Small Clinic Management System

1. Project Overview

The **Small Clinic Management System** is a command-line interface (CLI)-based application designed to manage patient appointments, medical records, and billing efficiently. The system ensures streamlined operations and better patient care by maintaining accurate records of patient visits and financial transactions.

2. Database Structure

The system consists of five main tables:

Patients Table

Column Name	Data Type	Description
patient_id	INT (PK)	Unique ID for each patient
first_name	VARCHAR	Patient's first name
last_name	VARCHAR	Patient's last name
dob	DATE	Date of birth
gender	VARCHAR	Gender (Male/Female)
phone	VARCHAR	Contact number
email	VARCHAR	Email address
address	TEXT	Patient's address

Doctors Table

Column Name	Data Type	Description
doctor_id	INT (PK)	Unique ID for each doctor
first_name	VARCHAR	Doctor's first name
last_name	VARCHAR	Doctor's last name
specialization	VARCHAR	Medical specialty
phone	VARCHAR	Contact number
email	VARCHAR	Email address

Appointments Table

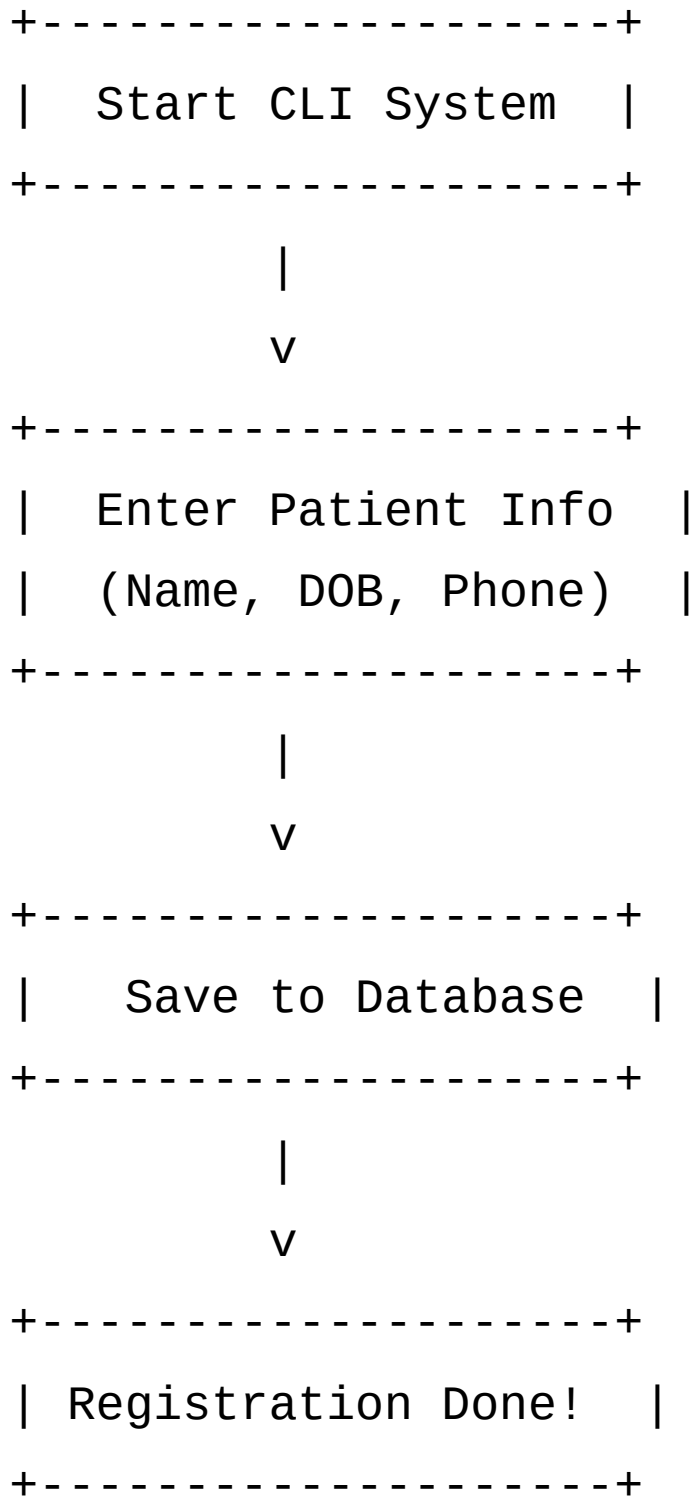| Column Name	Data Type	Description
appointment_id	INT (PK)	Unique ID for each appointment
patient_id	INT (FK)	References Patients table
doctor_id	INT (FK)	References Doctors table
appointment_date	DATE	Date of appointment
appointment_time	TIME	Time of appointment
status	VARCHAR	Status (Pending, Completed, Canceled)

