

Q4)


```
/* 2025-04-03 11:35:43 [21 ms] */
▷ Run
DROP TABLE IF EXISTS EMPLOYEE;
/* 2025-04-03 11:35:45 [61 ms] */
▷ Run | ⌂ Select
create table EMPLOYEE(
  fname varchar(20) NOT NULL,
  minit varchar(1),
  lname varchar(25) NOT NULL,
  ssn varchar(9) DEFAULT '000000000',
  bdate date,
  address varchar(50),
  sex varchar(1),
  salary int CHECK (salary>0) NOT NULL,
  super_ssn varchar(9),
  dno int,
  PRIMARY KEY(ssn),
  FOREIGN KEY (super_ssn) REFERENCES EMPLOYEE(ssn)
  ON DELETE SET NULL
  ON UPDATE CASCADE
);
/* 2025-04-03 11:35:47 [9 ms] */
```

```
/* 2025-04-03 11:35:47 [9 ms] */
```

```
▷ Run
```

```
DROP TABLE IF EXISTS DEPARTMENT;
```

```
/* 2025-04-03 11:35:47 [37 ms] */
```

```
▷ Run |  Select
```

```
create table DEPARTMENT(  
  dname varchar(25) NOT NULL,  
  dnumber int,  
  mgr_ssn varchar(9),  
  mgr_start_date date,  
  PRIMARY KEY(dnumber),  
  FOREIGN KEY (mgr_ssn) REFERENCES EMPLOYEE(ssn)  
  ON DELETE SET NULL  
  ON UPDATE CASCADE
```

```
/* 2025-04-03 11:35:49 [4 ms] */
```

```
▷ Run
```

```
DROP TABLE IF EXISTS DEPT_LOCATIONS;
```

```
/* 2025-04-03 11:35:52 [52 ms] */
```

```
▷ Run |  Select
```

```
create table DEPT_LOCATIONS(  
  dnumber int,  
  dlocation varchar(20) NOT NULL,  
  PRIMARY KEY(dnumber,dlocation),  
  FOREIGN KEY (dnumber) REFERENCES DEPARTMENT(dnumber)  
  ON DELETE CASCADE  
  ON UPDATE CASCADE  
);
```

```
/* 2025-04-03 11:35:53 [6 ms] */
```

▷ Run

```
DROP TABLE IF EXISTS PROJECT;
```

```
/* 2025-04-03 11:35:56 [57 ms] */
```

▷ Run |  Select


```
create table PROJECT(  
pname varchar(20) NOT NULL,  
pnumber int,  
plocation varchar(20),  
dnum int,  
PRIMARY KEY(pnumber),  
FOREIGN KEY (dnum) REFERENCES DEPARTMENT(dnumber)  
ON DELETE SET NULL  
ON UPDATE CASCADE  
);
```

```
/* 2025-04-03 11:35:58 [13 ms] */
```

▷ Run

```
DROP TABLE IF EXISTS WORKS_ON;
```

```
/* 2025-04-03 11:36:00 [77 ms] */
```

▷ Run |  Select

```
create table WORKS_ON(  
essn varchar(9),  
pno int,  
phours float(5,1),  
PRIMARY KEY(essn, pno),  
FOREIGN KEY (essn) REFERENCES EMPLOYEE(ssn)  
ON DELETE NO ACTION  
ON UPDATE CASCADE  
);
```

```
/* 2025-04-03 11:36:02 [4 ms] */
```

```

/* 2025-04-03 11:36:02 [4 ms] */
▷ Run
DROP TABLE IF EXISTS DEPENDENT;
/* 2025-04-03 11:36:03 [38 ms] */
▷ Run | ⌂ Select
create table DEPENDENT(
  essn varchar(9),
  dependent_name varchar(20) NOT NULL,
  sex varchar(1),
  bdate date,
  relationship varchar(20) NOT NULL,
  PRIMARY KEY(essn, dependent_name),
  FOREIGN KEY (essn) REFERENCES EMPLOYEE(ssn)
  ON DELETE CASCADE
  ON UPDATE CASCADE
);

```

```

/* 2025-04-03 11:38:33 [15 ms] */
▷ Run | ⌂ Select
INSERT INTO EMPLOYEE(fname, minit, lname, ssn, bdate, address, sex, salary, super_ssn, dno)
VALUES
('James', 'E', 'Borg', '888665555', '1937-11-10', '450 Stone, Houston, TX', 'M', 55000, NULL, 1);
/* 2025-04-03 11:40:13 [12 ms] */
▷ Run | ⌂ Select
INSERT INTO EMPLOYEE(fname, minit, lname, ssn, bdate, address, sex, salary, super_ssn, dno)
VALUES
('Franklin', 'T', 'Wong', '333445555', '1955-12-08', '638 Voss, Houston, TX', 'M', 40000, '888665555', 5),
('Jennifer', 'S', 'Wallace', '987654321', '1941-06-20', '291 Berry, Bellaire, TX', 'F', 43000, '888665555', 4);
/* 2025-04-03 11:40:57 [16 ms] */
▷ Run | ⌂ Select
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),
('Alicia', 'J', 'Zelaya', '999887777', '1968-01-19', '3321 Castle, Spring, TX', 'F', 25000, '987654321', 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);

