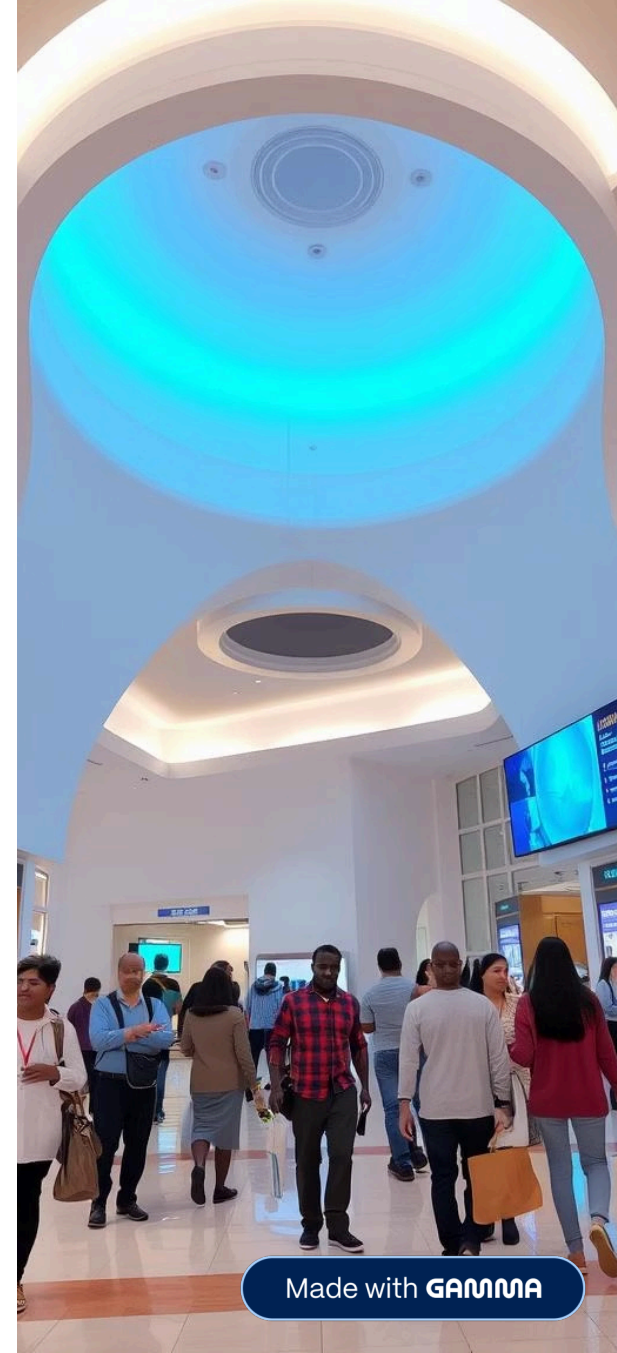# Hospital Management System Database

Streamlining Healthcare Operations with MS SQL Server.

Complete database solution for hospital management.

Objective: Improve efficiency, accuracy, and patient care.

**by Tharun Ravula**

# Current Challenges in Hospital Management

🕐 **Manual Data Entry**

Time-consuming and prone to errors.

💬 **Doctor Workflow**

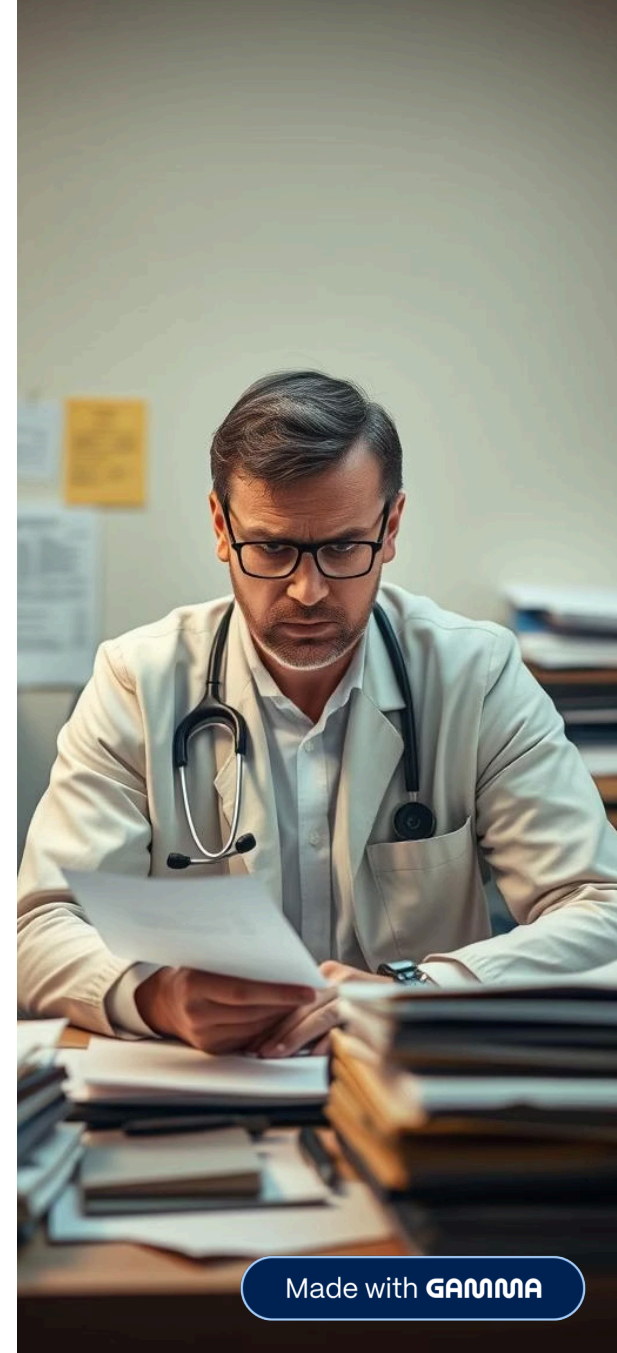Struggles to track patient information efficiently.

