

Exercise 3

21. februar 2019

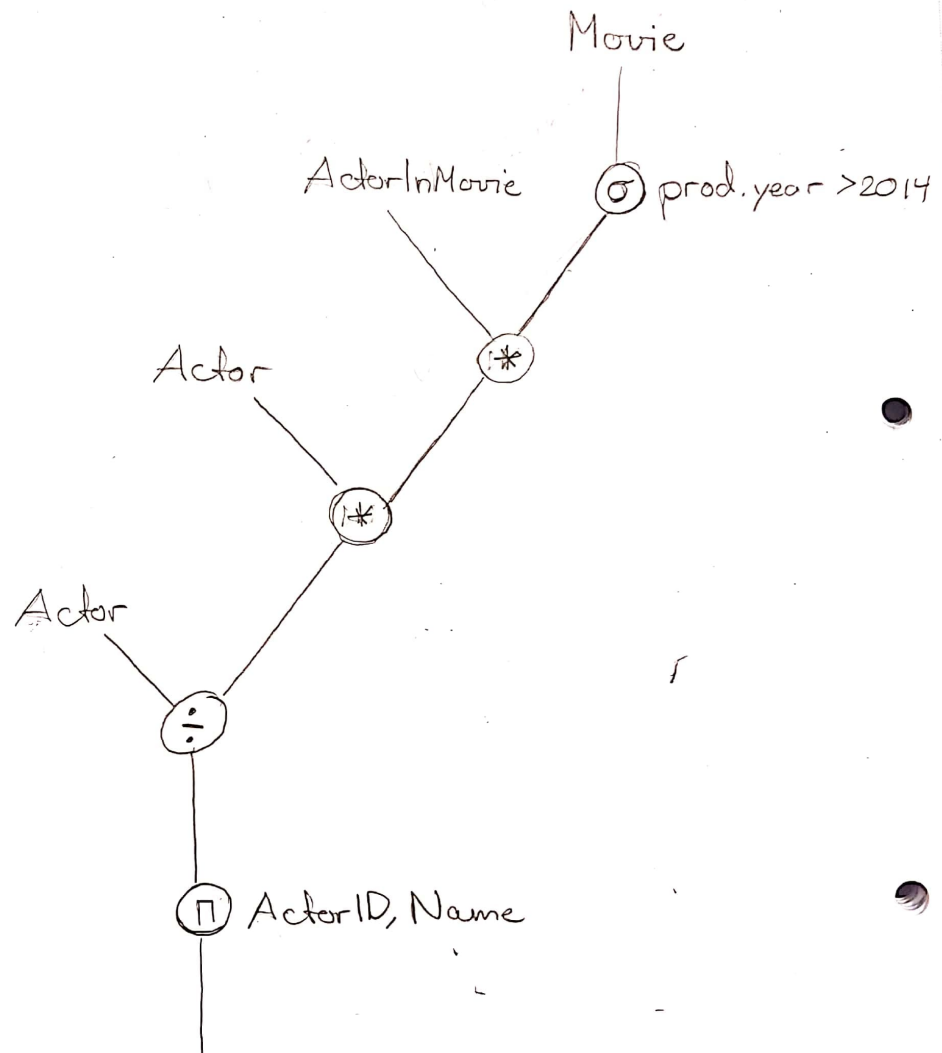
Data modeling, Databases and Database Management
TDT4145

