```
+----+
 Database
+----+
 information_schema
 moviedatabase
 mysql
 performance_schema
 sakila
 sys
 world
+----+
7 rows in set (0.00 sec)
mysql> CREATE DATABASE COMPANYDATABASE;
Query OK, 1 row affected (0.01 sec)
mysql> SHOW DATABASES;
+----+
 Database
 companydatabase
 information_schema
 moviedatabase
 mysql
 performance_schema
 sakila
 sys
 world
+----+
8 rows in set (0.00 sec)
mysql> USE COMPANYDATABASE;
Database changed
mysql>
```

mysql> SHOW DATABASES;

```
mysal> CREATE TABLE EMPLOYEE
   -> (
   -> SSN
                   CHAR(9),
   -> FNAME
                   VARCHAR(20).
                   VARCHAR(20).
   -> LNAME
                   VARCHAR(50),
   -> ADDRESS
   -> SEX
                   CHAR.
   -> SALARY
                  DECIMAL(10,2),
   -> SUPER SSN
                  CHAR(9),
   -> DNO
   -> PRIMARY KEY (SSN),
   -> FOREIGN KEY (SUPER_SSN) REFERENCES EMPLOYEE (SSN)
   -> );
Query OK, 0 rows affected (0.07 sec)
mysal> DESCRIBE EMPLOYEE;
+----<del>-</del>
 Field
                      | Null | Key | Default | Extra
          Type
SSN
           char(9)
                             PRI
                                  NULL
                      YES
 FNAME
          varchar(20)
                                  NULL
 LNAME
          varchar(20)
                       YES
                                  NULL
 ADDRESS
          varchar(50)
                       YES
                                  NULL
 SEX
           char(1)
                       YES
                                  NULL
          decimal(10,2) | YES
 SALARY
                                  NULL
 SUPER_SSN | char(9)
                       YES
                             MUL
                                  NULL
                      YES
 DNO
          int
                                  NULL
+----+---+----+----+----+
8 rows in set (0.00 sec)
mysql>
```

```
mvsal> CREATE TABLE DEPARTMENT
   -> (
   -> DNO
                  INT,
                  VARCHAR(20),
   -> DNAME
   -> MGR SSN
                  CHAR(9),
   -> MGR START DATE DATE,
   -> PRIMARY KEY (DNO),
   -> FOREIGN KEY (MGR SSN) REFERENCES EMPLOYEE (SSN)
   -> );
Ouery OK, 0 rows affected (0.04 sec)
mysal> DESCRIBE DEPARTMENT;
+----+
 Field
                        | Null | Kev | Default | Extra
+-----
 DNO
              int
                              PRI | NULL
 DNAME
              varchar(20) | YES
                                   NULL
 MGR SSN
              char(9)
                         YES
                              MUL
                                   NULL
                        YES
 MGR START DATE | date
                                   NULL
4 rows in set (0.00 sec)
mysql> ALTER TABLE EMPLOYEE ADD FOREIGN KEY (DNO) REFERENCES DEPARTMENT (DNO);
Ouerv OK, 0 rows affected (0.08 sec)
Records: 0 Duplicates: 0 Warnings: 0
mvsal> DESCRIBE EMPLOYEE:
+----+
 Field
                      | Null | Key | Default | Extra
+----+
                           | PRI | NULL
 SSN
          char(9)
 FNAME
                                 NULL
          varchar(20)
                       YES
                       YES
 LNAME
           varchar(20)
                                 NULL
 ADDRESS
          varchar(50)
                       YES
                                 NULL
 SEX
          char(1)
                       YES
                                 NULL
 SALARY
          decimal(10,2)
                       YES
                                 NULL
 SUPER_SSN | char(9)
                       YES | MUL | NULL
                      YES | MUL | NULL
 DNO
          int
8 rows in set (0.00 sec)
```

```
mysql> CREATE TABLE DLOCATION
   -> (
   -> DNO
                  INT,
   -> DNAME
                  VARCHAR(50),
  -> PRIMARY KEY (DNO, DNAME),
   -> FOREIGN KEY (DNO) REFERENCES DEPARTMENT (DNO)
   -> );
Query OK, 0 rows affected (0.08 sec)
mvsal> DESCRIBE DLOCATION:
+----+
| Field | Type
                | Null | Key | Default | Extra
+----+
 DNO | int
                 I NO | PRI | NULL
 DNAME | varchar(50) | NO | PRI | NULL
+----+
2 rows in set (0.00 sec)
mysql> CREATE TABLE PROJECT
   -> (
   -> PNO
                  INT,
                  VARCHAR(20),
   -> PNAME
   -> PLOCATION
                  VARCHAR(50),
   -> DNO
                  INT,
  -> PRIMARY KEY (PNO),
   -> FOREIGN KEY (DNO) REFERENCES DEPARTMENT (DNO)
  -> );
Query OK, 0 rows affected (0.06 sec)
mysql> DESCRIBE PROJECT;
Field
                    | Null | Key | Default | Extra
                     NO | PRI | NULL
 PNO
          int
                               NULL
 PNAME
          varchar(20) YES
 PLOCATION | varchar(50) | YES
                               NULL
          int
                    I YES | MUL | NULL
+----+
4 rows in set (0.00 sec)
```

```
mysql> CREATE TABLE WORKS ON
   -> (
   -> SSN
                  CHAR(9),
   -> PNO
                  INT,
   -> HOURS
                  DECIMAL(3,1),
   -> PRIMARY KEY (SSN, PNO),
   -> FOREIGN KEY (PNO) REFERENCES PROJECT (PNO),
   -> FOREIGN KEY (SSN) REFERENCES EMPLOYEE (SSN)
   -> );
Query OK, 0 rows affected (0.06 sec)
mysql> DESCRIBE WORKS ON;
+----+
 Field | Type
                  | Null | Key | Default | Extra |
      char(9)
                       | PRI | NULL
 PNO
       int
                        PRI | NULL
 HOURS | decimal(3,1) | YES
                            NULL
+----+
3 rows in set (0.01 sec)
mysql> SHOW TABLES;
+----+
 Tables in companydatabase
+-----
 department
 dlocation
 employee
 project
 works on
5 rows in set (0.00 sec)
```

```
mysal> INSERT INTO EMPLOYEE VALUES
    -> ('ABCDACC01', 'AHANA', 'K', 'MANGALORE', 'F', '350000', NULL, NULL);
Query OK, 1 row affected (0.01 sec)
