

Designing and managing a database in MS SQL Server Management Studio for the final exam in the Database course

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**Topic**: Projection and management of a private medical clinic.

**Description**: The owner of “Eva Center” clinic wants to keep in a database the information about the clinic: offered services, personal and clients records. This database need to be optimized so that it coresponds to the requirements. Also, it has to be flexible to allow development or extent of center’s activities.

“Eva Center” clinic offers medical consultations, medical recovery services (eg. rheumatism treatment, asthma, allergies etc.) and the possibility to do medical tests. The clinic doesn’t offer surgery services and is no possible to hospitalize clients. For this purpose, the clinic carries lots of specialized medical offices and laboratories.

At each consultation, the doctor records clients’ data.

The clinic, except doctors and nurses, it has also other employees: those who cater for finances and public relations, cleaning staff etc.

Each client pays the counter value of the provided services by one or more bills.

Clinic’s needs representation must be made so that it is a model as close as possible to the way in which its activities are carried out. Data must be stored so that a more efficient search is allowed. The design of the base must be flexible so that new appointments can be added, new offices can appear etc.

Initial database information and ERD (Entity Relationship Diagram):

The tables database contains:

**Clinica**

**Cabinet**

**Personal**

**Post**

**Inregistrare**

**Pacient**

**Factura**

The entities each table contains and the reference with other table:

**Clinica**: ID, nume, adresa telefon, **Cabinet**

**Cabinet**: numar, etaj, **Personal, Pacient**

**Personal**: ID (CNP), nume, prenume, adresa, vechime, salariu, telefon, **Post, Cabinet**

**Post**: cod, specializare

**Inregistrare**: nr, data, diagnostic

**Pacient**: ID (CNP), nume, prenume, adresa, ocupatia, loc\_de\_munca, **Inregistrare**, **Programare**, **Factura**

**Factura**: ID, data, valoare



Initial ERD can be noticed many-to-many relationships which need to normalized.

After normalizing the relationships between entities, the information about database is:

Tables:

**Clinica**

**Cabinet**

**Personal**

**Post**

**Servicii**

**Programari**

**Inregistrari**

**Pacient**

**Factura**

**Tratament**

**Reteta**

**Medicament**

**Specializari**

Entities:

**Clinica**: ID, nume, adresa telefon, **Cabinet**

**Cabinet**: numar, etaj, **Serviciu**, **Personal**, **Programare**

**Personal**: ID (CNP), nume, prenume, adresa, vechime, salariu, telefon, **Post**

**Post**: cod, tip→ medic: specializare, user\_name, password

→ asistent: tip, specializare

→ altii: functia

**Servicii**: cod, nume → terapie: contraindicatii

→analiza: tip, specializare

→consult: tip

→altele: tip

**Programari**: data, ora

**Inregistrare**: nr, data, diagnostic, **Tratament**

**Pacient**: ID (CNP), nume, prenume, adresa, ocupatia, loc\_de\_munca, **Inregistrare**, **Programare**, **Tratament, Factura**

**Factura**: ID, data, valoare

**Tratament**: ID, data\_inceput, data\_sfarsit, **Reteta**

**Reteta**: cod, tip, **Medicament**

**Medicament**: cod, nume, indicatii, contraindicatii

Final ERD:



*Explanations of the entity-relationship diagram:*

The clinical entity retains the information regarding the respective company: name, address, telephone number and, possibly, e-mail address.

Each patient can have one or more appointments at the specialized offices of the clinic. An appointment must be for a single patient.

A bill is issued to the patient for the services they receive.

Each office can offer one or more services: analysis, therapy, consultation.

There are employees with various responsibilities, so subtypes must be used to define the personal entity.

Each patient will be registered in the clinic database by the doctor who performed the consultation, performed the tests or supervised the therapy.

After discovering the diagnosis, a certain treatment can be recommended. It includes either a prescription or an investigation or therapy.

A prescription contains one or more medicines.