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Prof. VB

CS457L

10/1/2022

HW 2A

Create table schema

```
MariaDB [19610dm]> create table EMPLOYEE
-> (Fname VARCHAR(15) NOT NULL,
-> Minit CHAR,
-> Lname VARCHAR(15) NOT NULL,
-> Ssn CHAR(9) NOT NULL,
-> Bdate DATE,
-> Address VARCHAR(30),
-> Sex CHAR,
-> Salary DECIMAL(10,2),
-> Super_ssn CHAR(9),
-> Dno INT NOT NULL,
-> PRIMARY KEY(Ssn));
```

Query OK, 0 rows affected (0.019 sec)

```
MariaDB [19610dm]> create table DEPARTMENT
-> (Dname VARCHAR(15) NOT NULL,
-> Dnumber INT NOT NULL,
-> Mgr_ssn CHAR(9) NOT NULL,
-> Mgr_start_date DATE,
-> PRIMARY KEY(Dnumber),
-> UNIQUE(Dname),
-> FOREIGN KEY(Mgr_ssn) REFERENCES EMPLOYEE(Ssn));
```

Query OK, 0 rows affected (0.019 sec)

```
MariaDB [19610dm]> create table DEPT_LOCATIONS
-> (Dnumber INT NOT NULL,
-> Dlocation VARCHAR(15) NOT NULL,
-> PRIMARY KEY(Dnumber, Dlocation),
-> FOREIGN KEY(Dnumber) REFERENCES DEPARTMENT(Dnumber));
```

Query OK, 0 rows affected (0.013 sec)

```
MariaDB [19610dm]> create table PROJECT
-> (Pname VARCHAR(15) NOT NULL,
-> Pnumber INT NOT NULL,
-> Plocation VARCHAR(15),
-> Dnum INT NOT NULL,
-> PRIMARY KEY(Pnumber),
-> UNIQUE(Pname),
-> FOREIGN KEY(Dnum) REFERENCES DEPARTMENT(Dnumber));
```

Query OK, 0 rows affected (0.018 sec)

```
MariaDB [19610dm]> create table WORKS_ON
-> (Essn CHAR(9) NOT NULL,
-> Pno INT NOT NULL,
-> Hours DECIMAL(3,1) NOT NULL,
-> PRIMARY KEY(Essn, Pno),
-> FOREIGN KEY(Essn) REFERENCES EMPLOYEE(Ssn),
-> FOREIGN KEY(Pno) REFERENCES PROJECT(Pnumber));
```

Query OK, 0 rows affected (0.017 sec)

```
MariaDB [19610dm]> create table DEPENDENT
-> (Essn CHAR(9) NOT NULL,
-> Dependent_name VARCHAR(15) NOT NULL,
-> Sex CHAR,
-> Bdate DATE,
-> Relationship VARCHAR(8),
-> PRIMARY KEY(Essn, Dependent_name),
-> FOREIGN KEY(Essn) REFERENCES EMPLOYEE(Ssn));
```

Query OK, 0 rows affected (0.014 sec)

Specifying constraints in SQL

```
MariaDB [19610dm]> create table EMPLOYEE
->     (Fname VARCHAR(15) NOT NULL,
->     Minit CHAR,
->     Lname VARCHAR(15) NOT NULL,
->     Ssn CHAR(9) NOT NULL,
->     Bdate DATE,
->     Address VARCHAR(30),
->     Sex CHAR,
->     Salary DECIMAL(10,2),
->     Super_ssn CHAR(9),
->     Dno INT NOT NULL DEFAULT 1,
->     CONSTRAINT EMPPK
->     PRIMARY KEY(Ssn),
->     CONSTRAINT EMPSUPERFK
->     FOREIGN KEY(Super_ssn) REFERENCES EMPLOYEE(Ssn)
->     ON DELETE SET NULL ON UPDATE CASCADE,
->     CONSTRAINT EMPDEPTFK
->     FOREIGN KEY(Dno) REFERENCES DEPARTMENT(Dnumber)
->     ON DELETE SET DEFAULT ON UPDATE CASCADE);
```