mvsal> INSERT INTO EMPLOYEE VALUES
    -> ('ABCDACC02', 'SANTOSH', 'KUMAR', 'MANGALORE', 'M', '300000', NULL, NULL);
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO EMPLOYEE VALUES
    -> ('ABCDCSE01', 'JAMES', 'SMITH', 'BANGALORE', 'M', '500000', NULL, NULL);
Ouerv OK, 1 row affected (0.00 sec)
mysql> INSERT INTO EMPLOYEE VALUES
    -> ('ABCDCSE02', 'HEARN', 'BAKER', 'BANGALORE', 'M', '700000', NULL, NULL);
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO EMPLOYEE VALUES
    -> ('ABCDCSE03', 'EDWARD', 'SCOTT', 'MYSORE', 'M', '500000', NULL, NULL);
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO EMPLOYEE VALUES
    -> ('ABCDCSE04', 'PAVAN', 'HEGDE', 'MANGALORE', 'M', '650000', NULL, NULL);
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO EMPLOYEE VALUES
    -> ('ABCDCSE05', 'GIRISH', 'MALYA', 'MYSORE', 'M', '450000', NULL, NULL);
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO EMPLOYEE VALUES
    -> ('ABCDCSE06', 'ALICE', 'SMITH', 'BANGALORE', 'F', '800000', NULL, NULL);
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO EMPLOYEE VALUES
    -> ('ABCDECE01', 'JOHN', 'SCOTT', 'BANGALORE', 'M', '500000', NULL, NULL);
Query OK, 1 row affected (0.01 sec)
mysql> INSERT INTO EMPLOYEE VALUES
    -> ('ABCDISE01', 'VEENA', 'M', 'MYSORE', 'F', '600000', NULL, NULL);
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO EMPLOYEE VALUES
    -> ('ABCDIIT01', 'NAGESH', 'HR', 'BANGALORE', 'M', '500000', NULL, NULL);
Query OK, 1 row affected (0.00 sec)
mysql>
```

```
mysql> SELECT * FROM EMPLOYEE;
            FNAME | LNAME | ADDRESS | SEX | SALARY
  ABCDACC01 AHANA
                      K
                              MANGALORE | F
                                                 350000.00
                                                            NULL
                                                                        NULL
  ABCDACC02
            SANTOSH
                      KUMAR
                              MANGALORE
                                                 300000.00
                                                            NULL
                                                                        NULL
  ABCDCSE01
             JAMES
                       SMITH
                              BANGALORE
                                                 500000.00
                                                            NULL
                                                                       NULL
  ABCDCSE02
            HEARN
                       BAKER
                              BANGALORE | M
                                                 700000.00
                                                            NULL
                                                                        NULL
  ABCDCSE03
             EDWARD
                       SCOTT
                              MYSORE
                                                 500000.00
                                                            NULL
                                                                        NULL
                             MANGALORE M
                                                 650000.00
                                                                       NULL
  ABCDCSE04
            PAVAN
                       HEGDE
                                                            NULL
  ABCDCSE05
            GIRISH
                      MALYA
                              MYSORE
                                                 450000.00
                                                            NULL
                                                                        NULL
  ABCDCSE06
            ALICE
                      SMITH
                              BANGALORE | F
                                                 800000.00
                                                            NULL
                                                                        NULL
  ABCDECE01 JOHN
                      SCOTT
                              BANGALORE M
                                                 500000.00 | NULL
                                                                       NULL
 ABCDIIT01 | NAGESH
                      HR
                              BANGALORE M
                                                 500000.00 | NULL
                                                                       NULL
 ABCDISE01 | VEENA
                              MYSORE
                                                 600000.00 | NULL
                                                                       NULL
11 rows in set (0.00 sec)
mysql> INSERT INTO DEPARTMENT VALUES
    -> ('1', 'ACCOUNTS', 'ABCDACC02', '2001-01-01');
Query OK, 1 row affected (0.00 sec)
mysgl> INSERT INTO DEPARTMENT VALUES
   -> ('2', 'IT', 'ABCDIIT01', '2016-08-01');
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO DEPARTMENT VALUES
    -> ('3', 'ECE', 'ABCDECE01', '2008-06-01');
Query OK, 1 row affected (0.00 sec)
mvsql> INSERT INTO DEPARTMENT VALUES
    -> ('4', 'ISE', 'ABCDISE01', '2015-06-01');
Query OK, 1 row affected (0.00 sec)
mvsql> INSERT INTO DEPARTMENT VALUES
    -> ('5', 'CSE', 'ABCDCSE05', '2002-06-01');
Query OK, 1 row affected (0.00 sec)
mysql> SELECT * FROM DEPARTMENT;
 DNO | DNAME | MGR SSN | MGR START DATE
   1 | ACCOUNTS | ABCDACC02 | 2001-01-01
   2 | IT
                  ABCDIIT01
                             2016-08-01
   3 ECE
                  ABCDECE01
                             2008-06-01
   4 ISE
                  ABCDISE01 | 2015-06-01
   5 | CSE
                 ABCDCSE05 | 2002-06-01
```