Medical Records Table

Column Name	Data Type	Description
record_id	INT (PK)	Unique ID for each medical record
patient_id	INT (FK)	References Patients table
doctor_id	INT (FK)	References Doctors table
diagnosis	TEXT	Patient's diagnosis
prescription	TEXT	Medication prescribed
notes	TEXT	Additional doctor notes
date_of_visit	DATE	Date of consultation

Billing Table

Column Name	Data Type	Description
bill_id	INT (PK)	Unique ID for each bill
patient_id	INT (FK)	References Patients table
appointment_id	INT (FK)	References Appointments table
amount	DECIMAL	Total bill amount
payment_status	VARCHAR	Payment status (Paid, Pending)
payment_date	DATE	Date of payment

3. System Workflows (CLI Diagrams)

Patient Registration Flow

```
+----------------------+
|  Start CLI System   |
+----------------------+
          |
          v
+---------------------+
|  Enter Patient Info  |
|  (Name, DOB, Phone)  |
+---------------------+
          |
          v
+---------------------+
|   Save to Database   |
+---------------------+
          |
          v
+----------------------+
| Registration Done!  |
+----------------------+
```

Appointment Booking Flow

```
+---------------------+
|  Start CLI System   |
+---------------------+
          |
          v
+-----------------------------+
|  Enter Patient ID           |
|  Select Doctor              |
|  Choose Date & Time         |
+-----------------------------+
          |
          v
+-----------------------------+
|  Save to Database           |
|  Status: Pending            |
+-----------------------------+
          |
          v
+-----------------------------+
| Appointment Confirmed!      |
+-----------------------------+
```

