Assignment 3

Semester: Spring 2023

Submission deadline: 24th February, 14:00

Objective of this compulsory assignment

This mandatory exercise will give you training in designing and implementing a relational database based on a given conceptual model:

- Convert the conceptual model to the logical model in order to define relations/tables with primary key, alternate key and foreign keys.
- Create a table using SQL DDL commands for each of the relations/tables of the logical model.

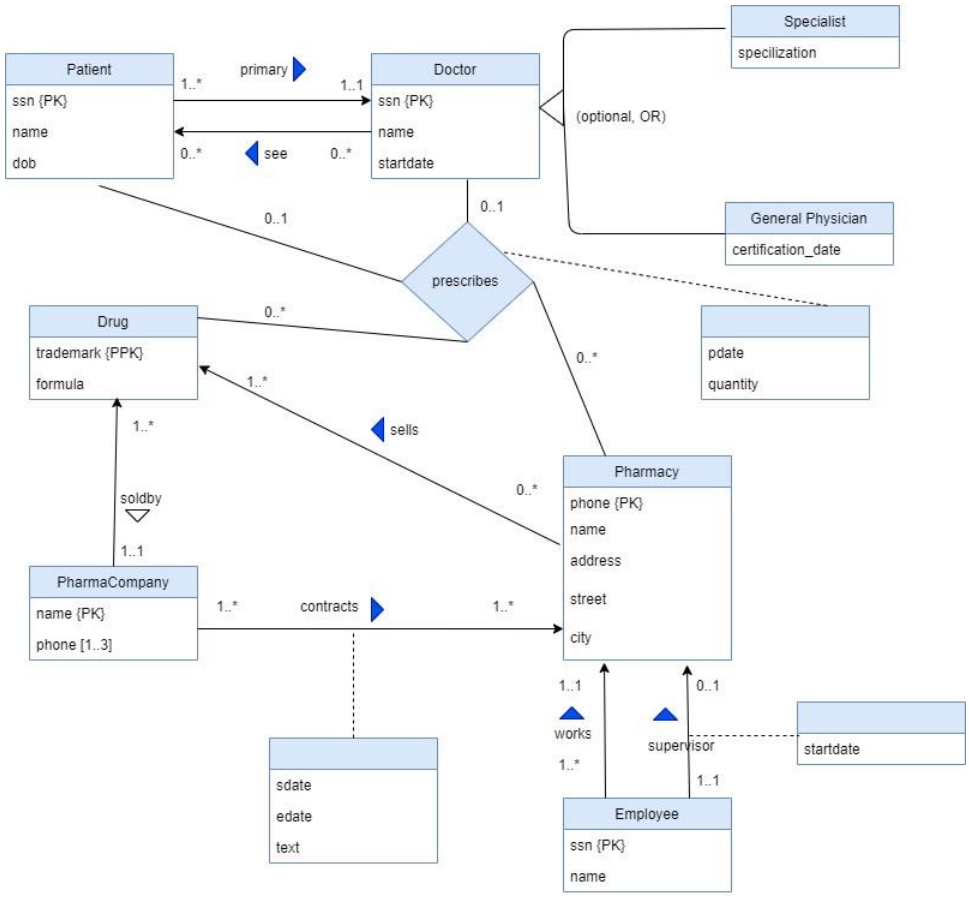
- Check the quality of a logical model with normalization

Submission Instructions

Upload your document in pdf format under Assignment 3 by 24th February 14:00. In the submission you should list the SQL statements you uses to create the corresponding tables in MySQL (Task 1). The pdf file should also contain the normalization of relation given in task 2.

Task 1

In addition to creating a relational schema for the database, you should also implement tables for entity types PharmacyCompany, Pharmacy, and Drug with the sells, sold_by and contracts relationship types into MariaDB. Create SQL export file and submit with the report.



You can use the following data to insert into your PharmacyCompany, Pharmacy, and Drug with the sells, sold_by and contracts relationship types.

Pharmacy

phone	**name**	**address**	**street**	**city**
54327612	City Drug	36 South Cherry	Starkville	MS 39759
87435217	Pill Pack	29 E. Pine Lane	Stuart	FL 34997
98463251	Better Life	8004 Eagle St.	Sarasota	FL 34231
45362819	Pharma Best	15 Williams Drive	Elgin	IL 60120
87340213	Be Well	790 Clay Road	Ooltewah	TN 37363
35446281	Absolute Care	39 Spruce Drive	Charlottesville	VA 22901

Drug

trademark	**formula**
Ultram	tramadol
Advil	ibuprofen
Aleve	naproxen
Bayer Aspirin	aspirin
Zipsor	diclofenac
Irenka	duloxetine
Myoflex	Trolamine salicylate

PharmacyCompany

name	**phone**
Janson & Janson	23749912
Pfizer	45732810
Bayer	88374291
Roche	66372910
Abbott	66392014
Allergan	47639201
CSL	84192200
Vertex Pharmaceuticals	91228345

Contracts

Company_name	**Pahrmacy_phone**
Janson & Janson	54327612
Janson & Janson	54327612
Pfizer	54327612
Bayer	87340213
Roche	35446281
CSL	98463251
Abbott	87340213
Vertex Pharmaceuticals	87340213
Allergan	98463251
Allergan	35446281

Soldby

Company_name	**trademark**
Janson & Janson	Ultram
Janson & Janson	Aleve
Janson & Janson	Zipsor
Janson & Janson	Myoflex
Pfizer	Ultram
Pfizer	Zipsor
Bayer	Bayer Aspirin
Roche	Irenka
CSL	Ultram
Abbott	Aleve
Vertex Pharmaceuticals	Irenka
Allergan	Advil

Sells

Pharmacy_phone	trademark	Company_name
54327612	Ultram	Pfizer
54327612	Aleve	Abbott
87340213	Aleve	Abbott
35446281	Advil	Allergan
98463251	Advil	Allergan
35446281	Irenka	Vertex Pharmaceuticals

Task 2

Consider the following relation associated with a company organizing daily limo trips around the landmarks in the city for tourists.

limo_id	journey_date	start_time	limo_registration	limo_capacity	class	price (NOK)	driver_id	driver_name
L1	20.02.21	10.00	DN3526	8	1	400	D1	Pete
L1	20.02.21	13.00	DN3526	8	1	400	D1	Pete
L1	21.02.21	10.00	DN3526	8	1	400	D1	Pete
L2	20.02.21	10.00	CY2534	12	2	600	D2	Jane
L2	22.02.21	14.00	CY2534	12	2	600	D2	Jane
L2	23.02.21	11.00	CY2534	12	2	600	D2	Jane

where, `limo_id` is a unique number for each limo.

`journey_date` is the date of the limo trip.

`start_time` is a time in 24 hours format when the trip starts.

`limo_registration` is the registration of the limo which is unique for each limo. `limo_capacity` is the number of passengers that can be accommodated in a limo.

`class` is a number in the range of 1-5 that determines the quality of facilities (including limo capacity) on a limo and the price of renting the limo for the trip. `driver_id` is a unique number for each driver. `driver_name` is the name of a driver that may not be unique.

It should also be noted that different drivers can be driving the same limousine each day, but there will be only one driver in the car for any trip.

1. What should be the primary key of the table?

2. List the functional dependencies related to the table.

3. In which normal form is this relation? Explain your answer.

4. Convert the table to 3NF.

5. Are the tables you created in task 4 in BCNF too? Convert the tables to BCNF if not.