5 rows in set (0.00 sec)

```
mysql> UPDATE EMPLOYEE
   -> SET SUPER_SSN = 'ABCDACC02', DNO = '1'
    -> WHERE SSN = 'ABCDACC01';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0
mysal> UPDATE EMPLOYEE
    -> SET SUPER_SSN = NULL, DNO = '1'
   -> WHERE SSN = 'ABCDACC02';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0
mysql> UPDATE EMPLOYEE
   -> SET SUPER_SSN = 'ABCDCSE02', DNO = '5'
   -> WHERE SSN = 'ABCDCSE01';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0
mysql> UPDATE EMPLOYEE
   -> SET SUPER_SSN = 'ABCDCSE03', DNO = '5'
   -> WHERE SSN = 'ABCDCSE02';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0
mysal> UPDATE EMPLOYEE
    -> SET SUPER_SSN = 'ABCDCSE04', DNO = '5'
   -> WHERE SSN = 'ABCDCSE03';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0
mysql> UPDATE EMPLOYEE
   -> SET SUPER_SSN = 'ABCDCSE05', DNO = '5'
   -> WHERE SSN = 'ABCDCSE04';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0
mysql> UPDATE EMPLOYEE
   -> SET SUPER_SSN = 'ABCDCSE06', DNO = '5'
   -> WHERE SSN = 'ABCDCSE05';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0
mysql>
```

```
mysal> UPDATE EMPLOYEE
    -> SET SUPER SSN = NULL, DNO = '5'
    -> WHERE SSN = 'ABCDCSE06';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0
mysql> UPDATE EMPLOYEE
   -> SET SUPER SSN = NULL, DNO = '3'
   -> WHERE SSN = 'ABCDECE01';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0
mysal> UPDATE EMPLOYEE
   -> SET SUPER SSN = NULL, DNO = '4'
   -> WHERE SSN = 'ABCDISE01';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0
mysql> UPDATE EMPLOYEE
    -> SET SUPER SSN = NULL, DNO = '2'
   -> WHERE SSN = 'ABCDIIT01';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0
mysql> SELECT * FROM EMPLOYEE;
             FNAME | LNAME | ADDRESS | SEX | SALARY
                                                           SUPER SSN | DNO
                              MANGALORE | F
  ABCDACC01 AHANA
                                                 350000.00
                                                             ABCDACC02
                                                                           1
                       KUMAR | MANGALORE | M
                                                 300000.00
                                                                           1
  ABCDACC02 | SANTOSH
                                                             NULL
  ABCDCSE01 JAMES
                       SMITH | BANGALORE | M
                                                 500000.00
                                                             ABCDCSE02
                                                                           5
  ABCDCSE02 | HEARN
                       BAKER BANGALORE
                                                 700000.00
                                                             ABCDCSE03
                                                                           5
  ABCDCSE03 | EDWARD
                       SCOTT | MYSORE
                                                 500000.00
                                                             ABCDCSE04
                                                                           5
  ABCDCSE04 | PAVAN
                       HEGDE | MANGALORE | M
                                                 650000.00
                                                             ABCDCSE05
                                                                           5
  ABCDCSE05 | GIRISH
                       MALYA | MYSORE
                                                 450000.00 | ABCDCSE06
                                                                           5
  ABCDCSE06 | ALICE
                       SMITH | BANGALORE | F
                                                 800000.00 | NULL
                                                                           5
  ABCDECEØ1 JOHN
                              BANGALORE
                                                 500000.00 | NULL
                                                                           3
 ABCDIIT01 | NAGESH
                              BANGALORE | M
                                                 500000.00 | NULL
                                                                           2
 ABCDISE01 | VEENA
                              MYSORE
                                                 600000.00 | NULL
                                                                           4
11 rows in set (0.00 sec)
```

.

```
-> ('1', 'BANGALORE');
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO DLOCATION VALUES
   -> ('2', 'BANGALORE');
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO DLOCATION VALUES
   -> ('3', 'BANGALORE');
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO DLOCATION VALUES
   -> ('4', 'MANGALORE');
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO DLOCATION VALUES
   -> ('5', 'MANGALORE');
Query OK, 1 row affected (0.00 sec)
mysql> SELECT * FROM DLOCATION;
+----+
 DNO | DNAME
+----+
   1 BANGALORE
   2 | BANGALORE
   3 | BANGALORE
   4 | MANGALORE
   5 MANGALORE
+----+
5 rows in set (0.00 sec)
mysql>
```

