GROUP PROJECT REPORT

Domain: Hospital Management System

Project Title: Online Patient Registration System

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Your Tasks

Problem Statement

The manual registration of patients in clinics and hospitals is time-consuming and error-prone. It often leads to long queues, incomplete data, and a lack of real-time information.

Solution

The **Online Patient Registration System** automates the registration process, enabling patients to register online, book appointments, and update personal information, while admins and doctors can manage patient records efficiently.

System Overview

Roles

1. **Admin**:
    - Manage patient registrations.
    - Approve or reject registrations.
2. **Doctor**:
    - View assigned patient information.
    - Update diagnoses and treatment plans.
3. **Patient**:
    - Register online.
    - Book appointments.
4. **Receptionist**:
    - Oversee appointment schedules and manage queries.

Project Development Stages

Project development stages for the Online Patient Registration System, using the Waterfall

The Waterfall model is a linear and sequential approach to software development. Each phase depends model:on the completion of the previous phase.

This will ensure clear structure and documentation of the project development stages.

1. **Requirements Analysis**

Objective: Clearly define the system requirements and project scope.

Tasks:

- Identify the problems with manual patient registration.
- Gather requirements for patients, doctors, and hospital administrators.
- Define core functionalities like patient registration, appointment booking, and admin management.

Deliverables:

Requirements document listing system features and constraints.

User role definitions (e.g., Admin, Doctor, Patient).

Functional and non-functional requirements.

2. System Design

Objective: Plan the architecture and design of the system.

- High-Level Design (HLD)
- Define the overall system architecture.
- Select technologies: JavaFX/Swing for UI, MySQL for the database, JDBC for connectivity.
- Low-Level Design (LLD)
- Design database schemas:
- **Tables**: Users, Patients, Appointments, Doctors.
- Create **UML** diagrams:
- **Use Case**, **Class**, and **Sequence diagrams**.
- Design wireframes/mockups for the user interface.

Deliverables:

HLD document with architecture details.

LLD document with database schema and UML diagrams.

3. Implementation

Objective: Develop the system based on the design.

Modules

Patient Module

Registration form with validations.

Appointment booking system.

Admin Module

- Review and approve patient registrations.
- Assign doctors and manage appointments.
- Doctor Module
- View patient details.
- Update diagnoses and appointment notes.
- Development Approach
- Follow modular development for maintainability.
- Use feature branches in GitHub for version control.
- Deliverables:
- Functional JavaFX/Swing application.
- Code pushed to GitHub with descriptive commits.

4. Integration and Testing

Objective: Test individual modules and the integrated system for bugs and errors.

Types of Testing

Unit Testing

Test each functionality (e.g., patient registration, database CRUD).

Integration Testing

Test interactions between modules (e.g., appointment booking by patients).

System Testing

Ensure the application runs seamlessly as a whole.

User Acceptance Testing (UAT)

Allow users (admins, doctors, patients) to test the system.

Deliverables:

Test case document with scenarios and results.

Bug-free application.

5. **Deployment**

Objective: Deploy the system for use.

Steps

- Host the MySQL database using Docker.
- Package the Java application for distribution.
- Ensure deployment on hospital systems with proper configurations.

Deliverables:

- Deployed application.

- Deployment guide for the hospital IT team.

6. Maintenance

Objective: Ensure the system runs smoothly post-deployment.

Tasks

- Monitor system performance.
- Fix bugs and implement improvements based on feedback.
- Plan for future scalability (e.g., adding new roles or features).

Deliverables:

- Maintenance logs.
- Update documentation.
- **Waterfall Model Timeline**

Stage	**Duration**	**Activities**
1. Requirements roles.	1-2 weeks	Collect requirements, define functionalities, document user
2. Design	2 weeks	Plan architecture, design database schema, and create UML diagrams.
3. Implementation	4-6 weeks	Develop modules, integrate features, and push code to GitHub.
4. Testing	2 weeks	Conduct unit, integration, system, and UAT testing.
5. Deployment	1 week	Deploy the system on hospital infrastructure and provide setup instructions.
6. Maintenance	Ongoing	Monitor and update the system based on user feedback.