Query OK, 0 rows affected (0.023 sec)

```
MariaDB [19610dm]> create table DEPARTMENT
->     (Dname VARCHAR(15) NOT NULL,
->     Dnumber INT NOT NULL,
->     Mgr_ssn CHAR(9) NOT NULL,
->     Mgr_start_date DATE,
->     CONSTRAINT DEPTPK
->     PRIMARY KEY(Dnumber),
->     CONSTRAINT DEPTSK
->     UNIQUE(Dname),
->     CONSTRAINT DEPTMGRFK
->     FOREIGN KEY(Mgr_ssn) REFERENCES EMPLOYEE(Ssn)
->     ON DELETE SET DEFAULT ON UPDATE CASCADE);
```

Query OK, 0 rows affected (0.016 sec)

```

MariaDB [19610dm]> create table DEPT_LOCATIONS
->      (Dnumber INT NOT NULL,
->      Dlocation VARCHAR(15) NOT NULL,
->      PRIMARY KEY(Dnumber, Dlocation),
->      FOREIGN KEY(Dnumber) REFERENCES DEPARTMENT(Dnumber)
->      ON DELETE CASCADE ON UPDATE CASCADE);
Query OK, 0 rows affected (0.011 sec)

```

Insert values into data tables

EMPLOYEE

```

MariaDB [19610dm]> insert into EMPLOYEE(Fname, Minit, Lname, Ssn, Bdate, Address, Sex, Salary
, Super_ssn, Dno)
-> values ('John', 'B', 'Smith', '123456789', '1965-01-09', '731 Fondren, Houston, TX', '
M', '30000', '333445555', 5),
->      ('Franklin', 'T', 'Wong', '333445555', '1955-12-08', '638 Voss, Houston, TX', 'M',
'40000', '888665555', 5),
->      ('Alicia', 'J', 'Zelaya', '999887777', '1968-01-19', '3321 Castle, Spring, TX', 'F
', '25000', '987654321', 4),
->      ('Jennifer', 'S', 'Wallace', '987654321', '1941-06-20', '291 Berry, Bellaire, TX',
'F', '43000', '888665555', 4),
->      ('Ramesh', 'K', 'Narayan', '666884444', '1962-09-15', '975 Fire Oak, Humble, TX',
'M', '38000', '333445555', 5),
->      ('Joyce', 'A', 'English', '453453453', '1972-07-31', '5631 Rice, Houston, TX', 'F'
, '25000', '333445555', 5),
->      ('Ahmad', 'V', 'Jabbar', '987987987', '1969-03-29', '980 Dallas, Houston, TX', 'M'
, '25000', '987654321', 4),
->      ('James', 'E', 'Borg', '888665555', '1937-11-10', '450 Stone, Houston, TX', 'M', '
55000', NULL, 1),
->      ('Alicia', 'T', 'Smith', '123123123', '1957-01-29', '235 Fire, Spring, TX', 'F', '
39000', '888665555', 4),
->      ('John', 'G', 'Zelaya', '777883333', '1999-07-21', '3848 Limpert, Humble, TX', 'M'
, '40000', '987654321', 4);
Query OK, 10 rows affected (0.003 sec)
Records: 10 Duplicates: 0 Warnings: 0

```

DEPARTMENT

```

MariaDB [19610dm]> insert into DEPARTMENT(Dname, Dnumber, Mgr_ssn, Mgr_start_date)
-> values ('Research', 5, '333445555', '1988-05-22'),
->      ('Administration', 4, '987654321', '1995-01-01'),
->      ('Headquarters', 1, '888665555', '1981-06-19');
Query OK, 3 rows affected (0.003 sec)
Records: 3 Duplicates: 0 Warnings: 0

```

DEPT_LOCATIONS

```

MariaDB [19610dm]> insert into DEPT_LOCATIONS(Dnumber, Dlocation)
-> values (1, 'Houston'),
-> (4, 'Stafford'),
-> (5, 'Bellaire'),
-> (5, 'Sugarland'),
-> (5, 'Houston');
Query OK, 5 rows affected (0.003 sec)
Records: 5 Duplicates: 0 Warnings: 0