mysql> INSERT INTO DLOCATION VALUES

```
mysql> INSERT INTO PROJECT VALUES
   -> ('100', 'IOT', 'BANGALORE', '5');
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO PROJECT VALUES
   -> ('101', 'CLOUD', 'BANGALORE', '5');
Query OK, 1 row affected (0.01 sec)
mysql> INSERT INTO PROJECT VALUES
   -> ('102', 'BIGDATA', 'BANGALORE', '5');
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO PROJECT VALUES
   -> ('103', 'SENSORS', 'BANGALORE', '3');
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO PROJECT VALUES
   -> ('104', 'BANK MANAGEMENT', 'BANGALORE', '1');
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO PROJECT VALUES
   -> ('105', 'SALARY MANAGEMENT', 'BANGALORE', '1');
Query OK, 1 row affected (0.01 sec)
mysql> INSERT INTO PROJECT VALUES
   -> ('106', 'OPEN STACK', 'BANGALORE', '4');
Query OK, 1 row affected (0.00 sec)
mvsal> INSERT INTO PROJECT VALUES
    -> ('107', 'SMART CITY', 'BANGALORE', '2');
Query OK, 1 row affected (0.01 sec)
mysql> SELECT * FROM PROJECT;
                         | PLOCATION | DNO
 100 | IOT
                           BANGALORE
 101 | CLOUD
                           BANGALORE
                                          5
 102 | BIGDATA
                           BANGALORE
                                          5
 103
       SENSORS
                           BANGALORE
                                          3
 104
      BANK MANAGEMENT
                           BANGALORE
                                          1
 105
      SALARY MANAGEMENT
                           BANGALORE
                                          1
       OPEN STACK
 106
                           BANGALORE
 107 | SMART CITY
                           BANGALORE
8 rows in set (0.00 sec)
mysql>
```

```
mysql> INSERT INTO WORKS ON VALUES
   -> ('ABCDACC01', '104', '5');
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO WORKS ON VALUES
   -> ('ABCDACC02', '105', '6');
Query OK, 1 row affected (0.01 sec)
mysql> INSERT INTO WORKS ON VALUES
   -> ('ABCDCSE01', '101', '6');
Query OK, 1 row affected (0.01 sec)
mysql> INSERT INTO WORKS ON VALUES
   -> ('ABCDCSE01', '100', '4');
Query OK, 1 row affected (0.01 sec)
mysql> INSERT INTO WORKS ON VALUES
   -> ('ABCDCSE01', '102', '8');
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO WORKS ON VALUES
   -> ('ABCDCSE02', '100', '10');
Query OK, 1 row affected (0.01 sec)
mysql> INSERT INTO WORKS ON VALUES
   -> ('ABCDCSE03', '102', '6');
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO WORKS ON VALUES
   -> ('ABCDCSE04', '100', '3');
Query OK, 1 row affected (0.01 sec)
mysql> INSERT INTO WORKS ON VALUES
   -> ('ABCDCSE05', '101', '4');
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO WORKS_ON VALUES
   -> ('ABCDCSE06', '102', '5');
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO WORKS ON VALUES
   -> ('ABCDECE01', '103', '7');
Query OK, 1 row affected (0.01 sec)
mysql>
```

```
-> ('ABCDISE01', '106', '4');
Query OK, 1 row affected (0.00 sec)
mysql> INSERT INTO WORKS_ON VALUES
   -> ('ABCDIIT01', '107', '10');
Query OK, 1 row affected (0.00 sec)
mysql> SELECT * FROM WORKS_ON;
+----+
           PNO | HOURS
 ABCDACC01 | 104 | 5.0
 ABCDACC02 | 105
                  6.0
 ABCDCSE01 100
                  4.0
 ABCDCSE01 | 101
                  6.0
 ABCDCSE01 | 102
                  8.0
 ABCDCSE02 | 100
                 10.0
 ABCDCSE03 | 102
                  6.0
 ABCDCSE04 | 100
                  3.0
 ABCDCSE05 | 101
                  4.0
 ABCDCSE06 | 102
                  5.0
 ABCDECE01 | 103
                  7.0
 ABCDIIT01 | 107
                10.0
 ABCDISE01 | 106
                 4.0
+----+
13 rows in set (0.00 sec)
```