Billing & Payment Flow

```
+-------------------------------+
|   Enter Appointment ID        |
|   Generate Bill Amount        |
|   Set Payment Status          |
+-------------------------------+
            |
            v
+-------------------------------+
|   Save to Database            |
+-------------------------------+
            |
            v
+-------------------------------+
| Payment Updated!              |
+-------------------------------+
```
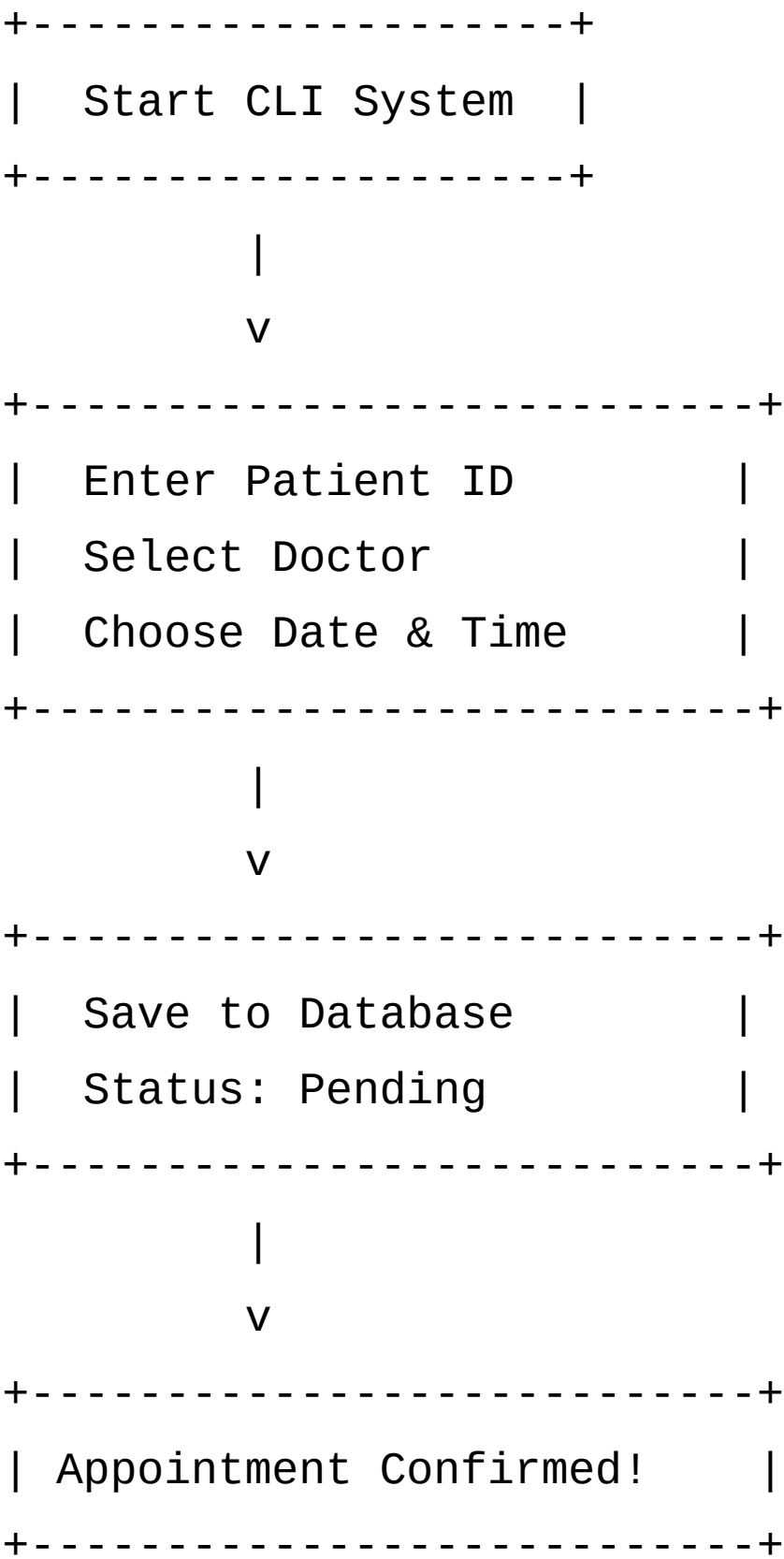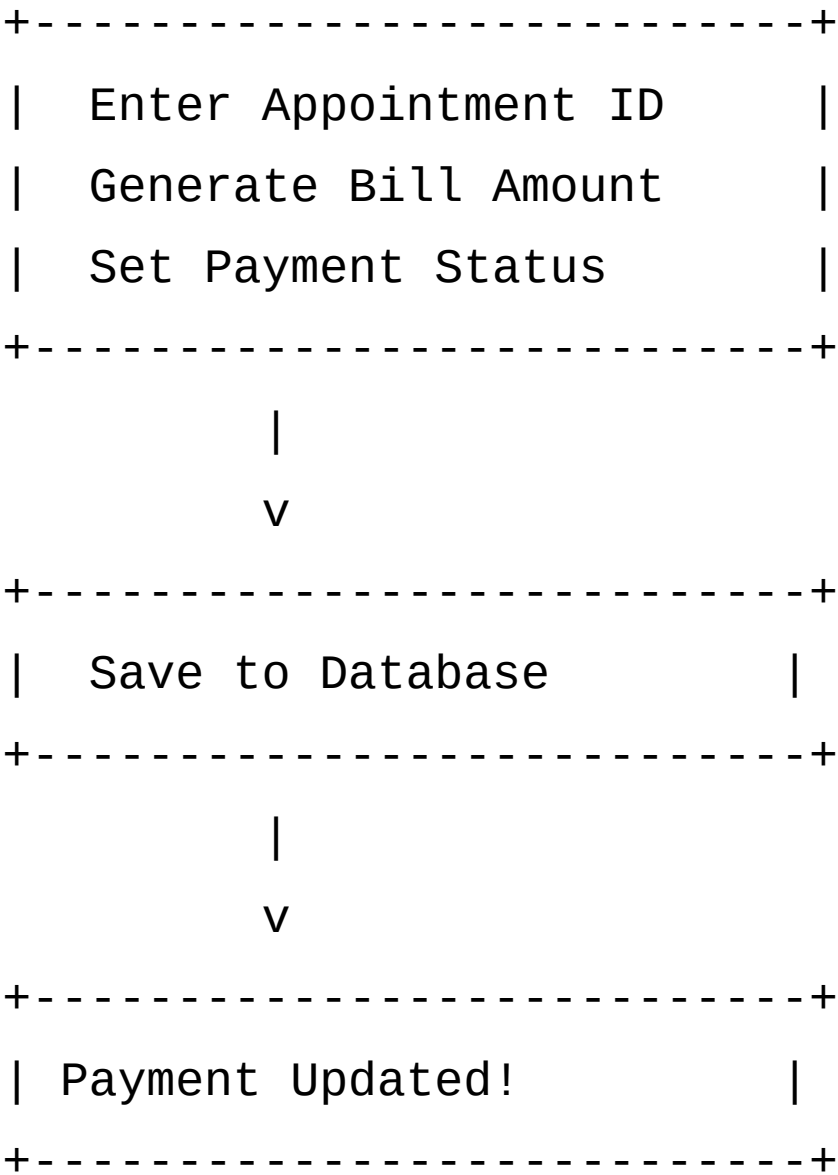
4. Sample CLI Reports