```

WORKS_ON

```

MariaDB [19610dm]> insert into WORKS_ON(Essn, Pno, Hours)
-> values ('123456789', 1, 32.5),
-> ('123456789', 2, 7.5),
-> ('666884444', 3, 40.0),
-> ('453453453', 1, 20.0),
-> ('453453453', 2, 20.0),
-> ('333445555', 2, 10.0),
-> ('333445555', 3, 10.0),
-> ('333445555', 10, 10.0),
-> ('333445555', 20, 10.0),
-> ('999887777', 30, 30.0),
-> ('999887777', 10, 10.0),
-> ('987987987', 10, 35.0),
-> ('987987987', 30, 5.0),
-> ('987654321', 30, 20.0),
-> ('987654321', 20, 15.0),
-> ('888665555', 20, 10.0);
Query OK, 16 rows affected (0.003 sec)
Records: 16 Duplicates: 0 Warnings: 0

```

PROJECT

```

MariaDB [19610dm]> insert into PROJECT(Pname, Pnumber, Plocation, Dnum)
-> values ('ProductX', 1, 'Bellaire', 5),
-> ('ProductY', 2, 'Sugarland', 5),
-> ('ProductZ', 3, 'Houston', 5),
-> ('Computerization', 10, 'Stafford', 4),
-> ('Reorganization', 20, 'Houston', 1),
-> ('Newbenefits', 30, 'Stafford', 4);
Query OK, 6 rows affected (0.003 sec)
Records: 6 Duplicates: 0 Warnings: 0

```

DEPENDENT

```

MariaDB [19610dm]> insert into DEPENDENT(Essn, Dependent_name, Sex, Bdate, Relationship)
-> values ('333445555', 'Alice', 'F', '1986-04-05', 'Daughter'),
-> ('333445555', 'Theodore', 'M', '1983-10-25', 'Son'),
-> ('333445555', 'Joy', 'F', '1958-05-03', 'Spouse'),
-> ('987654321', 'Abner', 'M', '1942-02-28', 'Spouse'),
-> ('123456789', 'Michael', 'M', '1988-01-04', 'Son'),
-> ('123456789', 'Alice', 'F', '1988-12-30', 'Daughter'),
-> ('123456789', 'Elizabeth', 'F', '1967-05-05', 'Spouse');
Query OK, 7 rows affected (0.003 sec)
Records: 7 Duplicates: 0 Warnings: 0

```

Query 0 (Q0)

```

MariaDB [19610dm]> select Bdate, Address
-> from EMPLOYEE
-> where Fname = 'John' AND Minit = 'B' AND Lname = 'Smith';
+-----+-----+
| Bdate      | Address                                     |
+-----+-----+
| 1965-01-09 | 731 Fondren, Houston, TX |
+-----+-----+
1 row in set (0.000 sec)

```

Query 1 (Q1)

```

MariaDB [19610dm]> select Fname, Lname, Address
-> from EMPLOYEE, DEPARTMENT
-> where Dname = 'Research' AND Dnumber = Dno;
+-----+-----+-----+
| Fname   | Lname   | Address                                     |
+-----+-----+-----+
| John    | Smith   | 731 Fondren, Houston, TX |
| Franklin | Wong    | 638 Voss, Houston, TX   |
| Joyce   | English | 5631 Rice, Houston, TX   |
| Ramesh  | Narayan | 975 Fire Oak, Humble, TX |
+-----+-----+-----+
4 rows in set (0.000 sec)

```

Query 2 (Q2)

```

MariaDB [19610dm]> select Pnumber, Dnum, Lname, Address, Bdate
-> from PROJECT, DEPARTMENT, EMPLOYEE
-> where Dnum = Dnumber AND Mgr_ssn = Ssn AND Plocation = 'Stafford';
+-----+-----+-----+-----+-----+
| Pnumber | Dnum | Lname   | Address                               | Bdate       |
+-----+-----+-----+-----+-----+
|      10 |    4 | Wallace | 291 Berry, Bellaire, TX | 1941-06-20 |
|      30 |    4 | Wallace | 291 Berry, Bellaire, TX | 1941-06-20 |
+-----+-----+-----+-----+-----+
2 rows in set (0.000 sec)