mysql> INSERT INTO WORKS ON VALUES

Field	Туре	I	Null	Key	Defaul	t Extra		
SSN	char(9)		NO	PRI	NULL	1		
FNAME	varchar(20	0) i	YES	i	NULL	i i		
LNAME	varchar(20		YES	i	NULL	i i		
ADDRESS	varchar(50	0)	YES	j	NULL	i i		
SEX	char(1)	ĺ	YES		NULL	i i		
SALARY	decimal(10	0,2)	YES	j	NULL	i i		
SUPER SSN	char(9)		YES	MUL	NULL	j j		
DNO	int	İ	YES	MUL	NULL	i i		
ysql> SELEC SSN	t (0.00 sec) T * FROM EMF +		+	 RESS	-+ SEX	+	+	+
ysql> SELEC	T * FROM EMF	PLOYEE;	+	RESS	SEX	+	+ SUPER_SSN +	+
ysql> SELEC SSN ABCDACC01	T * FROM EMF	PLOYEE; LNAME	ADDI	GALORE	F	350000.00	ABCDACC02	+ DNC +
ysql> SELEC SSN	T * FROM EMF	PLOYEE; LNAME	ADDI		+	<u>+</u>	ļ	+ DNC +
ysql> SELEC SSN ABCDACC01	T * FROM EMF	PLOYEE; LNAME	ADDI	GALORE	F	350000.00	ABCDACC02	DNC
ysql> SELEC SSN ABCDACC01 ABCDACC02	T * FROM EMF	PLOYEE; LNAME K KUMAR	ADDI	GALORE GALORE	F M	350000.00	ABCDACC02	+ DNC +
ysql> SELEC SSN ABCDACC01 ABCDACC02 ABCDCSE01	T * FROM EMF	PLOYEE; LNAME 	ADDI	GALORE GALORE GALORE GALORE	F M M	350000.00 300000.00 500000.00	ABCDACC02 NULL ABCDCSE02	+ DNC +
SSN ABCDACC01 ABCDACC02 ABCDCSE01 ABCDCSE02	T * FROM EMF	PLOYEE; LNAME K KUMAR SMITH BAKER	HADDI HANG MANG BANG BANG MYSG	GALORE GALORE GALORE GALORE	F M M M	350000.00 300000.00 500000.00 700000.00	ABCDACC02 NULL ABCDCSE02 ABCDCSE03	DNO
SSN ABCDACC01 ABCDACC02 ABCDCSE01 ABCDCSE04 ABCDCSE03 ABCDCSE04 ABCDCSE04 ABCDCSE04	T * FROM EMI FNAME AHANA SANTOSH JAMES HEARN EDWARD PAVAN GIRISH	PLOYEE; LNAME K KUMAR SMITH BAKER SCOTT HEGDE MALYA	+ ADDI + MANO MANO BANO BANO BANO MYSO	GALORE GALORE GALORE GALORE ORE GALORE ORE	F M M M M	350000.00 300000.00 500000.00 700000.00 500000.00	ABCDACC02 NULL ABCDCSE02 ABCDCSE03 ABCDCSE04 ABCDCSE05 ABCDCSE06	DNO
ABCDACC01 ABCDACC02 ABCDCSE01 ABCDCSE02 ABCDCSE04 ABCDCSE04 ABCDCSE08 ABCDCSE08 ABCDCSE08	T * FROM EMI FNAME AHANA SANTOSH JAMES HEARN EDWARD PAVAN GIRISH ALICE	PLOYEE; LNAME K KUMAR SMITH BAKER SCOTT HEGDE MALYA SMITH	ADDI MANO MANO BANO BANO MYSO MYSO MYSO BANO	GALORE GALORE GALORE GALORE ORE GALORE ORE GALORE ORE GALORE	F M M M M	350000.00 300000.00 500000.00 700000.00 500000.00 650000.00 450000.00	ABCDACC02 NULL ABCDCSE02 ABCDCSE03 ABCDCSE04 ABCDCSE05 ABCDCSE06 NULL	DNO
SSN ABCDACC01 ABCDACC02 ABCDCSE01 ABCDCSE04 ABCDCSE03 ABCDCSE04 ABCDCSE04 ABCDCSE04	T * FROM EMI FNAME AHANA SANTOSH JAMES HEARN EDWARD PAVAN GIRISH	PLOYEE; LNAME K KUMAR SMITH BAKER SCOTT HEGDE MALYA	ADDI MANO MANO BANO BANO MYSO MYSO MYSO BANO	GALORE GALORE GALORE GALORE ORE GALORE ORE	F M M M M M	35000.00 30000.00 50000.00 70000.00 50000.00 650000.00 450000.00	ABCDACC02 NULL ABCDCSE02 ABCDCSE03 ABCDCSE04 ABCDCSE05 ABCDCSE06	DNC
ABCDACC01 ABCDACC02 ABCDCSE01 ABCDCSE02 ABCDCSE04 ABCDCSE04 ABCDCSE08 ABCDCSE08 ABCDCSE08	T * FROM EMI FNAME AHANA SANTOSH JAMES HEARN EDWARD PAVAN GIRISH ALICE	PLOYEE; LNAME K KUMAR SMITH BAKER SCOTT HEGDE MALYA SMITH	ADDI MANI MANI BANI BANI MYSI MYSI BANI BANI	GALORE GALORE GALORE GALORE ORE GALORE ORE GALORE ORE GALORE	F M M M M M M	350000.00 300000.00 500000.00 700000.00 500000.00 650000.00 450000.00	ABCDACC02 NULL ABCDCSE02 ABCDCSE03 ABCDCSE04 ABCDCSE05 ABCDCSE06 NULL	DNO

11 rows in set (0.00 sec)

```
mysql> DESCRIBE DEPARTMENT;
Field
                    | Null | Key | Default | Extra
+----+
 DNO
                         PRI | NULL
 DNAME
           varchar(20) YES
                            NULL
 MGR SSN
           char(9)
                    YES
                        MUL NULL
MGR START_DATE | date
                    YES
                            NULL
+----+
4 rows in set (0.00 sec)
mysql> SELECT * FROM DEPARTMENT;
+----+
DNO | DNAME | MGR SSN | MGR START DATE
+----+
  1 | ACCOUNTS | ABCDACC02 | 2001-01-01
  2 | IT
           ABCDIIT01 | 2016-08-01
  3 | ECE
           ABCDECE01 | 2008-06-01
  4 | ISE
           | ABCDISE01 | 2015-06-01
  5 | CSE
           | ABCDCSE05 | 2002-06-01
+----+
5 rows in set (0.00 sec)
mysql> DESCRIBE DLOCATION;
+----+
Field | Type
              | Null | Kev | Default | Extra
+-----
 DNO | int
                  PRI NULL
| DNAME | varchar(50) | NO | PRI | NULL
+----+---+----+----+
2 rows in set (0.00 sec)
mysql> SELECT * FROM DLOCATION;
+----+
 DNO | DNAME
  1 | BANGALORE
  2 | BANGALORE
  3 | BANGALORE
  4 | MANGALORE
 5 | MANGALORE
+----+
5 rows in set (0.00 sec)
mysql>
```

