TU München, Fakultät für Informatik
Lehrstuhl III: Datenbanksysteme
Prof. Alfons Kemper, Ph.D.

Exercise for *Database System Concepts for Non-Computer Scientist* im WiSe 18/19

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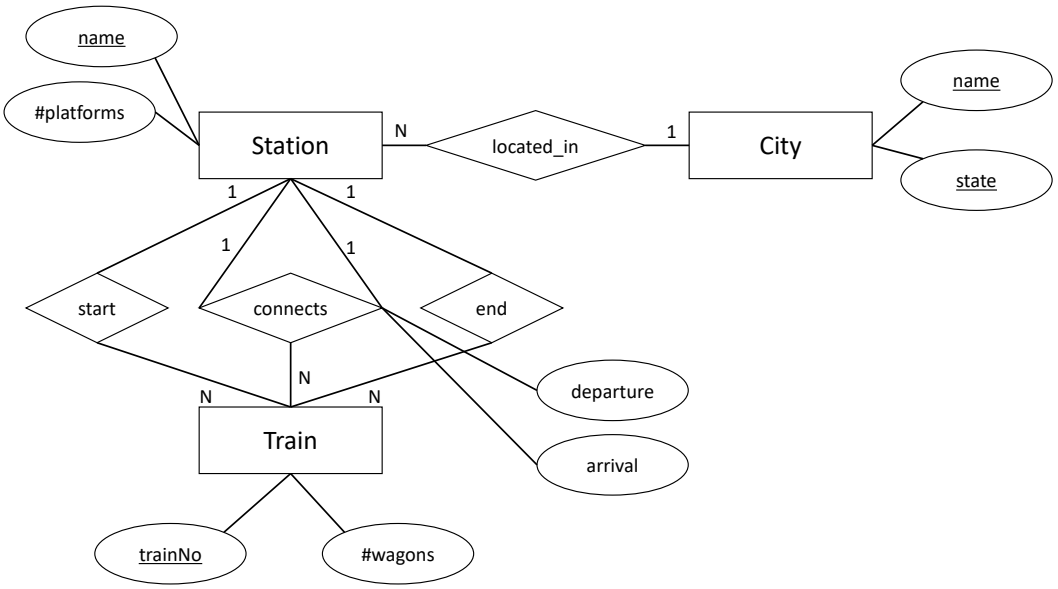
http://db.in.tum.de/teaching/ws1819/DBSandere/?lang=en

Sheet 05

Exercise 1

Look at the following (familiar) ER-diagram and create SQL DDL statements to create the respective tables.



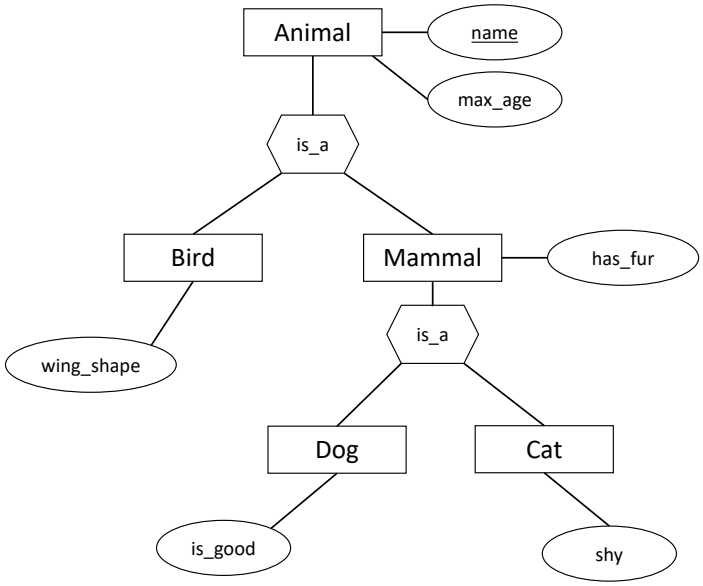
Lösung:

```
create table city (name varchar(50),
                   state varchar(50),
                   primary key(name, state)
);

create table station (name varchar primary key,
                      num_platforms int,
                      cityName varchar(50),
                      state varchar(50),
                      foreign key(cityName, state)
                              references city(name, state)
);

create table train (trainNo int primary key,
                    num_wagons int,
```

```
                        start varchar references station,
                        end varchar references station
);

create table connects (from varchar references station,
                       to varchar references station,
                       trainNo int references train,
                       departure date,
                       arrival date,
                       primary key(fromStation, trainNo)
);
```

Exercise 2

Look at the following ER-diagram. Think about different ways of how to transform these into a database schema.



Lösung:

Option one (inclusive):

```
create table Bird (name varchar primary key,
                   max_age int,
                   wing_shape varchar);

create table Dog (name varchar primary key,
                  max_age int,
                  has_fur boolean,
                  is_good boolean);

create table Cat (name varchar primary key,
                  max_age int,
                  has_fur boolean,
                  shy boolean);
```

Option two (inherited):

```
create table Animal (name varchar primary key,
                     max_age int);

create table Mammal (name varchar primary key
                                  references Animal,
                     has_fur boolean);

create table Bird (name varchar primary key
                                  references Animal,
                   wing_shape varchar);

create table Dog (name varchar primary key
                                  references Animal
                                  references Mammal,
                  is_good boolean);

create table Cat (name varchar primary key
                                  references Animal
                                  references Mammal,
                  shy boolean);
```