```

Q1A

```

MariaDB [19610dm]> select Fname, EMPLOYEE.Name, Address
-> from EMPLOYEE, DEPARTMENT
-> where DEPARTMENT.Name = 'Research' AND DEPARTMENT.Dnumber = EMPLOYEE.Dnumber;
ERROR 1054 (42S22): Unknown column 'EMPLOYEE.Name' in 'field list'

```

Q1'

```

MariaDB [19610dm]> select EMPLOYEE.Fname, EMPLOYEE.Lname, EMPLOYEE.Address
-> from EMPLOYEE, DEPARTMENT
-> where DEPARTMENT.Dname = 'Research' AND DEPARTMENT.Dnumber = EMPLOYEE.Dno;
+-----+-----+-----+-----+
| Fname   | Lname   | Address                               |
+-----+-----+-----+-----+
| John    | Smith   | 731 Fondren, Houston, TX |
| Franklin | Wong    | 638 Voss, Houston, TX   |
| Joyce   | English | 5631 Rice, Houston, TX   |
| Ramesh  | Narayan | 975 Fire Oak, Humble, TX |
+-----+-----+-----+-----+
4 rows in set (0.000 sec)

```

Query 8 (Q8)

```

MariaDB [19610dm]> select Fname, EMPLOYEE.FName, Address from EMPLOYEE, DEPARTMENT where DEPA
RTMENT.Name = 'Research' AND DEPARTMENT.Dnumber = EMPLOYEE.Dnumber;
ERROR 1054 (42S22): Unknown column 'DEPARTMENT.Name' in 'where clause'
MariaDB [19610dm]> select E.Fname, E.Lname, S.Fname, S.Lname
-> from EMPLOYEE AS E, EMPLOYEE AS S
-> where E.Super_ssn = S.Ssn;
+-----+-----+-----+-----+
| Fname | Lname | Fname | Lname |
+-----+-----+-----+-----+
| Alicia | Smith | James | Borg |
| John | Smith | Franklin | Wong |
| Franklin | Wong | James | Borg |
| Joyce | English | Franklin | Wong |
| Ramesh | Narayan | Franklin | Wong |
| John | Zelaya | Jennifer | Wallace |
| Jennifer | Wallace | James | Borg |
| Ahmad | Jabbar | Jennifer | Wallace |
| Alicia | Zelaya | Jennifer | Wallace |
+-----+-----+-----+-----+
9 rows in set (0.000 sec)

```

Q1B

```

MariaDB [19610dm]> select E.Fname, E.Lname, E.Address
-> from EMPLOYEE AS E, DEPARTMENT AS D
-> where D.Dname = 'Research' AND D.Dnumber = E.Dno;
+-----+-----+-----+
| Fname | Lname | Address |
+-----+-----+-----+
| John | Smith | 731 Fondren, Houston, TX |
| Franklin | Wong | 638 Voss, Houston, TX |
| Joyce | English | 5631 Rice, Houston, TX |
| Ramesh | Narayan | 975 Fire Oak, Humble, TX |
+-----+-----+-----+
4 rows in set (0.000 sec)

```

Q9


```
MariaDB [19610dm]> select Ssn from EMPLOYEE;
```

```
+-----+  
| Ssn    |  
+-----+  
| 123123123 |  
| 123456789 |  
| 333445555 |  
| 453453453 |  
| 666884444 |  
| 777883333 |  
| 888665555 |  
| 987654321 |  
| 987987987 |  
| 999887777 |  
+-----+
```

```
10 rows in set (0.000 sec)
```