Field	Type	Null	100000	in the second second	
PNO	int	NO NO	PRI	NULL	
PNAME	varchar(20)	YES		NULL	
PLOCATION	The second of th	YES	MILI	NULL	
DNO	int	YES	MUL	NULL	
	set (0.00 sec)				
1111					
	ECT * FROM PROJE	100			
2	MF	No.		30	
PNO PNA		PLOCA		3/	
100 IOT		BANGA		5	
101 CLO		BANGA		5	
102 BIG	DATA	BANGA	ORE	5	
103 SEN	ISORS	BANGA	ORE	3	
104 BAN	NK MANAGEMENT	BANGA	ORE	1	
105 SAL	ARY MANAGEMENT	BANGA	ORE	1	
	N STACK	BANGA	ORF	4	
106 OPE	IN STACK	1 0,	-OILL I		

mysql> DESCRIBE PROJECT;

8 rows in set (0.00 sec)

+----+

```
+----+
 Field | Type
               | Null | Kev | Default | Extra
+----+
 SSN
     char(9)
                    | PRI | NULL
 PNO
      int
                NO
                    PRI | NULL
 HOURS | decimal(3,1) | YES
                        NULL
+----+
3 rows in set (0.00 sec)
mysql> SELECT * FROM WORKS ON;
+----+
         PNO | HOURS
+----+
 ABCDACC01
        104
              5.0
 ABCDACC02
        105
              6.0
 ABCDCSE01
        100
              4.0
 ABCDCSE01
        101
              6.0
 ABCDCSE01
        102
              8.0
 ABCDCSE02
        100
             10.0
 ABCDCSE03
              6.0
 ABCDCSE04
              3.0
 ABCDCSE05
              4.0
 ABCDCSE06
        102
              5.0
 ABCDECE01
              7.0
 ABCDIIT01
        107
             10.0
 ABCDISE01 | 106
             4.0
+-----
13 rows in set (0.00 sec)
```

mysal> DESCRIBE WORKS ON:

```
mysql> SELECT * FROM EMPLOYEE;
           FNAME | LNAME | ADDRESS | SEX | SALARY
                                                        SUPER SSN | DNO
 ABCDACCØ1 AHANA
                             MANGALORE
                                               350000.00
                                                          ABCDACC02
 ABCDACC02 | SANTOSH | KUMAR
                            MANGALORE
                                               300000.00
                                                                       1
 ABCDCSE01 JAMES
                     SMITH | BANGALORE | M
                                               500000.00
                                                          ABCDCSE02
                                                                       5
 ABCDCSE02 | HEARN
                     BAKER | BANGALORE | M
                                              700000.00
                                                          ABCDCSE03
                                                                       5
                     SCOTT | MYSORE
 ABCDCSE03 | EDWARD
                                               500000.00
                                                          ABCDCSE04
                                                                       5
 ABCDCSE04 | PAVAN
                     HEGDE | MANGALORE | M
                                               650000.00
                                                          ABCDCSE05
                                                                       5
 ABCDCSE05 | GIRISH
                     MALYA | MYSORE
                                              450000.00
                                                         ABCDCSE06
                                                                       5
 ABCDCSE06 | ALICE
                     SMITH | BANGALORE | F
                                               800000.00 | NULL
                                                                       5
 ABCDECE01 | JOHN
                     SCOTT | BANGALORE | M
                                               500000.00
                                                                       3
                                                         NULL
                                                                       2
 ABCDIIT01 NAGESH
                    HR
                             BANGALORE M
                                              500000.00 NULL
                            MYSORE
                                                                       4
 ABCDISE01 VEENA
                                              600000.00 | NULL
11 rows in set (0.00 sec)
```

mysql> SELECT * FROM PROJECT;

PNO	PNAME	PLOCATION	DNO
100	IOT	BANGALORE	5
101	CLOUD	BANGALORE	9
102	BIGDATA	BANGALORE	5
103	SENSORS	BANGALORE] 3
104	BANK MANAGEMENT	BANGALORE] 1
105	SALARY MANAGEMENT	BANGALORE	1
106	OPEN STACK	BANGALORE	4
107	SMART CITY	BANGALORE	1 2

8 rows in set (0.00 sec)

```
mysql> (SELECT DISTINCT P1.PNO
   -> FROM PROJECT AS P1, DEPARTMENT AS D1, EMPLOYEE AS E1
   -> WHERE E1.DNO = P1.DNO AND E1.SSN = D1.MGR_SSN AND E1.LNAME = 'SCOTT')
   -> (SELECT DISTINCT P2.PNO
   -> FROM PROJECT AS P2, WORKS ON AS W2, EMPLOYEE AS E2
   -> WHERE P2.PNO = W2.PNO AND E2.SSN = W2.SSN AND E2.LNAME = 'SCOTT');
```