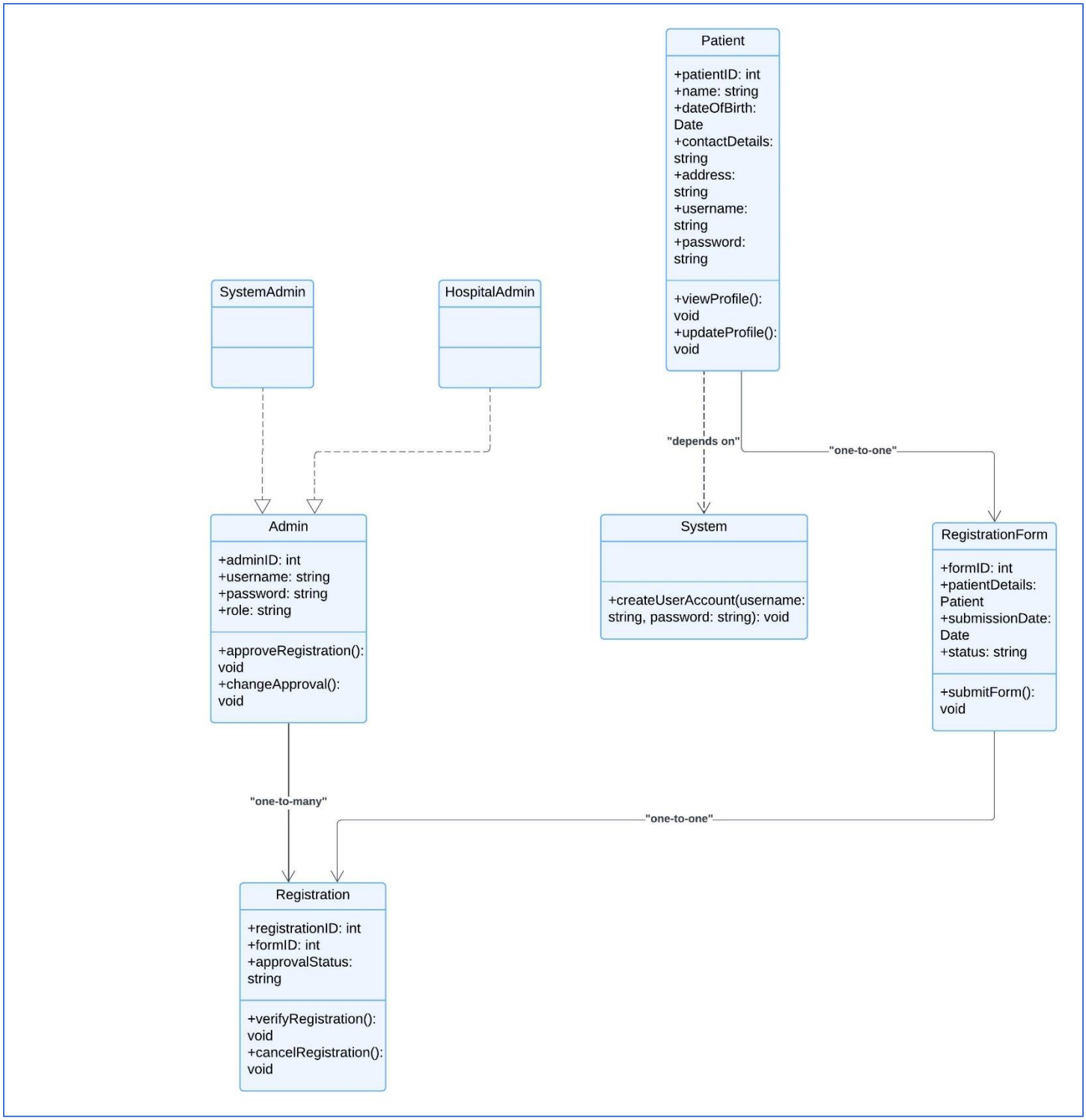
Advantages of Waterfall for This Project

- Structured Approach: Each phase has clear deliverables.
- Comprehensive Documentation: Ensures all requirements and designs are well-documented.
- Ease of Management: Sequential flow makes progress tracking simple.