Q10

```
MariaDB [19610dm]> SELECT Ssn, Dname from EMPLOYEE, DEPARTMENT;
```

Ssn	Dname
123123123	Administration
123123123	Headquarters
123123123	Research
123456789	Administration
123456789	Headquarters
123456789	Research
333445555	Administration
333445555	Headquarters
333445555	Research
453453453	Administration
453453453	Headquarters
453453453	Research
666884444	Administration
666884444	Headquarters
666884444	Research
777883333	Administration
777883333	Headquarters
777883333	Research
888665555	Administration
888665555	Headquarters
888665555	Research
987654321	Administration
987654321	Headquarters
987654321	Research
987987987	Administration
987987987	Headquarters
987987987	Research
999887777	Administration
999887777	Headquarters
999887777	Research

```
30 rows in set (0.000 sec)
```

Q1C

MariaDB [19610dm]> select * from EMPLOYEE where Dno = 5;

Fname	Minit	Lname	Ssn	Bdate	Address	Sex	Salary	Super_ssn	Dno
John	B	Smith	123456789	1965-01-09	731 Fondren, Houston, TX	M	30000.00	333445555	5
Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	40000.00	888665555	5
Joyce	A	English	453453453	1972-07-31	5631 Rice, Houston, TX	F	25000.00	333445555	5
Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	38000.00	333445555	5

4 rows in set (0.000 sec)

Q1D

MariaDB [19610dm]> select * from EMPLOYEE, DEPARTMENT where Dname = 'Research' AND Dno = Dnumber;

Fname	Minit	Lname	Ssn	Bdate	Address	Sex	Salary	Super_ssn	Dno	Dname	Dnumber	Mgr_ssn	Mgr_start_date
John	B	Smith	123456789	1965-01-09	731 Fondren, Houston, TX	M	30000.00	333445555	5	Research	5	333445555	1988-05-22
Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	40000.00	888665555	5	Research	5	333445555	1988-05-22
Joyce	A	English	453453453	1972-07-31	5631 Rice, Houston, TX	F	25000.00	333445555	5	Research	5	333445555	1988-05-22
Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	38000.00	333445555	5	Research	5	333445555	1988-05-22

4 rows in set (0.000 sec)

Q10A

MariaDB [19610dm]> select * from EMPLOYEE, DEPARTMENT;

Fname	Minit	Lname	Ssn	Bdate	Address	Sex	Salary	Super_ssn	Dno	Dname	Dnumber	Mgr_ssn	Mgr_start_date
Alicia	T	Smith	123123123	1957-01-29	235 Fire, Spring, TX	F	39000.00	888665555	4	Headquarters	1	888665555	1981-06-19
Alicia	T	Smith	123123123	1957-01-29	235 Fire, Spring, TX	F	39000.00	888665555	4	Administration	4	987654321	1995-01-01
Alicia	T	Smith	123123123	1957-01-29	235 Fire, Spring, TX	F	39000.00	888665555	4	Research	5	333445555	1988-05-22
John	B	Smith	123456789	1965-01-09	731 Fondren, Houston, TX	M	30000.00	333445555	5	Headquarters	1	888665555	1981-06-19
John	B	Smith	123456789	1965-01-09	731 Fondren, Houston, TX	M	30000.00	333445555	5	Administration	4	987654321	1995-01-01
John	B	Smith	123456789	1965-01-09	731 Fondren, Houston, TX	M	30000.00	333445555	5	Research	5	333445555	1988-05-22
Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	40000.00	888665555	5	Headquarters	1	888665555	1981-06-19
Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	40000.00	888665555	5	Administration	4	987654321	1995-01-01
Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	40000.00	888665555	5	Research	5	333445555	1988-05-22
Joyce	A	English	453453453	1972-07-31	5631 Rice, Houston, TX	F	25000.00	333445555	5	Headquarters	1	888665555	1981-06-19
Joyce	A	English	453453453	1972-07-31	5631 Rice, Houston, TX	F	25000.00	333445555	5	Administration	4	987654321	1995-01-01
Joyce	A	English	453453453	1972-07-31	5631 Rice, Houston, TX	F	25000.00	333445555	5	Research	5	333445555	1988-05-22
Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	38000.00	333445555	5	Headquarters	1	888665555	1981-06-19
Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	38000.00	333445555	5	Administration	4	987654321	1995-01-01
Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	38000.00	333445555	5	Research	5	333445555	1988-05-22
John	G	Zelaya	777883333	1999-07-21	3848 Limpert, Humble, TX	M	40000.00	987654321	4	Headquarters	1	888665555	1981-06-19
John	G	Zelaya	777883333	1999-07-21	3848 Limpert, Humble, TX	M	40000.00	987654321	4	Administration	4	987654321	1995-01-01
John	G	Zelaya	777883333	1999-07-21	3848 Limpert, Humble, TX	M	40000.00	987654321	4	Research	5	333445555	1988-05-22
James	E	Borg	888665555	1937-11-10	450 Stone, Houston, TX	M	55000.00	NULL	1	Headquarters	1	888665555	1981-06-19
James	E	Borg	888665555	1937-11-10	450 Stone, Houston, TX	M	55000.00	NULL	1	Administration	4	987654321	1995-01-01
James	E	Borg	888665555	1937-11-10	450 Stone, Houston, TX	M	55000.00	NULL	1	Research	5	333445555	1988-05-22
Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire, TX	F	43000.00	888665555	4	Headquarters	1	888665555	1981-06-19
Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire, TX	F	43000.00	888665555	4	Administration	4	987654321	1995-01-01
Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire, TX	F	43000.00	888665555	4	Research	5	333445555	1988-05-22
Ahmad	V	Jabbar	987987987	1969-03-29	980 Dallas, Houston, TX	M	25000.00	987654321	4	Headquarters	1	888665555	1981-06-19
Ahmad	V	Jabbar	987987987	1969-03-29	980 Dallas, Houston, TX	M	25000.00	987654321	4	Administration	4	987654321	1995-01-01
Ahmad	V	Jabbar	987987987	1969-03-29	980 Dallas, Houston, TX	M	25000.00	987654321	4	Research	5	333445555	1988-05-22
Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring, TX	F	25000.00	987654321	4	Headquarters	1	888665555	1981-06-19
Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring, TX	F	25000.00	987654321	4	Administration	4	987654321	1995-01-01
Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring, TX	F	25000.00	987654321	4	Research	5	333445555	1988-05-22

