Clinic Management System - Database Project Report

# 1. Introduction

This document presents the design and implementation of a Clinic Management System database. The system facilitates patient appointment scheduling, doctor assignments, medical diagnosis tracking, and department/clinic organization.

# 2. Conceptual Design

The database is built around five core entities: Department, Clinic, Doctor, Patient, and Appointment. Each department includes several clinics and doctors. Appointments link patients and doctors with diagnoses, times, and costs.

# 3. UML Design (Text Representation)

Department (DepartmentID, Name)  
 |  
 |---< Clinic (ClinicID, Name, Address, DepartmentID)  
 |  
 |---< Doctor (DoctorID, Name, Phone, Address, DepartmentID)  
 |  
 |---< Appointment (AppointmentID, Date, StartTime, EndTime, Cost, Status, Diagnosis, DoctorID, PatientID)  
 |  
 |--- Patient (PatientID, Name, Phone, Address, BirthDate, Job)

# 4. SQL Code Implementation

## 4.1 Database Creation

CREATE DATABASE ClinicDB;  
USE ClinicDB;

## 4.2 Table Creation

CREATE TABLE Department (...);  
CREATE TABLE Clinic (...);  
CREATE TABLE Doctor (...);  
CREATE TABLE Patient (...);  
CREATE TABLE Appointment (...);

## 4.3 Sample Data Insertion

Sample data was inserted into all tables to demonstrate functionality.

# 5. Example Queries and Explanations

## 5.1 Patients Diagnosed with "Fatty Liver" in Last Year

SELECT DISTINCT p.Name  
FROM Patient p  
JOIN Appointment a ON p.PatientID = a.PatientID  
WHERE a.Diagnosis = 'Fatty liver'  
 AND a.Date >= CURDATE() - INTERVAL 1 YEAR;

This query retrieves patients diagnosed with fatty liver within the past year.

## 5.2 Cardiology Clinic Addresses

SELECT c.Address  
FROM Clinic c  
JOIN Department d ON c.DepartmentID = d.DepartmentID  
WHERE d.Name = 'Cardiology';

Returns addresses of clinics under the Cardiology department.

## 5.3 Total Payments by a Specific Patient

SELECT SUM(a.Cost) AS TotalPaid  
FROM Appointment a  
WHERE a.PatientID = 101  
 AND a.Date >= CURDATE() - INTERVAL 3 YEAR;

Calculates total money paid by patient ID 101 over the past 3 years.

# 6. Future Improvements

- Add user authentication for doctors/admins  
- Include billing history and payment status tracking  
- Add prescription and test result support  
- Export data capabilities (CSV, Excel)  
- Create stored procedures and views for reports

# 7. Author

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