A Database for an Electronic Medical Record System

Project – 1

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**Electronic Medical Record**

**Introduction:**

**Project Overview:**

The Database that I have created in this project is ‘’. This database represents a small sized clinic. It stores all the data required to run a small sized hospital. This project involves designing a database to store the details of the patients, doctors, appointments, insurance providers, and medicines available.

**Project Files:**

Electronic\_clinic: This script has the tables and records to store the entire hospital data.

Electronic\_clinic\_test: This script has the queries to test the database.

**Database design:**

|  |  |
| --- | --- |
| **Tables** | **Purpose** |
| Insurance\_providers | This table has the list of all the insurance providers approved by the US government |
| patients | This table has the patient details |
| addresses | This table stores all the addresses of the patients and doctors |
| doctors | This table contains the list of all the doctors in the hospital |
| specializations | This table has the specialization details of the doctors and the field in which they treat the patients. |
| appointments | This table has the appointment information of the patients |

|  |  |
| --- | --- |
| medications | This table contains medications approved for the individual fields |
| appnt\_procedures | This table contains appointment procedures |
| appnt\_medications | This table contains appointment medications |
| billing | This table has the total billing |

**UML Diagram:**

Diagram

Description automatically generated

**Patient:** This represents the person who joins the hospital for the treatment.

**Doctor:** This represents the person who treats the patients.

**Receptionist:** This represents the receptionist who takes care of the appointment records.

**ER Diagram:**

**Reverse Engineer:**

Database reverse engineering is the process through which the logical and conceptual schemas of a legacy database, or of a set of files, are reconstructed from various information sources such as DDL code, data dictionary contents, database contents or the source code of application programs that use the database.

Below diagram is obtained after using reverse engineering steps on the database created.

Diagram

Description automatically generated

**Database tables:**

**Patients table:**

Table

Description automatically generated

**Doctor table:**

Graphical user interface, application, table

Description automatically generated

**Insurance\_providers table:**

Graphical user interface, table

Description automatically generated

**Medications table:**

Graphical user interface

Description automatically generated

**Patient\_insurances table:**

Graphical user interface, table

Description automatically generated

**Procedures table:**

**Graphical user interface, application, table

Description automatically generated**

**Address table:**

**Table

Description automatically generated**

**appnt\_medication table:**

**Graphical user interface, table

Description automatically generated**

**appnt\_procedure table:**

**Graphical user interface, application, Teams

Description automatically generated**

**Appointments table:**

**Graphical user interface, table

Description automatically generated**

**Billing table:**

**Graphical user interface, application

Description automatically generated**

**Boyce Codd normal form (BCNF) :**

BCNF is the advance version of 3NF. It is stricter than 3NF.

A table is in BCNF if every functional dependency X → Y, X is the super key of the table.

For BCNF, the table should be in 3NF, and for every FD, LHS is super key.

The database created follows all the rules and thus is BCNF.

**These are the screenshots of the queries from the Electronic\_clininc\_test script:**

Graphical user interface, text, application

Description automatically generated

Graphical user interface, text, application

Description automatically generated

Graphical user interface, text, application

Description automatically generated

Table

Description automatically generated with medium confidence

Graphical user interface

Description automatically generated

Tools used: MySQLwork bench, Lucid chart