30 rows in set (0.000 sec)

Q11

```
MariaDB [19610dm]> SELECT ALL Salary from EMPLOYEE;
```

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

```
| Salary |
```

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

```
| 39000.00 |
```

```
| 30000.00 |
```

```
| 40000.00 |
```

```
| 25000.00 |
```

```
| 38000.00 |
```

```
| 40000.00 |
```

```
| 55000.00 |
```

```
| 43000.00 |
```

```
| 25000.00 |
```

```
| 25000.00 |
```

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

```
10 rows in set (0.000 sec)
```

Q11A

```
MariaDB [19610dm]> SELECT DISTINCT Salary from EMPLOYEE;
```

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

```
| Salary |
```

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

```
| 39000.00 |
```

```
| 30000.00 |
```

```
| 40000.00 |
```

```
| 25000.00 |
```

```
| 38000.00 |
```

```
| 55000.00 |
```

```
| 43000.00 |
```

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

```
7 rows in set (0.000 sec)
```

Q4A

```

MariaDB [19610dm]> (SELECT DISTINCT Pnumber
-> from PROJECT, DEPARTMENT, EMPLOYEE
-> where Dnum = Dnumber AND Mgr_ssn = Ssn
-> AND Lname = 'Smith')
-> UNION
-> (SELECT DISTINCT Pnumber
-> from PROJECT, WORKS_ON, EMPLOYEE
-> where Pnumber = Pno AND Essn = Ssn
-> AND Lname = 'Smith');

```

```

+-----+
| Pnumber |
+-----+
|        1 |
|        2 |
+-----+

```

2 rows in set (0.001 sec)

Q12

```

MariaDB [19610dm]> select Fname, Lname
-> from EMPLOYEE
-> where Address LIKE '%Houston, TX%';

```

```

+-----+-----+
| Fname   | Lname   |
+-----+-----+
| John    | Smith   |
| Franklin | Wong    |
| Joyce   | English |
| James   | Borg    |
| Ahmad   | Jabbar  |
+-----+-----+

```

5 rows in set (0.000 sec)