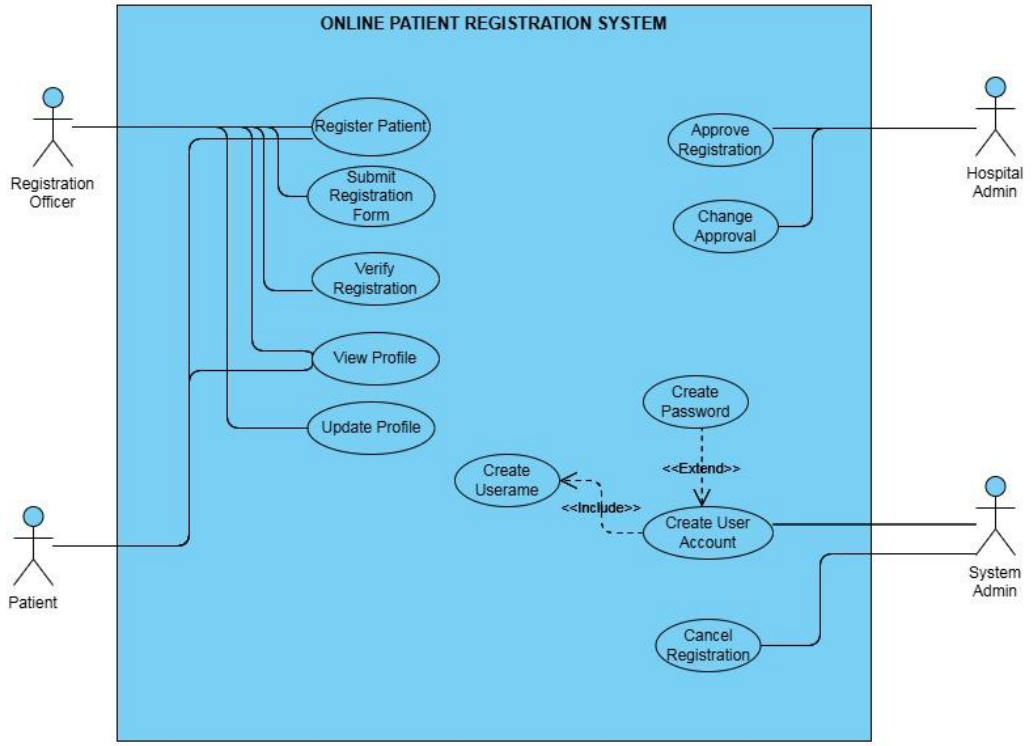
The above outline all the processes but for this project we are concentrating on the design and the development of a simple system for the chosen domain.

Below are specific deliverables for the project assignment.