📅 **Appointment Conflicts**

Scheduling conflicts and delays impact patient care.

📄 **Billing Inconsistencies**

Problems with payment tracking and accuracy.

# Database-Driven Hospital Management System

**Centralized Data**

All hospital data stored securely.

**Automated Records**

Efficient patient record management.

**Streamlined Scheduling**
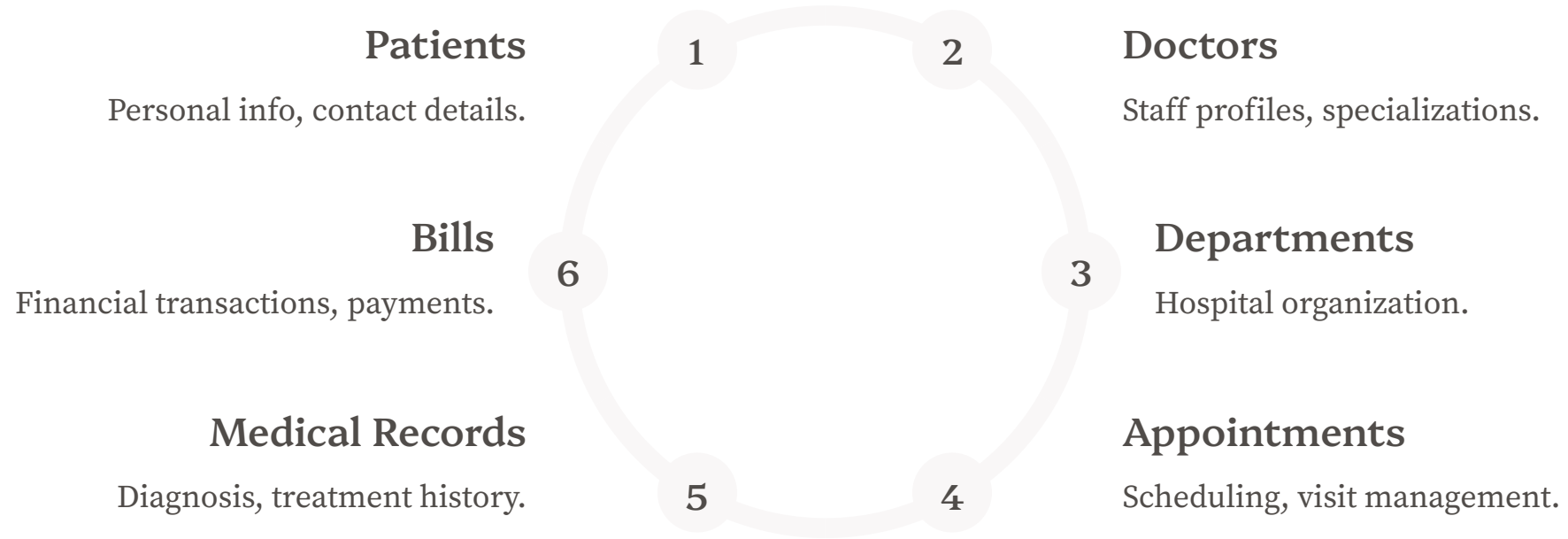
Improved appointment management.

**Integrated Billing**

Seamless financial transactions.

# Database Architecture

**Patients**

Personal info, contact details.

1

2

**Doctors**

Staff profiles, specializations.

**Bills**

Financial transactions, payments.

6

3

**Departments**

Hospital organization.

**Medical Records**

Diagnosis, treatment history.

5

4

**Appointments**

Scheduling, visit management.