Q12A

```

MariaDB [19610dm]> select Fname, Lname
-> from EMPLOYEE
-> where Bdate LIKE '__7____';
+-----+-----+
| Fname | Lname  |
+-----+-----+
| Joyce | English |
+-----+-----+
1 row in set (0.000 sec)

```

Q13

```

MariaDB [19610dm]> select E.Fname, E.Lname, 1.1*E.Salary AS Increased_sal
-> from EMPLOYEE AS E, WORKS_ON AS W, PROJECT AS P
-> where E.Ssn = W.Essn AND W.Pno = P.Pnumber AND P.Pname = 'ProductX';
+-----+-----+-----+
| Fname | Lname  | Increased_sal |
+-----+-----+-----+
| John  | Smith  | 33000.000 |
| Joyce | English | 27500.000 |
+-----+-----+-----+
2 rows in set (0.001 sec)

```

Q14

```

MariaDB [19610dm]> select * from EMPLOYEE where (Salary BETWEEN 30000 AND 40000) AND Dno=5;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Fname | Minit | Lname | Ssn      | Bdate   | Address                               | Sex | Salary | Super_ssn | Dno |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| John  | B     | Smith | 123456789 | 1965-01-09 | 731 Fondren, Houston, TX | M   | 30000.00 | 333445555 | 5 |
| Franklin | T   | Wong  | 333445555 | 1955-12-08 | 638 Voss, Houston, TX   | M   | 40000.00 | 888665555 | 5 |
| Ramesh | K    | Narayan | 666884444 | 1962-09-15 | 975 Fire Oak, Humble, TX | M   | 38000.00 | 333445555 | 5 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
3 rows in set (0.000 sec)

```

Q15

```

MariaDB [19610dm]> select D.Dname, E.Lname, E.Fname, P.Pname
-> from DEPARTMENT AS D, EMPLOYEE AS E, WORKS_ON AS W, PROJECT AS P
-> where D.Dnumber = E.Dno AND E.Ssn = W.Essn AND W.Pno = P.Pnumber
-> order by D.Dname, E.Lname, E.Fname;

```

Dname	Lname	Fname	Pname
Administration	Jabbar	Ahmad	Newbenefits
Administration	Jabbar	Ahmad	Computerization
Administration	Wallace	Jennifer	Reorganization
Administration	Wallace	Jennifer	Newbenefits
Administration	Zelaya	Alicia	Newbenefits
Administration	Zelaya	Alicia	Computerization
Headquarters	Borg	James	Reorganization
Research	English	Joyce	ProductY
Research	English	Joyce	ProductX
Research	Narayan	Ramesh	ProductZ
Research	Smith	John	ProductY
Research	Smith	John	ProductX
Research	Wong	Franklin	Reorganization
Research	Wong	Franklin	ProductZ
Research	Wong	Franklin	ProductY
Research	Wong	Franklin	Computerization

16 rows in set (0.001 sec)

U1

```

MariaDB [19610dm]> insert into EMPLOYEE
-> VALUES ('Richard', 'K', 'Marini', '653298653', '1962-12-30', '98 Oak Forest, Katy, TX'
, 'M', 37000, '653298653', 4);
Query OK, 1 row affected (0.002 sec)

```

U1A

```

MariaDB [19610dm]> insert into EMPLOYEE(Fname, Lname, Dno, Ssn) VALUES ('Richard', 'Marini',
4, '653298654');
Query OK, 1 row affected (0.003 sec)

```

U2

```

MariaDB [19610dm]> insert into EMPLOYEE(Fname, Lname, Ssn, Dno)
-> VALUES ('Robert', 'Hatcher', '980760540', 2);
Query OK, 1 row affected (0.002 sec)

```

U2A

```
MariaDB [19610dm]> insert into EMPLOYEE(Fname, Lname, Dno)
-> VALUES ('Robert', 'Hatcher', 5);
ERROR 1364 (HY000): Field 'Ssn' doesn't have a default value
```