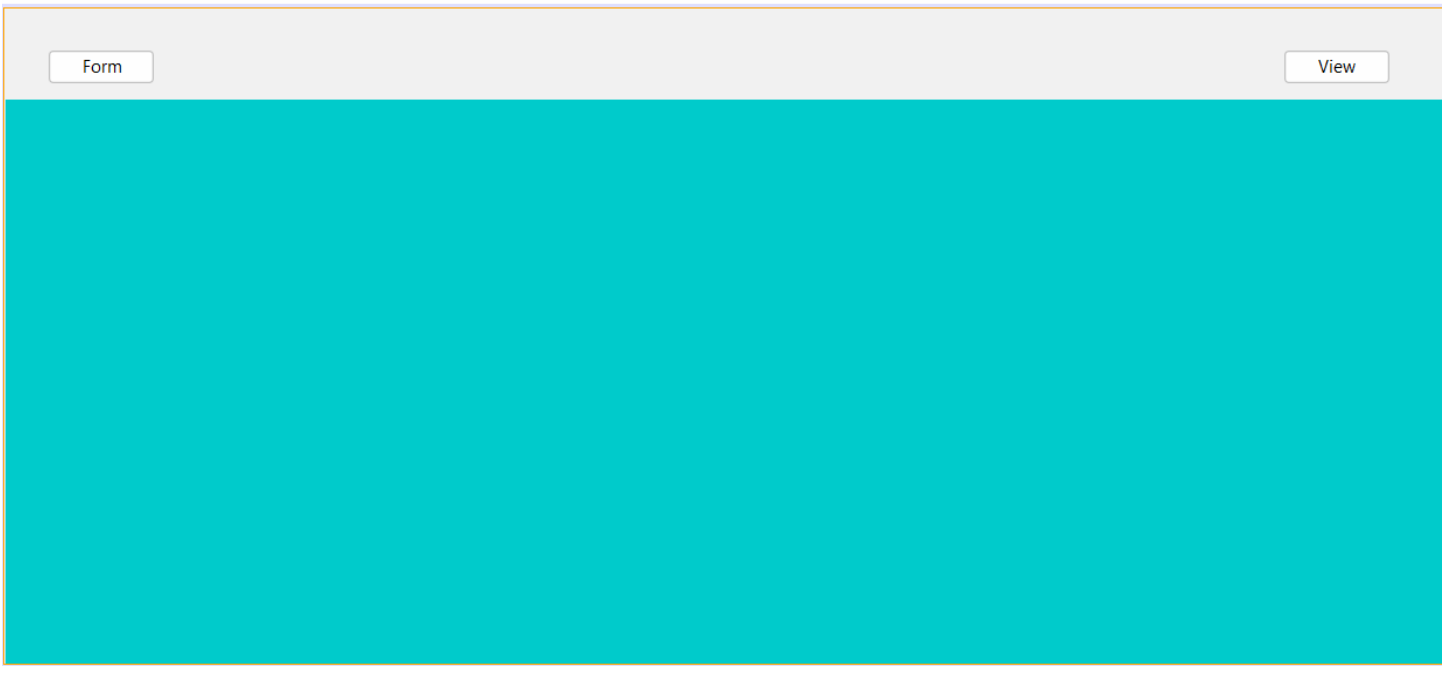
UML Class Diagram

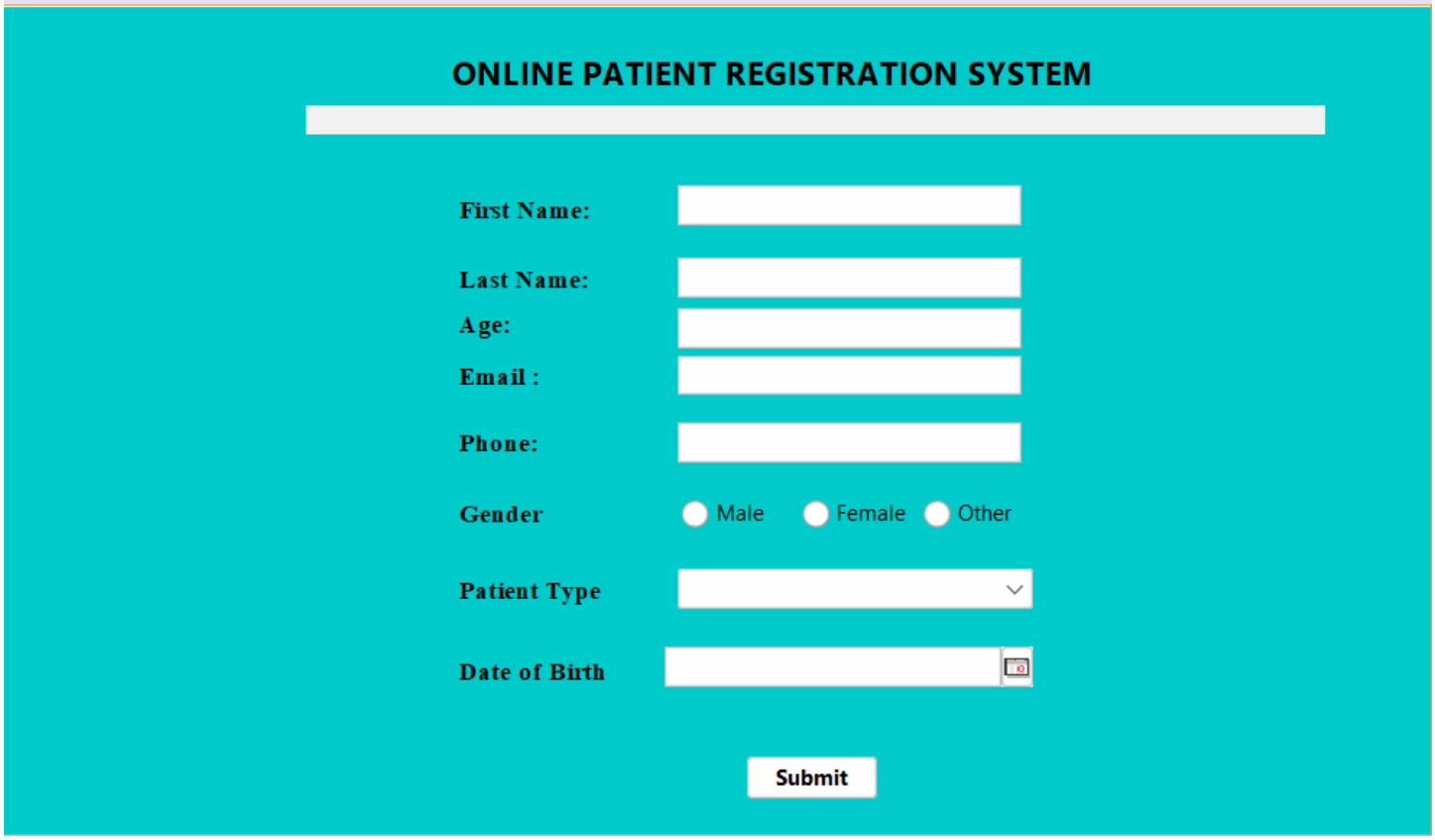

Patient
+patientID: int
+name: string
+dateOfBirth: Date
+contactDetails: string
+address: string
+username: string
+password: string
+viewProfile(): void
+updateProfile(): void
SystemAdmin
HospitalAdmin
"depends on"
"one-to-one"
Admin
+adminID: int
+username: string
+password: string
+role: string
+approveRegistration(): void
+changeApproval(): void
System
+createUserAccount(username: string, password: string): void
RegistrationForm
+formID: int
+patientDetails: Patient
+submissionDate: Date
+status: string
+submitForm(): void
"one-to-many"
"one-to-one"
Registration
+registrationID: int
+formID: int
+approvalStatus: string
+verifyRegistration(): void
+cancelRegistration(): void

