Project 4 (38 points)

Please, replace in all components of project_4 (file name, tables name, attributes name, variables name, etc.) MK by your initials.

Problem 1(21 points).

Use JDBC to write the programs requested in this problem.

Given the ER diagram in Figure 1, the client choice was to create the tables **MK_Emp** and **MK_Supervisor** in the relational model that corresponds to the ER diagram below:
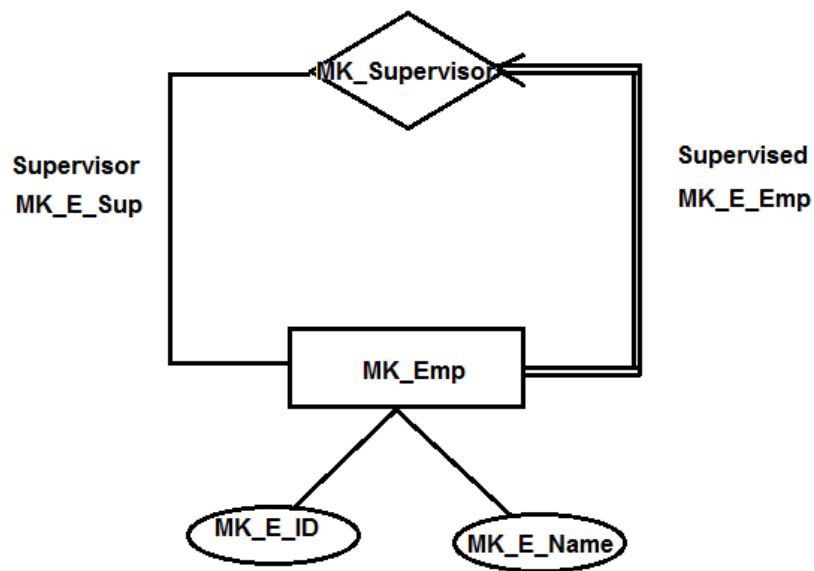

Figure 1

```
MK_Emp (MK_E_ID integer not null primary key, \
MK_E_Name varchar(25))

Create table MK_Supervisor (MK_E_Sup integer not null,  \
MK_E_Emp integer not null, \
MK_Quot varchar(2) default null, \
constraint MK_Quot1 check (MK_Quot in ('A','B','C','D', 'F')),  \
constraint MK_PK_Sup Primary key (MK_E_Emp),  \
constraint MK_FK_Sup Foreign key (MK_E_Sup) references MK_Emp(MK_E_ID)  \
ON DELETE CASCADE,  \
constraint MK_FK_EMP Foreign key (MK_E_Emp) references MK_Emp(MK_E_ID)  \
ON DELETE CASCADE )
```

You have to present:
1. `Create_MK.java` program which will create the 2 tables above.
2. `Insert_MK_Emp.java` program that inserts the data in table `MK_Emp` as presented below:

```
MK_E_ID      MK_E_NAME
----------- -------------------------
          0 General Manager
         15 Supervisor 15
         25 Supervisor 25
         35 Supervisor 35
        100 Supervisor 100
```
and list (after all insertions) all rows in the table as below (or better alignment):

```
MK_E_ID      MK_E_NAME
----------- --------------------

         0          General Manager
        15          Supervisor 15
        25          Supervisor 25
        35          Supervisor 35
       100          Supervisor 100
```

3. `Insert_MK_Supervisor.java` program that inserts the data in table `MK_Supervisor` as presented below:

```
MK_E_SUP     MK_E_EMP     MK_QUOT
----------- ----------- -------
          0           0 -
          0          15 -
          0          35 -
          0         100 -
          0          25 -
```
and list (after all insertions) all rows in the table as below (or better alignment):

```
MK_E_SUP     MK_E_EMP     MK_QUOT
----------- ----------- -------

          0           0    null
          0          15    null
          0          25    null
          0          35    null
          0         100    null
```

4. The file project_4_1.txt with the output of the execution of `Create_MK.java, Insert_MK_Emp.java, Insert_MK_Supervisor.java (in this order).`

You have to display in your java programs messages concerning each action, and object creation (see examples in course notes).

Problem 2 (17 points).

The business constraint says that "each employee must have a supervisor; only the general manager is his own supervisor". Hence, after the trigger creation the user cannot insert an employee in table **MK_Emp** without inserting the corresponding tuple in **MK_Supervisor**. The business constraint says:

if   MK_E_Id is <= 0   then the supervisor ID will be equal to 0,
if   0 < MK_E_Id <= 15   then the supervisor ID will be equal to 15,
if 15 < MK_E_Id <=25   then the supervisor ID will be equal to 25,
if 25 < MK_E_Id <=35   then the supervisor ID will be equal to 35,
if   MK_E_Id > 35   then the supervisor ID will be equal to 100.

You will create the trigger MK_total_dep_emp that after each insert of a row in **MK_Emp** will insert in table **MK_Supervisor** the data corresponding to the business constraint above. (user cannot insert an employee in **MK_Emp** without inserting the same employee and his/her supervisor in table **MK_Supervisor**).

1. Tables before the trigger creation (use **update** command to update **MK_E_Quot**).

```
db2 => select * from MK_Emp              select * from MK_Supervisor

MK_E_ID     MK_E_NAME                    MK_E_SUP     MK_E_EMP     MK_QUOT
----------- ------------------------     ----------- ----------- -------
          0 General Manager                       0           0 A
         15 Supervisor 15                         0          15 A
         25 Supervisor 25                         0          35 A
         35 Supervisor 35                         0         100 A
        100 Supervisor 100                        0          25 A
```

2. Create the trigger
3. Insert the data as presented below (replace '**Employee**' by your family name)

```
Insert into MK_Emp values (20, 'Employee 20')
Insert into MK_Emp values (30, 'Employee 30')
Insert into MK_Emp values (40, 'Employee 40')
Insert into MK_Emp values (50, 'Employee 50')
Insert into MK_Emp values (12, 'Employee 12')
Insert into MK_Emp values (13, 'Employee 13')
Insert into MK_Emp values (26, 'Employee 26')
Insert into MK_Emp values (33, 'Employee 33')
```

4. List data from your tables **MK_Emp** and **MK_Supervisor**

You have to present in the file **project_4_2.txt** (respect the order below) the following SQL commands:
- **select *** from tables **MK_Emp** and **MK_Supervisor** before the trigger creation (step 1)
- the trigger creation (step 2)
- **insert** all data as in step 3 above
- **select *** from both tables (step 4)

Hence, for project 4 you have to upload the following files:

project_4_1.txt,
project_4_2.txt,
Create_MK.java,
Insert_MK_Emp.java, and **Insert_MK_Supervisor.java.**