- Considering super_id in Employee table can be null as the employee may not have the superior as the employee inputted is the superior.
- Considering hours in Works_on as null as employee may not have started working on the project yet
- Considering Salary in salary with default value as 0 as the employee may not have been for a year in the company and thus no yearly amount of income yet
- Considering salary doesn't go above 999,999.99

 (the foreign key, primary key and constraints can be seen for each table by seeing the code)

//add mgr_id to department later using alter as otherwise table cant be created as department needs employee to reference the foreign key but employee table needs department to reference the foreign key dept_id in employee table!

New table added to diagram:

Role table
Role (Technician or Manager)
Salary_factor (0 to 100)
Comment (text to describe the role)

Commands:

CREATE database Company;

Use Company;

Create table Department

(dept_id char(7) not null,

dept_name char(20) not null,

mgr_start_date date not null,

PRIMARY KEY(dept_id)

);

Create table Employee

```sql
(emp_id char(7) not null,

emp_fname char(10) not null,

emp_lname char(10) not null,

emp_bdate date not null,

emp_address char(30) not null,

gender char not null

CHECK (gender IN ('M','F', 'U')),

dept_id char(7) not null,

super_id char(7),

PRIMARY KEY(emp_id, dept_id, super_id),

FOREIGN KEY(dept_id) REFERENCES Department(dept_id),

FOREIGN KEY(super_id) REFERENCES Employee(emp_id)

);


alter table Department

ADD COLUMN mgr_id char(7) not null;


alter table Department

ADD CONSTRAINT mgr_id FOREIGN KEY(mgr_id)

references Employee(emp_id);


Create table Project

(proj_id char(7) not null,

proj_name char(20) not null,

proj_loc char(20) not null,
```

```
dept_id char(7) not null,

PRIMARY KEY(proj_id, dept_id),

FOREIGN KEY(dept_id) REFERENCES Department(dept_id)

);


Create table Salary

(emp_id char(7) not null,

salary decimal(8,2) not null DEFAULT 0.00,

start_date date not null,

PRIMARY KEY(emp_id),

FOREIGN KEY(emp_id) REFERENCES Employee(emp_id)

);
```

                //not giving the comment as null as pdf stated that there <u>has to be</u> a comment attribute where the role can be described

```
Create table Role

(role char not null

Check(role IN ('Technician','Manager')),

salary_factor int not null

Check(salary_factor >= 0 AND salary_factor <= 100),

comment tinytext not null,

PRIMARY KEY(role)

);

Create table Works_on

(emp_id char(7) not null,

proj_id char(7) not null,
```

role char not null

Check(role IN ('Technician','Manager')),

hours int(4),

PRIMARY KEY(emp_id, proj_id, role),

FOREIGN KEY(proj_id) REFERENCES Project(proj_id),

FOREIGN KEY(emp_id) REFERENCES Employee(emp_id),

FOREIGN KEY(role) REFERENCES Role(role)

);

Screenshots: (see next page)

```
MariaDB [test]> CREATE database Company;
Query OK, 1 row affected (0.003 sec)

MariaDB [test]> Use Company;
Database changed
MariaDB [Company]> Create table Department
    -> (dept_id char(7) not null,
    -> dept_name char(20) not null,
    -> mgr_start_date date not null,
    -> PRIMARY KEY(dept_id)
    -> );
Query OK, 0 rows affected (0.034 sec)

MariaDB [Company]> Create table Employee
    -> (emp_id char(7) not null,
    -> emp_fname char(10) not null,
    -> emp_lname char(10) not null,
    -> emp_bdate date not null,
    -> emp_address char(30) not null,
    -> gender char not null
    -> CHECK (gender IN ('M','F', 'U')),
    -> dept_id char(7) not null,
    -> super_id char(7),
    -> PRIMARY KEY(emp_id, dept_id, super_id),
    -> FOREIGN KEY(dept_id) REFERENCES Department(dept_id),
    -> FOREIGN KEY(super_id) REFERENCES Employee(emp_id)
    -> );
Query OK, 0 rows affected (0.047 sec)

MariaDB [Company]>
MariaDB [Company]> alter table Department
    -> ADD COLUMN mgr_id char(7) not null;
Query OK, 0 rows affected (0.021 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

```
MariaDB [Company]> alter table Department
    -> ADD CONSTRAINT mgr_id FOREIGN KEY(mgr_id)
    -> references Employee(emp_id);
Query OK, 0 rows affected (0.138 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [Company]> Create table Project
    -> (proj_id char(7) not null,
    -> proj_name char(20) not null,
    -> proj_loc char(20) not null,
    -> dept_id char(7) not null,
    -> PRIMARY KEY(proj_id, dept_id),
    -> FOREIGN KEY(dept_id) REFERENCES Department(dept_id)
    -> );
Query OK, 0 rows affected (0.040 sec)

MariaDB [Company]>
MariaDB [Company]> Create table Salary
    -> (emp_id char(7) not null,
    -> salary decimal(8,2) not null DEFAULT 0.00,
    -> start_date date not null,
    -> PRIMARY KEY(emp_id),
    -> FOREIGN KEY(emp_id) REFERENCES Employee(emp_id)
    -> );
Query OK, 0 rows affected (0.034 sec)

MariaDB [Company]> Create table Role
    -> (role char not null
    -> Check(role IN ('Technician','Manager')),
    -> salary_factor int not null
    -> Check(salary_factor >= 0 AND salary_factor <= 100),
    -> comment tinytext not null,
    ->
    -> PRIMARY KEY(role)
    -> );
Query OK, 0 rows affected (0.033 sec)
```

```
MariaDB [Company]> Create table Role
    -> (role char not null
    -> Check(role IN ('Technician','Manager')),
    -> salary_factor int not null
    -> Check(salary_factor >= 0 AND salary_factor <= 100),
    -> comment tinytext not null,
    ->
    -> PRIMARY KEY(role)
    -> );
Query OK, 0 rows affected (0.033 sec)

MariaDB [Company]> Create table Works_on
    -> (emp_id char(7) not null,
    -> proj_id char(7) not null,
    -> role char not null
    -> Check(role IN ('Technician','Manager')),
    -> hours int(4),
    -> PRIMARY KEY(emp_id, proj_id, role),
    -> FOREIGN KEY(proj_id) REFERENCES Project(proj_id),
    -> FOREIGN KEY(emp_id) REFERENCES Employee(emp_id),
    -> FOREIGN KEY(role) REFERENCES Role(role)
    -> );
Query OK, 0 rows affected (0.046 sec)
```