

**22MCA0223**  
**KAMRAN ANSARI**

1. Create tables identifying the primary keys and foreign keys.

```
CREATE TABLE EMPLOYEE(  
    SSN INT,  
    NAME VARCHAR(40),  
    SEX VARCHAR(1),  
    ADDRESS VARCHAR(100),  
    SALARY DOUBLE PRECISION,  
    DEPT INT,  
    DESIGNATION VARCHAR(20),  
    SUPERVISORSSN INT,  
    CONSTRAINT EMPLOYEE__PK PRIMARY KEY(SSN)  
);
```

```
CREATE TABLE DEPT(  
    DEPT_NUMBER INT,  
    NAME VARCHAR(40),  
    MANAGERSSN INT,  
    MANAGER_DOB DATE,  
    LOCATION VARCHAR(20),  
    CONSTRAINT DEPARTMENT_PK PRIMARY KEY(DEPT_NUMBER),  
    CONSTRAINT DEPT MANAGERSSN_PK FOREIGN KEY(MANAGERSSN)  
REFERENCES EMPLOYEE(SSN)  
);
```

```
CREATE TABLE PROJECT(  
    PROJECT_NUMBER INT,  
    NAME VARCHAR(30),  
    LOCATION VARCHAR(20),  
    CONTROLLING_DEPARTMENT INT,  
    BUDGET DOUBLE PRECISION,  
    CONSTRAINT PROJECT_PK PRIMARY KEY(PROJECT_NUMBER),  
    CONSTRAINT PROJECT_DEPT_FK FOREIGN KEY(CONTROLLING_DEPARTMENT)  
REFERENCES DEPT(DEPT_NUMBER)  
);
```

```
CREATE TABLE WORKS_ON(  
    SSN INT,  
    PROJECT_NUM INT,  
    HOURS INT,  
    CONSTRAINT WORKS_ON_PK PRIMARY KEY(SSN, PROJECT_NUM),  
    CONSTRAINT WORKS_ON_EMPLOYEE_FK FOREIGN KEY(SSN) REFERENCES  
EMPLOYEE(SSN),  
    CONSTRAINT WORKS_ON_PROJECT_FK FOREIGN KEY(PROJECT_NUM)  
REFERENCES PROJECT(PROJECT_NUMBER)  
);
```

**Constraints to be added after insertion -**

```
ALTER TABLE
  EMPLOYEE
ADD CONSTRAINT
  EMPLOYEE_EMP_FK FOREIGN KEY(SSN)
REFERENCES
  EMPLOYEE(SSN);
```

```
ALTER TABLE
  EMPLOYEE
ADD CONSTRAINT
  EMPLOYEE_DEPT_FK FOREIGN KEY(DEPT)
REFERENCES
  DEPT(DEPT_NUMBER);
```

