-> SET lvl='PLATINUM';
-> ELSEIF(p_CREDITLIMIT <=50000 AND p_CREDITLIMIT >=10000) THEN
-> SET lvl = 'GOLD';
-> ELSEIF p_CREDITLIMIT < 10000 THEN
-> SET lvl = 'SILVER';
-> END IF;
-> RETURN (lvl);
-> END
-> //
Query OK, 0 rows affected (0.00 sec)

mysql> SELECT NAME,customerLevel(CREDITLIMIT)
-> FROM CUSTOMER
-> ORDER BY NAME //
```

## Program:-2

```
mysql> DELIMITER $$
mysql> CREATE PROCEDURE find_fact(IN n INT)
-> BEGIN
-> SET @@GLOBAL.max_sp_recursion_depth=255;
-> SET @@SESSION.max_sp_recursion_depth=255;
-> CALL factorial(n,@fact);
-> SELECT @fact;
-> END
-> $$
Query OK, 0 rows affected (0.00 sec)

mysql> DELIMITER $$
mysql> CREATE PROCEDURE factorial(IN n INT,OUT fact INT)
-> BEGIN
-> IF n=1 THEN
-> SET fact:=1;
-> ELSE
-> CALL factorial(n-1,fact);
-> SET fact:=n*fact;
-> END IF;
-> END
-> $$
Query OK, 0 rows affected (0.01 sec)

mysql> CALL find_fact(5);
-> $$
+-----+
| @fact |
+-----+
|    120 |
+-----+
1 row in set (0.00 sec)

Query OK, 0 rows affected (0.01 sec)
```

```

1
mysql> DELIMITER //
mysql> CREATE FUNCTION CustomerLevel(p_CREDITLIMIT INT) RETURNS VARCHAR(10)
-> DETERMINISTIC
-> BEGIN
-> DECLARE lvl VARCHAR(10);
-> IF p_CREDITLIMIT > 50000 THEN
-> SET lvl = 'PLATINUM';
-> ELSEIF (p_CREDITLIMIT <= 50000 AND p_CREDITLIMIT >= 10000) THEN
-> SET lvl = 'GOLD';
-> ELSEIF p_CREDITLIMIT < 10000 THEN
-> SET lvl = 'SILVER';
-> END IF;
-> RETURN (lvl);
-> END
-> //
Query OK, 0 rows affected (0.00 sec)

mysql> SELECT NAME, CustomerLevel(CREDITLIMIT)
-> FROM CUSTOMER
-> ORDER BY NAME
-> //
ERROR 1054 (42S22): Unknown column 'NAME' in 'field list'
mysql> SELECT CNAME, CustomerLevel(CREDITLIMIT)
-> FROM CUSTOMER
-> ORDER BY NAME
-> //
ERROR 1054 (42S22): Unknown column 'NAME' in 'order clause'
mysql> SELECT CNAME, CustomerLevel(CREDITLIMIT) FROM CUSTOMER ORDER BY CNAME//
+-----+-----+
| CNAME | CustomerLevel(CREDITLIMIT) |
+-----+-----+
| DINESH | GOLD |
| NAGENDRA | PLATINUM |
| RAJA | GOLD |
| RAMU | SILVER |
+-----+-----+
4 rows in set (0.00 sec)

```

```

mysql> DELIMITER //
mysql> CREATE FUNCTION CustomerLevel(p_CREDITLIMIT INT) RETURNS VARCHAR(10)
-> DETERMINISTIC
-> BEGIN
-> DECLARE lvl VARCHAR(10);
-> IF p_CREDITLIMIT > 50000 THEN
-> SET lvl = 'PLATINUM';
-> ELSEIF (p_CREDITLIMIT <= 50000 AND p_CREDITLIMIT >= 10000) THEN
-> SET lvl = 'GOLD';
-> ELSEIF p_CREDITLIMIT < 10000 THEN
-> SET lvl = 'SILVER';
-> END IF;
-> RETURN (lvl);
-> END
-> //
Query OK, 0 rows affected (0.00 sec)

mysql> SELECT NAME, CustomerLevel(CREDITLIMIT)
-> FROM CUSTOMER
-> ORDER BY NAME
-> //
ERROR 1054 (42S22): Unknown column 'NAME' in 'field list'
mysql> SELECT CNAME, CustomerLevel(CREDITLIMIT)
-> FROM CUSTOMER
-> ORDER BY NAME
-> //
ERROR 1054 (42S22): Unknown column 'NAME' in 'order clause'
mysql> SELECT CNAME, CustomerLevel(CREDITLIMIT) FROM CUSTOMER ORDER BY CNAME//
+-----+-----+
| CNAME | CustomerLevel(CREDITLIMIT) |
+-----+-----+
| DINESH | GOLD |
| NAGENDRA | PLATINUM |
| RAJA | GOLD |
| RAMU | SILVER |
+-----+-----+
4 rows in set (0.00 sec)

```



## Program :-1