Made with GAMMA

# Patient Management Capabilities

## Key Features

SELECT * FROM Patients;

SELECT firstname, lastname, phonenumber FROM patients WHERE gender='Female';

SELECT firstname, lastname, DOB FROM patients ORDER BY DOB DESC;

## Benefits

- Quick patient lookup and filtering.
- Demographics-based health campaigns.
- Age-specific treatment prioritization.

# Appointment Management System

## Track Completed

View past appointments by date.

```
SELECT * FROM appointments WHERE
status='Completed' ORDER BY appointmentdate
DESC;
```
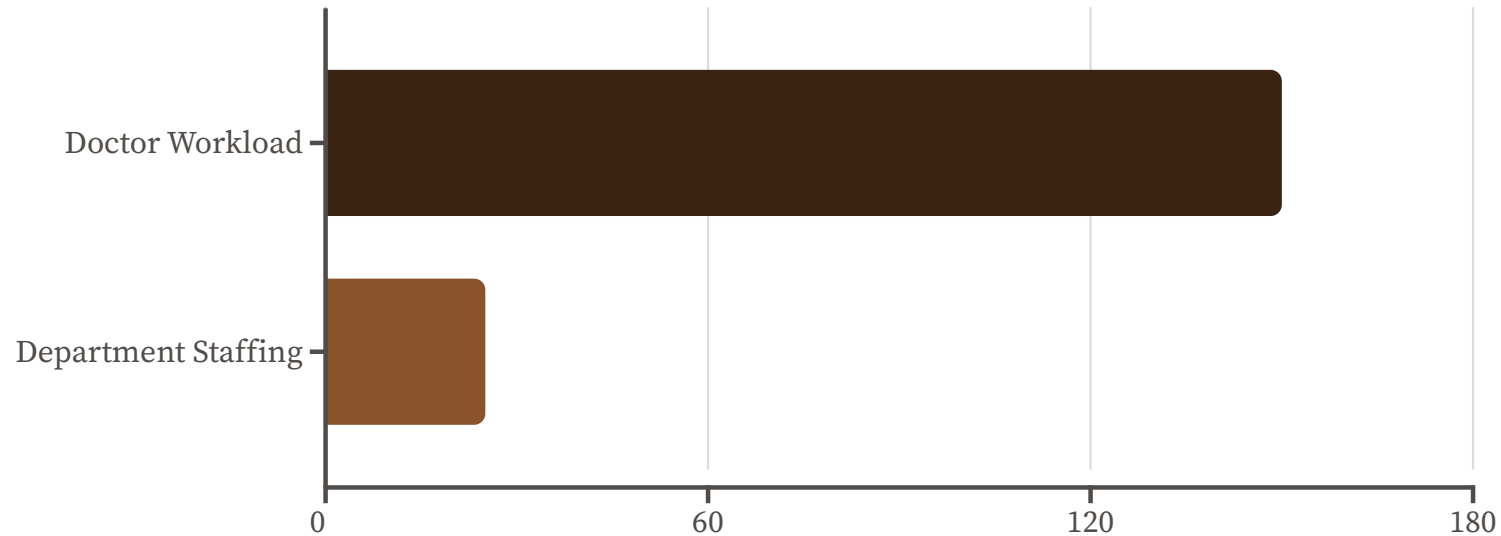
## Smart Status

Assign status: Upcoming, Today, Past.

```
CASE WHEN AppointmentDate > GETDATE()
THEN 'Upcoming' WHEN AppointmentDate =
GETDATE() THEN 'Today' ELSE 'Past' END AS
AppointmentStatus
```

# Advanced Analytics & Reporting



Data-driven decision making for hospital operations.

Analyze doctor workload and department staffing.

# Financial Management

## Pending Payments

Identify outstanding bills.

```
SELECT * FROM bills WHERE paidamount <
totalamount;
```

## Revenue Tracking

Monitor patient-specific revenue.

```
SELECT PatientID, TotalAmount, PaidAmount,
(TotalAmount - PaidAmount) AS Outstanding FROM
Bills;
```

# Security & Data Privacy Features

### Data Masking

Mask sensitive phone numbers for privacy.

```
SELECT REPLACE(Phonenumber, SUBSTRING(Phonenumber, 4, 3), '***') AS
MaskedPhone FROM Patients;
```

### Non-Sensitive Views

Create public views for limited data access.

```
CREATE VIEW PublicAppointments AS SELECT appointmentid, doctorid,
appointmentdate FROM Appointments;
```

Made with GAMMA

# Results & Future Enhancements

## 50%
### Time Reduction
In data entry.

## 99.9%
### Data Accuracy
Through constraints.

## 40%
### ROI
Operational efficiency.

Future: Web UI, mobile app, AI diagnosis, telemedicine, insurance automation.