+.		+			
I	103				
1	102				
+-		+			
2	rows	in	set	(0.00	sec)
my	/sql>				

PNO |

```
mysql> SELECT * FROM EMPLOYEE;
+----+
 SSN
           FNAME | LNAME | ADDRESS | SEX | SALARY
 ABCDACC01 AHANA
                           MANGALORE | F
                                             350000.00 | ABCDACC02
 ABCDACC02 | SANTOSH
                   | KUMAR | MANGALORE | M
                                             300000.00 | NULL
                                                                    1
 ABCDCSE01 | JAMES
                     SMITH | BANGALORE | M
                                             500000.00 | ABCDCSE02
                                                                    5
 ABCDCSE02 | HEARN
                     BAKER | BANGALORE | M
                                             700000.00 | ABCDCSE03
                                                                    5
 ABCDCSEØ3 | EDWARD
                     SCOTT | MYSORE
                                             500000.00 | ABCDCSE04
                                                                    5
 ABCDCSE04 | PAVAN
                     HEGDE | MANGALORE | M
                                             650000.00 | ABCDCSE05
                                                                    5
 ABCDCSE05 | GIRISH
                     MALYA | MYSORE
                                             450000.00 | ABCDCSE06
                                                                    5
 ABCDCSE06 | ALICE
                     SMITH | BANGALORE | F
                                             800000.00 | NULL
                                                                    5
 ABCDECE01 JOHN
                     SCOTT | BANGALORE | M
                                             500000.00 | NULL
                                                                    3
 ABCDIIT01 | NAGESH
                           BANGALORE M
                                             500000.00 | NULL
                                                                    2
 ABCDISE01 | VEENA
                           MYSORE
                                             600000.00 | NULL
                                                                    4
11 rows in set (0.00 sec)
mysql> SELECT * FROM PROJECT;
```

PNO	PNAME	PLOCATION	DNO			
++						
100	IOT	BANGALORE	5			
101	CLOUD	BANGALORE	5			
102	BIGDATA	BANGALORE	5			
103	SENSORS	BANGALORE	3			
104	BANK MANAGEMENT	BANGALORE	1			
105	SALARY MANAGEMENT	BANGALORE	1			
106	OPEN STACK	BANGALORE	4			
107	SMART CITY	BANGALORE	2			
++		+	++			

8 rows in set (0.00 sec)

mysql>	SELECT E.FNAME, E.LNAME, 1.1 * E.SALARY AS INCREASED_SALARY
->	FROM EMPLOYEE AS E, PROJECT AS P, WORKS_ON AS W
->	WHERE E.SSN = W.SSN AND P.PNO = W.PNO AND P.PNAME = 'IOT';
_	

FNAME	LNAME	INCREASED_SALARY
JAMES HEARN PAVAN	SMITH BAKER HEGDE	550000.000 770000.000 715000.000
-		+

3 rows in set (0.00 sec)

```
mysal> SELECT * FROM EMPLOYEE:
          FNAME | LNAME | ADDRESS | SEX | SALARY
                                              SUPER SSN | DNO
 ABCDACC01 | AHANA
                       MANGALORE | F
                                       350000.00
                                                ABCDACC02
 ABCDACC02
         I SANTOSH
                 | KUMAR | MANGALORE | M
                                       300000.00
                                                NULL
 ABCDCSE01
          JAMES
                  SMITH | BANGALORE |
                                       500000.00
                                                ABCDCSE02
 ABCDCSE02
         HEARN
                  BAKER | BANGALORE | M
                                       700000.00
                                                ABCDCSE03
 ABCDCSE03
          EDWARD
                  SCOTT | MYSORE
                                       500000.00
                                                ABCDCSE04
                  HEGDE | MANGALORE | M
 ABCDCSE04
          PAVAN
                                       650000.00
                                                ABCDCSE05
 ABCDCSE05 | GIRISH
                  MALYA | MYSORE
                                       450000.00 | ABCDCSE06
 ABCDCSE06 | ALICE
                  SMITH | BANGALORE
                                       800000.00 | NULL
 ABCDECEØ1 | JOHN
                  SCOTT | BANGALORE
                                       500000.00 | NULL
 ABCDIIT01 | NAGESH
                       BANGALORE | M
                                       500000.00 | NULL
 ABCDISE01 | VEENA
                       MYSORE
                                       600000.00 | NULL
+----+
11 rows in set (0.00 sec)
mvsal> SELECT * FROM DEPARTMENT:
+----+
 DNO | DNAME | MGR SSN | MGR START DATE
+----+
  1 | ACCOUNTS | ABCDACC02 | 2001-01-01
  2 | IT
              ABCDIIT01 | 2016-08-01
  3 | ECE
              ABCDECE01 | 2008-06-01
  4 | ISE
             ABCDISE01 | 2015-06-01
  5 | CSE
              ABCDCSE05 | 2002-06-01
+----+-----
5 rows in set (0.00 sec)
nysql> SELECT SUM(E.SALARY), MAX(E.SALARY), MIN(E.SALARY), AVG(E.SALARY)
   -> FROM EMPLOYEE AS E, DEPARTMENT AS D
   -> WHERE E.DNO = D.DNO AND D.DNAME = 'ACCOUNTS';
+-----
 SUM(E.SALARY) | MAX(E.SALARY) | MIN(E.SALARY) | AVG(E.SALARY)
+----+
    650000.00 350000.00
                            300000.00 | 325000.000000
+----+
1 row in set (0.00 sec)
mysql>
```