U3A & U3B

```
MariaDB [19610dm]> create table WORKS_ON_INFO
-> (Emp_name VARCHAR(15),
-> Proj_name VARCHAR(15),
-> Hours_per_week DECIMAL(3,1));
Query OK, 0 rows affected (0.015 sec)

MariaDB [19610dm]> insert into WORKS_ON_INFO(Emp_name, Proj_name, Hours_per_week)
-> select E.Lname, P.Pname, W.Hours
-> from PROJECT P, WORKS_ON W, EMPLOYEE E
-> where P.Pnumber = W.Pno AND W.Essn = E.Ssn;
Query OK, 16 rows affected (0.003 sec)
Records: 16 Duplicates: 0 Warnings: 0
```

```
MariaDB [19610dm]> select * from WORKS_ON_INFO;
+-----+-----+-----+
| Emp_name | Proj_name | Hours_per_week |
+-----+-----+-----+
| Wong | Computerization | 10.0 |
| Jabbar | Computerization | 35.0 |
| Zelaya | Computerization | 10.0 |
| Wallace | Newbenefits | 20.0 |
| Jabbar | Newbenefits | 5.0 |
| Zelaya | Newbenefits | 30.0 |
| Smith | ProductX | 32.5 |
| English | ProductX | 20.0 |
| Smith | ProductY | 7.5 |
| Wong | ProductY | 10.0 |
| English | ProductY | 20.0 |
| Wong | ProductZ | 10.0 |
| Narayan | ProductZ | 40.0 |
| Wong | Reorganization | 10.0 |
| Borg | Reorganization | 10.0 |
| Wallace | Reorganization | 15.0 |
+-----+-----+-----+
16 rows in set (0.000 sec)
```

U4A, U4B, U4C, U4D


```

MariaDB [19610dm]> delete from EMPLOYEE where Lname = 'Brown';
Query OK, 0 rows affected (0.000 sec)

MariaDB [19610dm]> delete from EMPLOYEE where Ssn = '123456789';
Query OK, 1 row affected (0.003 sec)

MariaDB [19610dm]> delete from EMPLOYEE where Dno = 5;
Query OK, 3 rows affected (0.003 sec)

MariaDB [19610dm]> delete from EMPLOYEE;
Query OK, 9 rows affected (0.003 sec)

```

U5

```

MariaDB [19610dm]> update PROJECT
    -> set Plocation = 'Bellaire', Dnum = 5
    -> where Pnumber = 10;
Query OK, 1 row affected (0.003 sec)
Rows matched: 1  Changed: 1  Warnings: 0

```

After update:

```

MariaDB [19610dm]> select * from PROJECT;
+-----+-----+-----+-----+
| Pname          | Pnumber | Plocation | Dnum |
+-----+-----+-----+-----+
| ProductX       | 1       | Bellaire  | 5     |
| ProductY       | 2       | Sugarland | 5     |
| ProductZ       | 3       | Houston   | 5     |
| Computerization | 10      | Bellaire  | 5     |
| Reorganization | 20      | Houston   | 1     |
| Newbenefits    | 30      | Stafford  | 4     |
+-----+-----+-----+-----+
6 rows in set (0.000 sec)

```

U6

After update:

Fname	Minit	Lname	Ssn	Bdate	Address	Sex	Salary	Super_ssn	Dno
Alicia	T	Smith	123123123	1957-01-29	235 Fire, Spring, TX	F	39000.00	888665555	4
John	B	Smith	123456789	1965-01-09	731 Fondren, Houston, TX	M	33000.00	333445555	5
Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	44000.00	888665555	5
Joyce	A	English	453453453	1972-07-31	5631 Rice, Houston, TX	F	27500.00	333445555	5
Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	41800.00	333445555	5
John	G	Zelaya	777883333	1999-07-21	3848 Limpert, Humble, TX	M	40000.00	987654321	4
James	E	Borg	888665555	1937-11-10	450 Stone, Houston, TX	M	55000.00	NULL	1
Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire, TX	F	43000.00	888665555	4
Ahmad	V	Jabbar	987987987	1969-03-29	980 Dallas, Houston, TX	M	25000.00	987654321	4
Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring, TX	F	25000.00	987654321	4