2. Insert necessary tuples into the tables. (min 5 rows)

```
INSERT INTO EMPLOYEE VALUES(
  1,
  'E1',
  'M',
  'A1',
  40000,
  1,
  'DE1',
  2
);
```

```
INSERT INTO EMPLOYEE VALUES(
  2,
  'E2A',
  'F',
  'A2',
  80000,
  2,
  'DE3',
  3
);
```

```
INSERT INTO EMPLOYEE VALUES(
  3,
  'E3',
  'F',
  'A23',
  30000,
  2,
  'DE44',
  1
);
```

```
INSERT INTO EMPLOYEE VALUES(  
    4,  
    'E4',  
    'M',  
    'A24',  
    40000,  
    2,  
    'DE2',  
    1  
);
```

```
INSERT INTO EMPLOYEE VALUES(  
    5,  
    'E5',  
    'F',  
    'A25',  
    10000,  
    2,  
    'DE1',  
    2  
);
```

```
INSERT INTO DEPT VALUES(  
    1,  
    'D1',  
    1,  
    '20-DEC-2001',  
    'L2'  
);
```

```
INSERT INTO DEPT VALUES(  
    2,  
    'D2',  
    3,  
    '24-DEC-2001',  
    'L3'  
);
```

```
INSERT INTO DEPT VALUES(  
    3,  
    'D3',  
    null,  
    '24-JAN-2001',  
    'L4'  
);
```

```
INSERT INTO DEPT VALUES(  
    4,  
    'D4',  
    3,  
    '24-FEB-2001',  
    'L5'
```

```
);
```

```
INSERT INTO DEPT VALUES(
```

```
5,
```

```
'D5',
```

```
2,
```

```
'24-FEB-1999',
```

```
'L6'
```

```
);
```

```
INSERT INTO PROJECT VALUES(
```

```
1,
```

```
'P1',
```

```
'L1',
```

```
1,
```

```
6000
```

```
);
```

```
INSERT INTO PROJECT VALUES(
```

```
2,
```

```
'P2',
```

```
'L2',
```

```
2,
```

```
7000
```

```
);
```

```
INSERT INTO PROJECT VALUES(
```

```
3,
```

```
'P3',
```

```
'L3',
```

```
1,
```

```
1000
```

```
);
```

```
INSERT INTO PROJECT VALUES(
```

```
4,
```

```
'P4',
```

```
'L4',
```

```
1,
```

```
8000
```

```
);
```

```
INSERT INTO PROJECT VALUES(
```

```
5,
```

```
'P5',
```

```
'L5',
```

```
2,
```

```
5000
```

```
);
```

```
INSERT INTO WORKS_ON VALUES(
```

```
1,
```

```

2,
33
);

INSERT INTO WORKS_ON VALUES(
1,
3,
43
);

INSERT INTO WORKS_ON VALUES(
2,
1,
50
);

INSERT INTO WORKS_ON VALUES(
4,
1,
100
);

INSERT INTO WORKS_ON VALUES(
5,
2,
40
);

```

SSN	NAME	S	ADDRESS	SALARY	DEPT	DESIGNATIO	SUPERVISORSSN
1	E1	M	A1	40000	1	DE1	2
2	E2A	F	A2	80000	2	DE3	3
3	E3	F	A23	30000	2	DE44	1
4	E4	M	A24	40000	2	DE2	1
5	E5	F	A25	10000	2	DE1	2

DEPT_NUMBER	NAME	MANAGERSSN	MANAGER_D	LOCATION
1	D1	1	20-DEC-01	L2
2	D2	3	24-DEC-01	L3
3	D3		24-JAN-01	L4
4	D4	3	24-FEB-01	L5
5	D5	2	24-FEB-99	L6

PROJECT	NUMBER	NAME	LOCATION	CONTROLLING_DEPARTMENT	BUDGET
1	P1		L1	1	6000
2	P2		L2	2	7000
3	P3		L3	1	1000
4	P4		L4	1	8000
5	P5		L5	2	5000

SSN	PROJECT_NUM	HOURS
1	2	33
1	3	43
2	1	50
4	1	100
5	2	40

3. Queries ( $1 \times 5 = 5$ ) (1) Project names which are in a particular location. (2) Retrieve the customer whose name end with A. (3) Department details which has a nomanager. (4) Display all the department names in upper case and lower case. (5) Find the employee who have taken the salary more than 50000

PROJECT NUMBER	NAME	LOCATION	CONTROLLING_DEPARTMENT	BUDGET
1	P1	L1	1	6000

  

SSN	NAME	S	ADDRESS	SALARY	DEPT	DESIGNATIO	SUPERVISORSSN
2	E2A	F	A2	80000	2	DE3	3

  

DEPT_NUMBER	NAME	MANAGERSSN	MANAGER_D	LOCATION
3	D3	24-JAN-01	L4	

  

UPPER(NAME)	LOWER(NAME)
D1	d1
D2	d2
D3	d3
D4	d4
D5	d5

  

SSN	NAME	S	ADDRESS	SALARY	DEPT	DESIGNATIO	SUPERVISORSSN
2	E2A	F	A2	80000	2	DE3	3