1

1

5

5

5

5

5

5

3

2

4

```
mvsal> SELECT * FROM EMPLOYEE:
+----+
         | FNAME | LNAME | ADDRESS | SEX | SALARY
                                              SUPER SSN DNO
 ABCDACC01 | AHANA
                  K
                        MANGALORE | F
                                       350000.00 | ABCDACC02
 ABCDACC02 | SANTOSH
                  KUMAR
                       MANGALORE | M
                                       300000.00 | NULL
                                                           1
 ABCDCSE01 | JAMES
                  SMITH
                       BANGALORE | M
                                       500000.00
                                                ABCDCSE02
                                                           5
 ABCDCSE02 | HEARN
                  BAKER | BANGALORE | M
                                       700000.00 | ABCDCSE03
                                                           5
 ABCDCSE03 | EDWARD
                  SCOTT
                       MYSORE
                                       500000.00
                                                ABCDCSE04
                                                           5
                                                           5
 ABCDCSE04 | PAVAN
                  HEGDE | MANGALORE | M
                                       650000.00 | ABCDCSE05
 ABCDCSE05 | GIRISH
                  MALYA | MYSORE
                                       450000.00 | ABCDCSE06
                                                           5
 ABCDCSE06 | ALICE
                  SMITH
                       BANGALORE
                                       800000.00 | NULL
                                                           5
 ABCDECEØ1 | JOHN
                                       500000.00 | NULL
                                                           3
                  SCOTT
                       BANGALORE | M
 ABCDIIT01 | NAGESH
                 l HR
                                                           2
                        BANGALORE | M
                                       500000.00 | NULL
 ABCDISE01 | VEENA
                       MYSORE
                                       600000.00 | NULL
                                                           4
+----+
11 rows in set (0.00 sec)
mvsal> SELECT * FROM PROJECT:
+----+
PNO | PNAME
                    | PLOCATION | DNO
+----+
 100 | IOT
                     BANGALORE
 101 | CLOUD
                     BANGALORE
                                5
 102 | BIGDATA
                     BANGALORE
                                5
 103 | SENSORS
                     BANGALORE
                                3
```

1

105 SALARY MANAGEMENT	BANGALORE	1
106 OPEN STACK	BANGALORE	4
107 SMART CITY	BANGALORE	2
++	+	+

104 BANK MANAGEMENT

8 rows in set (0.00 sec)

```
mysql> SELECT E.FNAME, E.LNAME
   -> FROM EMPLOYEE AS E
   -> WHERE NOT EXISTS
   -> (SELECT PNO
   -> FROM PROJECT AS P
   -> WHERE DNO = '5'
   -> AND PNO NOT IN
   -> (SELECT PNO
  -> FROM WORKS ON AS W
  -> WHERE E.SSN = W.SSN));
-----
 FNAME | LNAME |
+----+
```

BANGALORE

1 row in set (0.00 sec)

JAMES | SMITH | +----+

```
mysql> SELECT * FROM EMPLOYEE;
SSN
          FNAME | LNAME | ADDRESS | SEX | SALARY
                                                   SUPER SSN | DNO
 ABCDACC01 | AHANA
                          MANGALORE | F
                                          350000.00 | ABCDACC02
 ABCDACC02 | SANTOSH
                                          300000.00
                                                                1
                   KUMAR | MANGALORE | M
                                                    NULL
                                                                 5
 ABCDCSE01 | JAMES
                   SMITH | BANGALORE | M
                                          500000.00
                                                    ABCDCSE02
 ABCDCSE02 | HEARN
                   BAKER | BANGALORE | M
                                          700000.00
                                                    ABCDCSE03
                                                                 5
 ABCDCSE03 | EDWARD
                   SCOTT | MYSORE
                                          500000.00 | ABCDCSE04
                                                                 5
 ABCDCSE04 PAVAN
                                          650000.00
                                                                 5
                   HEGDE | MANGALORE | M
                                                    ABCDCSE05
 ABCDCSE05 | GIRISH
                                          450000.00
                                                                 5
                   MALYA | MYSORE
                                                    ABCDCSE06
 ABCDCSE06 | ALICE
                                                                 5
                   SMITH | BANGALORE | F
                                          800000.00 | NULL
 ABCDECE01 JOHN
                   SCOTT | BANGALORE | M
                                          500000.00 | NULL
                                                                 3
                  I HR
                                                                 2
 ABCDIIT01 | NAGESH
                          BANGALORE | M
                                          500000.00 | NULL
                         MYSORE
                                                                 4
 ABCDISE01 | VEENA
                                          600000.00 | NULL
11 rows in set (0.00 sec)
mysql> SELECT * FROM DEPARTMENT;
+----+
 DNO | DNAME | MGR SSN | MGR START DATE
+----+
  1 | ACCOUNTS | ABCDACC02 | 2001-01-01
  2 | IT
               ABCDIIT01 | 2016-08-01
  3 | ECE
               ABCDECE01 | 2008-06-01
   4 | ISE
              | ABCDISE01 | 2015-06-01
  5 | CSE
              ABCDCSE05 | 2002-06-01
5 rows in set (0.00 sec)
mysql> SELECT D1.DNO, COUNT(*)
   -> FROM DEPARTMENT AS D1, EMPLOYEE AS E1
   -> WHERE D1.DNO = E1.DNO AND E1.SALARY >= '600000' AND D1.DNO IN
   -> (SELECT E2.DNO
   -> FROM EMPLOYEE AS E2
   -> GROUP BY E2.DNO
  -> HAVING COUNT(*) > 5)
  -> GROUP BY D1.DNO:
+----+
 DNO | COUNT(*) |
+----+
  5 | 3 |
+----+
1 row in set (0.00 sec)
```