```

```
/* 2025-04-03 11:42:42 [12 ms] */
```

```
▷Run | □Select
```

```
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');
```

```
/* 2025-04-03 11:44:06 [8 ms] */
```

```
▷Run | □Select
```

```
INSERT INTO DEPT_LOCATIONS(Dnumber, Dlocation)
```

```
VALUES
```

```
(1, 'Houston'),
```

```
(4, 'Stafford'),
```

```
(5, 'Bellaire'),
```

```
(5, 'Sugarland'),
```

```
(5, 'Houston');
```

```
/* 2025-04-03 11:44:07 [16 ms] */
```

```
▷Run | □Select
```

```
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);
```

```
/* 2025-04-03 11:44:10 [16 ms] */
```


```
▷ Run |  Select
```

```
INSERT INTO WORKS_ON(essn, pno, phours)
```

```
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, NULL);
```

```
/* 2025-04-03 11:44:12 [23 ms] */
```


```
▷ Run |  Select
```

```
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');
```

```
/* 2025-04-03 11:50:58 [157 ms] */
```

```
▷ Run |  Select
```

```
ALTER TABLE EMPLOYEE
```

```
ADD CONSTRAINT fk_dept
```

```
FOREIGN KEY (dno)
```

```
REFERENCES DEPARTMENT (dnumber)
```

```
ON DELETE SET NULL
```

```
ON UPDATE CASCADE;
```

```

/* 2025-04-03 11:50:58 [157 ms] */
> Run | ⌘Select
ALTER TABLE EMPLOYEE
ADD CONSTRAINT fk_dept
FOREIGN KEY (dno)
REFERENCES DEPARTMENT (dnumber)
ON DELETE SET NULL
ON UPDATE CASCADE;
/* 2025-04-03 15:45:42 [71 ms] */
> Run | ⌘Select
CREATE TRIGGER capitalize_names_before_insert
BEFORE INSERT ON EMPLOYEE
FOR EACH ROW
BEGIN
    SET NEW.fname = CONCAT(UCASE(LEFT(NEW.fname, 1)), SUBSTRING(NEW.fname, 2)),
    NEW.lname = CONCAT(UCASE(LEFT(NEW.lname, 1)), SUBSTRING(NEW.lname, 2));
END;
/* 2025-04-03 17:20:48 [59 ms] */
> Run | ⌘Select
INSERT INTO EMPLOYEE(fname, minit, lname, ssn, bdate, address, sex, salary, super_ssn, dno)
VALUES
('jehad', 'M', 'hamad', '12332121', '2005-01-06', NULL, 'M', 45000, NULL, 1);
/* 2025-04-03 17:34:52 [42 ms] */
> Run | ⌘Select
CREATE TRIGGER bdate_before_insert
BEFORE INSERT ON DEPENDENT
FOR EACH ROW
BEGIN
    IF NEW.bdate > CURDATE() THEN
        SIGNAL SQLSTATE '45000'
        SET MESSAGE_TEXT = 'Invalid birthdate! Cannot be in the future.';
    END IF;
END;

```

```

/* 2025-04-03 22:03:25 [42 ms] */
▷Run|⌘Select
CREATE TRIGGER update_salary_trigger
AFTER UPDATE ON WORKS_ON
FOR EACH ROW
BEGIN
    -- Declare a local variable
    SET @total_hours = (
        SELECT SUM(phours)
        FROM WORKS_ON
        WHERE essn = NEW.essn
    );
    -- If total hours exceed 50, increase the salary
    IF @total_hours > 50 THEN
        UPDATE EMPLOYEE
        SET salary = salary * 1.10 -- Increase salary by 10%
        WHERE ssn = NEW.essn;
    END IF;
END;

```

```

/* 2025-04-03 22:07:48 [18 ms] */
▷Run|⌘Select
UPDATE `WORKS_ON`
SET phours = 30
WHERE essn = '333445555' AND pno = 20;

```

```

/* 2025-04-03 23:00:21 [27 ms] */
▷Run|⌘Select
CREATE TRIGGER insert_salary_trigger
AFTER INSERT ON WORKS_ON
FOR EACH ROW
BEGIN
    -- Declare a local variable
    SET @total_hours = (
        SELECT SUM(phours)
        FROM WORKS_ON
        WHERE essn = NEW.essn
    );

```

```

/* 2025-04-03 23:01:40 [3 ms] */
▷Run|+Tab|JSON
SELECT * FROM `WORKS_ON` where essn = '12332121' LIMIT 100;
/* 2025-04-03 23:02:21 [10 ms] */
▷Run|⌘Select
INSERT INTO WORKS_ON (essn, pno, phours) VALUES
('12332121', 1, 15),
('12332121', 2, 20);
/* 2025-04-03 23:04:01 [2 ms] */

```

```

▷Run|+Tab|JSON
SELECT * FROM `WORKS_ON` where essn = '12332121' LIMIT 100;
/* 2025-04-03 23:04:09 [2 ms] */
▷Run
INSERT INTO WORKS_ON (essn, pno, phours) VALUES
('12332121', 3, 18);

```

```

/* 2025-04-03 23:08:24 [3 ms] */
▷Run|+Tab|JSON
SELECT * FROM `WORKS_ON` WHERE essn = '12332121' LIMIT 100;

```