```
mysql> CREATE PROCEDURE student_info()  
-> select * from student_info;  
Query OK, 0 rows affected (0.00 sec)  
  
mysql> call student_info();  
+-----+-----+-----+-----+  
| stuid | name  | area      | subject |  
+-----+-----+-----+-----+  
| 201   | raj   | chennai   | dbms    |  
| 202   | rahul | hyderabad | ooad    |  
| 203   | rahim | munbai    | java    |  
| 204   | vikas | kochi     | python  |  
+-----+-----+-----+-----+  
4 rows in set (0.00 sec)  
  
Query OK, 0 rows affected (0.00 sec)
```

## Program :-2

```
mysql> DELIMITER $$  
mysql>  
mysql> CREATE PROCEDURE GetCustomerLevel(  
-> in p_customerNumber int(11),  
-> out p_customerLevel varchar(10))  
-> BEGIN  
-> DECLARE creditlim double;  
->  
-> SELECT creditlimit INTO creditlim  
-> FROM customers  
-> WHERE customerNumber = p_customerNumber;  
->  
-> IF creditlim > 50000 THEN  
-> SET p_customerLevel = 'PLATINUM';  
-> ELSEIF (creditlim <= 50000 AND creditlim >= 10000) THEN  
-> SET p_customerLevel = 'GOLD';  
-> ELSEIF creditlim < 10000 THEN  
-> SET p_customerLevel = 'SILVER';  
-> END IF;  
->  
-> END$$  
Query OK, 0 rows affected (0.00 sec)
```

```
mysql> create view stu_view as select regno,name and dob from stu;
Query OK, 0 rows affected (0.05 sec)

mysql> select * from stu_view;
+-----+-----+
| regno      | name and dob |
+-----+-----+
| 191811164   | 0            |
| 191811144   | 0            |
| 191811134   | 0            |
| 191811124   | 0            |
| 191811114   | 0            |
+-----+-----+
5 rows in set, 5 warnings (0.00 sec)

mysql> create index regno on stu(regno);
Query OK, 0 rows affected (0.36 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> show index from stu;
+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality |
+-----+-----+-----+-----+-----+-----+-----+
| stu   | 1          | regno    | 1            | regno       | A         | 5           |
+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)
```

1)

```
mysql> select faculty.facno,faculty.facname,department.deptno,department.deptname from faculty cross join department;
```

facno	facname	deptno	deptname
802	Ratnam	11	Sales

```
1 row in set (0.00 sec)
```

2)

```
mysql> select student.name,student.marks,course.courseno from student inner join course on student.course=course.courseno;
```

name	marks	courseno
Ramu	8	C00
Geetha	8	C00
Pooja	8	C00

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

3)

```
mysql> select faculty.facno,faculty.facname,department.deptno,department.deptname from faculty cross join department;
```

facno	facname	deptno	deptname
802	Ratnam	11	Sales

```
1 row in set (0.00 sec)
```

1)

mysql&gt; alter table student add primary key(city);

Query OK, 0 rows affected (0.14 sec)

mysql&gt; desc student;

Field	Type	Null	Key	Default	Extra
Regno	int(3)	YES		NULL	
Name	char(15)	YES		NULL	
gender	char(1)	YES		NULL	
Dob	int(10)	YES		NULL	
mobilenno	int(10)	YES		NULL	
city	char(10)	NO	PRI	NULL	

6 rows in set (0.00 sec)

2)

mysql&gt; alter table faculty add primary key(facno);

Query OK, 0 rows affected (0.07 sec)

Records: 0 Duplicates: 0 Warnings: 0

mysql&gt; alter table faculty add check(gender='M' or 'F');

Query OK, 0 rows affected (0.06 sec)

Records: 0 Duplicates: 0 Warnings: 0

mysql&gt; desc faculty;

Field	Type	Null	Key	Default	Extra
Facno	int(3)	NO	PRI	NULL	
FacName	char(15)	YES		NULL	
gender	char(1)	YES		NULL	
Dob	int(10)	YES		NULL	
mobilenno	int(10)	YES		NULL	
DOJ	int(10)	YES		NULL	

6 rows in set (0.00 sec)

4)

mysql&gt; alter table department add primary key(deptno);

Query OK, 0 rows affected (0.11 sec)

mysql&gt; desc department;

Field	Type	Null	Key	Default	Extra
deptno	int(10)	NO	PRI	NULL	
deptname	char(10)	YES		NULL	
depthead	char(10)	YES		NULL	

3 rows in set (0.00 sec)