Daily Appointments Report

```
==========================================
        DAILY APPOINTMENTS REPORT
==========================================
Date: 2025-03-20

Doctor: Dr. Lisa Ray
--------------------------------------------
| Time       | Patient Name | Status     |
|----------|------------|-----------|
| 10:00 AM  | John Doe     | Completed  |
--------------------------------------------


Date: 2025-03-21

Doctor: Dr. Mark Green
-----------------------------------------------
| Time       | Patient Name | Status       |
|----------|------------|-----------|
| 02:00 PM  | Jane Smith  | Pending      |
-----------------------------------------------
```

Billing Report

```
================================================
                 BILLING REPORT
================================================
| Bill ID | Patient Name | Date       | Amount | Payment Status |
|---------|--------------|------------|--------|---------------|
| 301     | John Doe     | 2025-03-20 | $100   | Paid          |
| 302     | Jane Smith   | 2025-03-21 | $50    | Pending       |
------------------------------------------------
```

Doctor-wise Appointments Summary

```
=========================================
       DOCTOR-WISE APPOINTMENTS REPORT

=========================================
| Doctor        | Total | Completed | Pending | Canceled |
|---------------|-------|-----------|---------|---------|
| Dr. Lisa Ray  | 2     | 1         | 0       | 1       |
| Dr. Mark Green| 1     | 0         | 1       | 0       |
-------------------------------------------
```

5. Conclusion

The **Small Clinic Management System** provides a simple CLI-based solution for handling patient records, appointments, medical records, and billing efficiently. The structured workflows and reporting ensure smooth clinic operations, making it easier for doctors and staff to manage patient data effectively.