FINAL PROJECT

Clinic Appointment Management System

❖ Project Objective:

In this project, you will design and implement a complete database system for managing a medical clinic. The system will include core tables, data entry, query operations, data analysis, updates, and advanced features like Views, Sequences, and Indexes.

❖ Project Requirements:

1. Database Design and Table Creation

Create the following tables:

1. Patients – to store patient information
2. Doctors – to store doctor information
3. Appointments – to schedule appointments between patients and doctors
4. Invoices – to store billing information
5. Prescriptions – to record prescriptions issued to patients
6. Medications – to store medication details
7. Specialties – to define doctor specialties

Make sure to:

- ✓ Define appropriate Primary Keys
- ✓ Create logical Foreign Key relationships between tables
- ✓ Use relevant constraints such as NOT NULL, UNIQUE, and CHECK where appropriate

2. Data Operations

Insert realistic sample data into all tables. Minimum: 5 rows per table.

Perform the following operations:

- Add a new patient
- Add a new appointment
- Add a new invoice
- Update a patient's phone number
- Modify a doctor's specialty
- Delete a cancelled appointment
- Use COMMIT and ROLLBACK to demonstrate transaction control

3. Data Retrieval and Queries

Execute various SQL queries to retrieve and analyze data. Include:

Basic Queries:

- List all patients
- List all doctors with their specialties
- Display all appointments with patient name, doctor name, and appointment date

Filtered and Sorted Queries:

- Show appointments on a specific date
- List patients registered after a specific year
- Sort doctors by name or by specialty

Queries Using Functions:

- Display patient names in uppercase
- Calculate patient age from birthdate
- Format the appointment date clearly

Analytical Queries:

- Count appointments per doctor
- Calculate total payments per patient
- Count total registered patients

Multi-table Queries:

- Show appointment details including doctor and patient names
- List prescriptions with patient and medication names

Advanced Queries:

- Show patients with more than 3 appointments
- Show doctors with no appointments this week
- Show patients who visited more than one doctor and received prescriptions
- Show patients who never received a prescription

4. Data Management Features

Create and use the following:

- View: that displays today's appointments with doctor and patient names
- Sequence: to auto-generate values (e.g., invoice number or patient ID)
- Index: on doctor name or patient number to improve query performance

❖ Submission Requirements:

- ✓ A file containing all SQL commands (table creation, data insertion, queries, etc.) This file must be in **.sql** format (add comments explaining the purpose of each command or section)

- ✓ A video explaining the full implementation of the project, and it must include:
  - All the tables that were created
  - Every required instruction in the project and how it was implemented

- ✓ Submit a PDF document that includes:

  - ✓ Brief description of your project

  - ✓ List of all tables and their purpose

  - ✓ Summary of the SQL queries included

- ✓ The SQL file , Video, and PDF must be placed inside a single **compressed file** , and the compressed file should be uploaded to the designated submission area on the Platform.