```
mysql> DELIMITER //
```

```
mysql> CREATE TRIGGER before_student_update
```

```
  -> BEFORE UPDATE ON student
```

```
  -> FOR EACH ROW
```

```
  -> BEGIN
```

```
  -> INSERT INTO student_audit
```

```
  -> SET action = 'update',
```

```
  -> student_id = OLD.id,
```

```
  -> lastname = OLD.Name,
```

```
  -> changedat = NOW();
```

```
  -> END //
```

Query OK, 0 rows affected (0.06 sec)

```
mysql> DELIMITER;
```

```
mysql> update student set name = 'tony stark_c' where id=3;
```

Query OK, 1 row affected (0.04 sec)

Rows matched: 1 Changed: 1 Warnings: 0

```
mysql> select * from student_audit;
```

```
+-----+-----+-----+-----+-----+-----+
| id | student_id | lastname   | changedat           | action |
+-----+-----+-----+-----+-----+-----+
| 1  |          3 | tony stark | 2019-08-12 13:07:44 | update |
+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)
```



## Program:-1

```
mysql> DELIMITER $$
mysql> CREATE PROCEDURE build_email_list (INOUT email_list varchar(4000))
-> BEGIN
-> DECLARE v_finished INTEGER DEFAULT 0;
-> DECLARE v_email varchar(100) DEFAULT "";
-> DECLARE email_cursor CURSOR FOR
-> SELECT email FROM employees;
-> DECLARE CONTINUE HANDLER FOR
-> NOT FOUND SET v_finished = 1;
-> OPEN email_cursor;
-> get_email:LOOP
-> FETCH email_cursor INTO v_email;
-> IF v_finished = 1 THEN
-> LEAVE get_email;
-> END IF;
-> SET email_list = CONCAT(v_email,";",email_list);
-> END LOOP get_email;
-> CLOSE email_cursor;
-> END $$
```

Query OK, 0 rows affected (0.00 sec)

```
mysql> DELIMITER ;
mysql> SET @email_list = "";
Query OK, 0 rows affected (0.00 sec)
```

```
mysql> CALL build_email_list(@email_list);
Query OK, 0 rows affected, 1 warning (0.00 sec)
```

```
mysql> select @email_list;
+-----+
| @email_list                                     |
+-----+
| stony@marvel.com;kclark@deconics.com;pharry@warnerbros.com; |
+-----+
1 row in set (0.00 sec)
```

1)

```
mysql> SELECT * FROM student;
```

sno	name	dept	age	DOB	Facno	gender
1	DNONI	cse	19	2000	7	M
2	virat	cse	19	2000	71	M
3	sindhu	cse	18	2001	71	F
4	VIJAY DEVARAKONDA	cse	21	1998	3	M

4 rows in set (0.00 sec)

2)

```
mysql> select name from student where gender="f";
```

name
nani
ram

3)

```
mysql> select * from course;
```

courseno	coursedes	coursetype	semno	hallno	Facno
1	prgm	u	2000	201	2001

1 row in set (0.00 sec)

4)

```
mysql> select * from course;
```

courseno	coursedes	coursetype	semno	hallno	Facno
1	prgm	u	2000	201	2001

1 row in set (0.00 sec)

5)

```
mysql> select * from course;
```

courseno	coursedes	coursetype	semno	hallno	Facno
1	prgm	u	2000	201	2001

1 row in set (0.00 sec)

6)

```
mysql> select * from student where name like '%sh';
```

7)

```
mysql> select * from student where name like 'ma%';
```

8)

```
mysql> SELECT * FROM student;
```

sno	name	dept	age	DOB	Facno	gender
1	DHONI	cse	19	2000	7	M
2	virat	cse	19	2000	71	M
3	sindhu	cse	18	2001	71	F
4	VIJAY_DEVARAKONDA	cse	21	1998	3	M

4 rows in set (0.00 sec)

9)

```
mysql> SELECT * FROM student;
```

sno	name	dept	age	DOB	Facno	gender
1	DHONI	cse	19	2000	7	M
2	virat	cse	19	2000	71	M
3	sindhu	cse	18	2001	71	F
4	VIJAY_DEVARAKONDA	cse	21	1998	3	M

4 rows in set (0.00 sec)

10)