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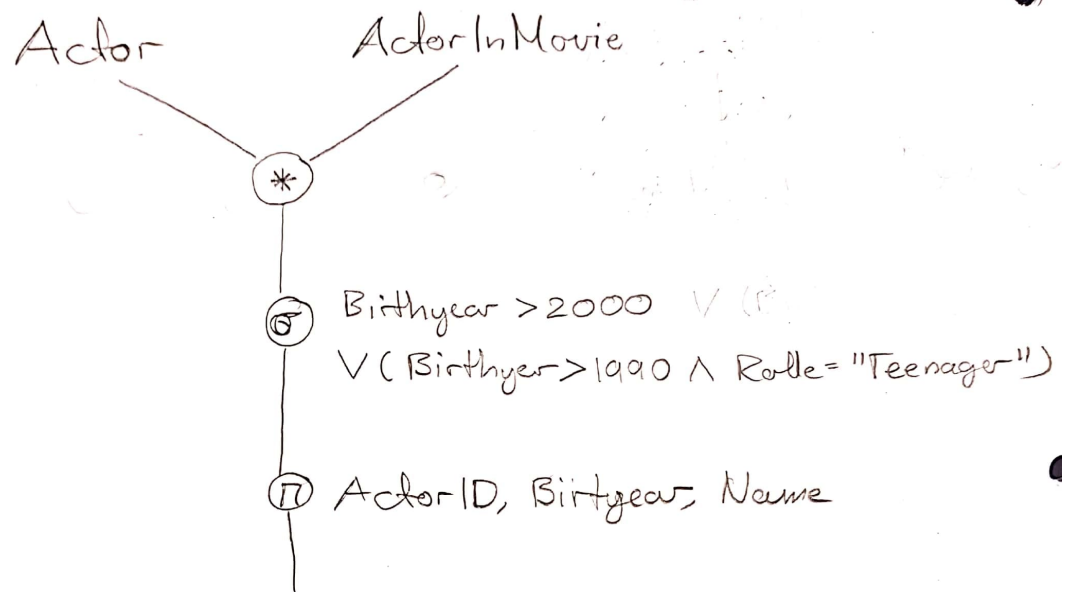
Task 3

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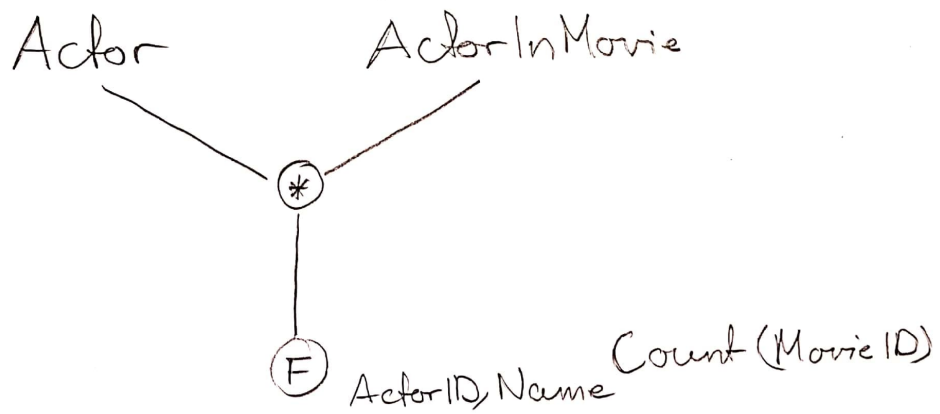
a)



b)



c)



Task 4

a:

If the faculty EDI changes to DI, then 10 cells in the database would have to be updated.

b:

An alternate design could be to split the database into two tables. One table with columns PersonID, Name, PhoneNr and FacultyCode. And one table with columns FacultyCode, FacultyName and FacultyBuilding.

Task 5

a:

3 has to be wrong because the database contains both the relations $a_1 \rightarrow c_1$ and $a_1 \rightarrow c_2$.

4 has to be wrong because the database contains both the relations $\{a_1, b_1\} \rightarrow c_1$ and $\{a_1, b_1\} \rightarrow c_2$.

6 has to be wrong because the database contains both the relations $d_2 \rightarrow c_2$ and $d_2 \rightarrow c_4$.

9 has to be wrong because the database contains multiple rows with a_1 .

b:

$$A+ = \{A, C\}$$

$$D+ = \{D\}$$

$$BC+ = \{B, C, D\}$$

$$AB+ = \{A, B, C, D\}$$