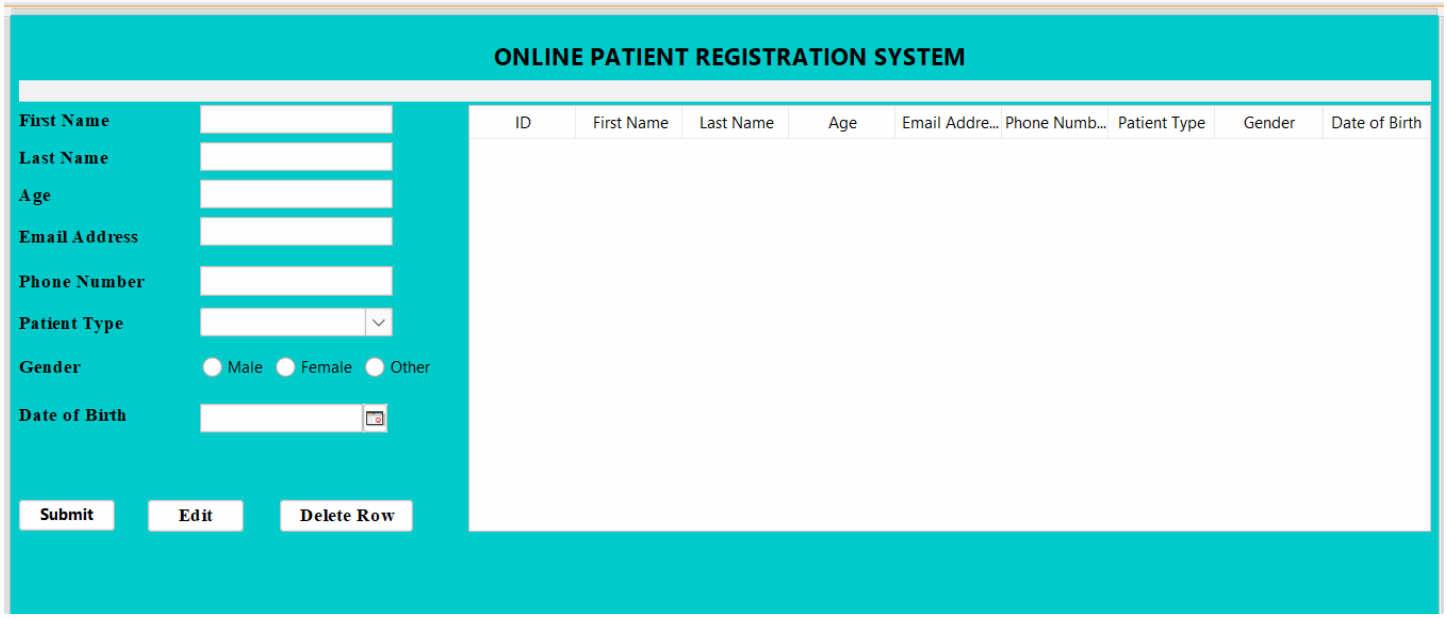
UML Use Case Diagram:



Screenshot of the Application:




ONLINE PATIENT REGISTRATION SYSTEM
First Name:
Last Name:
Age:
Email :
Phone:
Gender
Male
Female
Other
Patient Type
Date of Birth
Submit


ONLINE PATIENT REGISTRATION SYSTEM
First Name
Last Name
Age
Email Address
Phone Number
Patient Type
Gender
Male
Female
Other
Date of Birth
Submit
Edit
Delete Row
ID
First Name
Last Name
Age
Email Addre...
Phone Numb...
Patient Type
Gender
Date of Birth

DatabaseQuery* | DatabaseQuery

Limit to 1000 rows

```
1  show databases;
2  Use medicaldb;
3  create table patient(
4  id int primary key auto_increment,
5  firstname varchar(50),
6  lastname varchar(50),
7  age numeric,
8  phonenumber varchar(20),
9  emailAddress varchar(50),
10 gender varchar(20),
11 patientType varchar(20),
12 comment varchar(200),
13 dateOfBirth date);
14
15 Select * From patient;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

id	firstname	lastname	age	phonenumber	emailAddress	gender	patientType	comment	dateOfBirth
3	John	Smith	24	999000	jsmith	MALE	Walk-in	Okay	NULL
4	Bee	Coffie	30	11112222	grace@hi.com	FEMALE	Appointment	Scheduled	NULL
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

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