```
mysql> select * from student where 'name' like '%n';
Empty set (0.00 sec)
```



1)

```
mysql> select course from course;
ERROR 1054 (42S22): Unknown column 'course' in 'field list'
mysql> select * from course;
+-----+-----+-----+-----+
| courseno | regno      | coursedesc | scores |
+-----+-----+-----+-----+
| C001     | 191811306 | mathematics | 93     |
| C001     | 191811307 | mathematics | 80     |
| C002     | 191811306 | OOAD       | 75     |
| C002     | 191811307 | OOAD       | 85     |
| C003     | 191811306 | DBMS       | 91     |
| C003     | 191811307 | DBMS       | 93     |
+-----+-----+-----+-----+
6 rows in set (0.00 sec)
```

2)

```
mysql> select courseno from course where scores between 50 and 80;
+-----+
| courseno |
+-----+
| C001     |
| C002     |
+-----+
2 rows in set (0.00 sec)
```

1)

```
mysql> select avg(scores) from course;
+-----+
| avg(scores) |
+-----+
| 86.1667     |
+-----+
1 row in set (0.00 sec)
```

2)

```
mysql> select max(scores),min(scores) from course;
+-----+-----+
| max(scores) | min(scores) |
+-----+-----+
| 93          | 75          |
+-----+-----+
1 row in set (0.00 sec)
```

3)

```
mysql> select max(scores),min(scores),avg(scores) from course;
+-----+-----+-----+
| max(scores) | min(scores) | avg(scores) |
+-----+-----+-----+
| 93          | 75          | 86.1667     |
+-----+-----+-----+
1 row in set (0.00 sec)
```

4)

```
mysql> select avg(scores) from course where courseno like 'C00%';
+-----+
| avg(scores) |
+-----+
| 68.2000     |
+-----+
```

5)

```
mysql> select sum(scores) from course;
+-----+
| sum(scores) |
+-----+
|          517 |
+-----+
1 row in set (0.00 sec)
```

6)

```
mysql> select coursedesc,count(coursetype) from course;
+-----+-----+
| coursedesc | count(coursetype) |
+-----+-----+
| mathematics |          5 |
+-----+-----+
1 row in set (0.00 sec)
```

7)

```
mysql> select courseno,coursedesc,count(regno) from course where regno like '191811%';
+-----+-----+-----+
| courseno | coursedesc | count(regno) |
+-----+-----+-----+
| C001     | mathematics |          0 |
+-----+-----+-----+
1 row in set (0.00 sec)
```

1)

```
mysql> select courseno,count(courseno) from course group by courseno;
```

courseno	count(courseno)
1	1

1 row in set (0.06 sec)

2)

```
mysql> select courseno,count(score) from course group by courseno;
```

courseno	count(score)
1	1

1 row in set (0.00 sec)

3)

```
mysql> select name,Dob from student order by regno;
```

sno	name	regno	Dob
1	mukesh	191811309	2001
2	nani	191811319	2001
3	ram	191811320	2000
4	ntr	191811321	2000

4)

```
mysql> select * from faculty order by Dob;
```

Facno	FacName	gender	Dob	mobilen	Dob
2	somu	m	1999	465415456	1987
1	ramu	M	2000	90515252	2001

2 rows in set (0.06 sec)

1)

```
mysql> select * from stud2 where marks>(select avg(marks) from stud2);
+-----+-----+-----+-----+-----+-----+
| regno | name | courseno | marks | facultydoj | assements |
+-----+-----+-----+-----+-----+-----+
| 1234 | nani | coo1 | 50 | 2001 | 5 |
| 1254 | ramu | coo1 | 50 | 2002 | 4 |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

2)

```
mysql> select name from stud2 where assements>1;
+-----+
| name |
+-----+
| nani |
| ramu |
| ravi |
+-----+
3 rows in set (0.00 sec)
```

3)

```
mysql> select * from faculty order by doj limit 1;
+-----+-----+-----+-----+-----+-----+-----+
| FacNo | FacultyName | gender | Dob | Doj | Mobilen | DeptNo |
+-----+-----+-----+-----+-----+-----+-----+
| fo1 | chalthu | m | 0000-00-00 | 0000-00-00 | 2147483647 | cse |
+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)
```

4)

```
mysql> select courseno,marks from stud2 where marks>(select avg(marks) from stud2) order by courseno;
+-----+-----+
| courseno | marks |
+-----+-----+
| coo1 | 50 |
| coo1 | 50 |
+-----+-----+
2 rows in set (0.00 sec)
```