🏥 Hospital Management System — ASP.NET Core Microservices Project

👥 Group Members:

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🛠 Tech Stack:

• Frontend: ASP.NET Core MVC (HospitalMVC_UI)
• Backend Microservices:
  - PatientService — CRUD for Patients
  - AppointmentService — CRUD for Appointments
• Database: MySQL (1 DB per service)
• ORM: Entity Framework Core
• API Testing: Postman + Swagger
• CI/CD: (Planned with Jenkins)

📁 Project Structure:

HospitalManagementSystem/

```
── HospitalMVC_UI/          # Frontend (MVC UI)
│  ├── Controllers/         # PatientController.cs, AppointmentController.cs,
HomeController.cs
│  ├── Models/             # Patient.cs, Appointment.cs, ErrorViewModel.cs
│  └── Views/
│    ├── Home/            # Index.cshtml, Privacy.cshtml
│    ├── Patient/         # Create, Edit, Delete, Index views
│    └── Appointment/       # Create, Edit, Delete, Index views
│  └── Program.cs           # UI Entry Point

── PatientService/          # Microservice 1
│  ├── Controllers/         # PatientController.cs
│  ├── Models/             # Patient.cs, PatientDbContext.cs
│  ├── Factory/            # PatientDbContextFactory.cs
│  ├── Migrations/          # EF Core migrations
│  └── Program.cs           # API Entry Point

── AppointmentService/        # Microservice 2
│  ├── Controllers/         # AppointmentController.cs
│  ├── Models/             # Appointment.cs, AppointmentDbContext.cs
│  ├── Factory/            # AppointmentDbContextFactory.cs
│  ├── Migrations/          # EF Core migrations
│  └── Program.cs           # API Entry Point

── HospitalSystem.sln        # Solution File
├── README.md                # This file
├── .gitignore              # For Visual Studio
├── PatientDB.sql , AppointmentDB.sql   # SQL Workbrench for both services
└── Postman_Collection.json      # API test cases
```

▶️ How to Run the Project:

📦 Prerequisites:

• .NET SDK 7+
• Visual Studio 2022+
• MySQL Server 8+
• Postman

1️⃣ Run PatientService:

cd PatientService
- Update appsettings.json with your MySQL connection string
- Run DB migration: dotnet ef database update
- Start service: dotnet run

2️⃣ Run AppointmentService:

cd AppointmentService
- Update appsettings.json with your MySQL connection string
- Run DB migration: dotnet ef database update
- Start service: dotnet run

3️⃣ Run HospitalMVC_UI:

cd HospitalMVC_UI
- Make sure base URLs for APIs are correct in controller logic
- Start frontend: dotnet run

Then open browser: https://localhost:xxxx/

🌐 API Endpoints Summary:

📁 PatientService API:

Method	Endpoint	Description
GET	/api/patient	Get all patients
GET	/api/patient/{id}	Get patient by ID
POST	/api/patient	Add new patient
PUT	/api/patient/{id}	Update patient by ID
DELETE	/api/patient/{id}	Delete patient by ID

📁 AppointmentService API:

Method	Endpoint	Description
GET	/api/appointment	Get all appointments
GET	/api/appointment/{id}	Get appointment by ID
POST	/api/appointment	Create new appointment
PUT	/api/appointment/{id}	Update appointment by ID
DELETE	/api/appointment/{id}	Delete appointment by ID

🧪 Postman Test Cases:

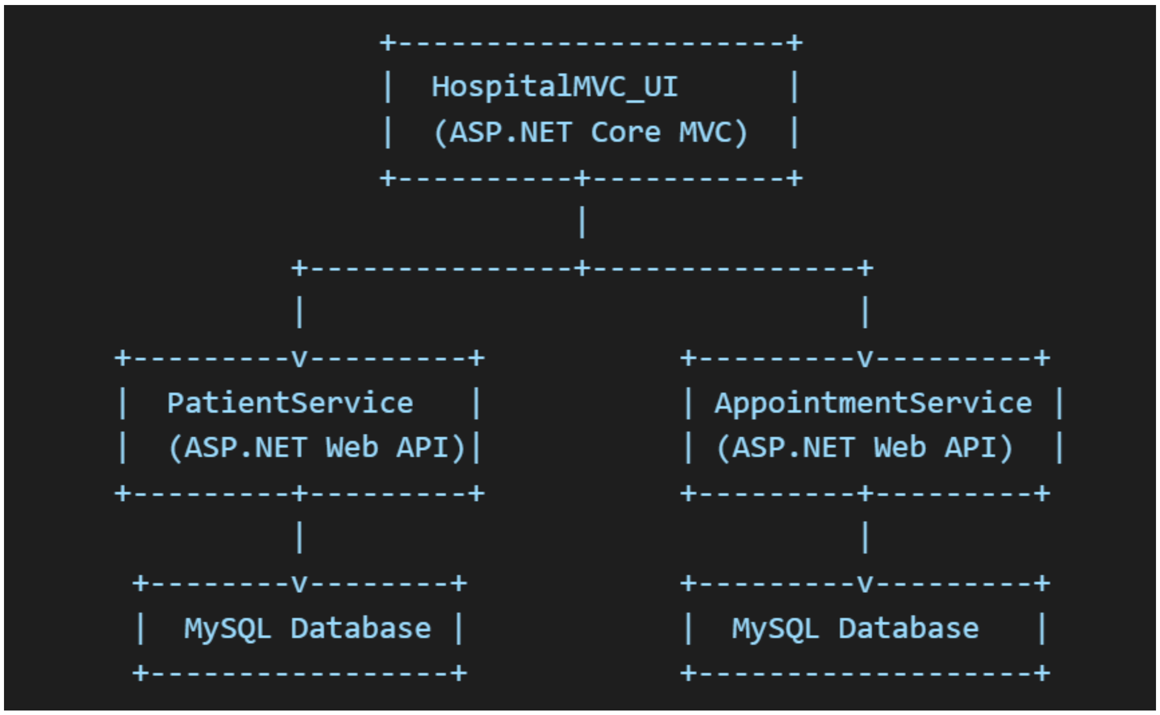
✅ PatientService:

1. Create Patient (Valid)
2. Get Patient (Valid ID)
3. Get Patient (Invalid ID)
4. Create Patient (Missing Fields)
5. Delete Patient (Invalid ID)

✅ AppointmentService:

1. Create Appointment (Valid)
2. Get Appointment (Valid ID)
3. Get Appointment (Invalid ID)
4. Create Appointment (Missing Date)
5. Delete Appointment (Invalid ID)

🧭 Architecture Diagram



```
                     +----------------------+
                     |  HospitalMVC_UI      |
                     |  (ASP.NET Core MVC)  |
                     +----------+-----------+
                                |
                +---------------+---------------+
                |                               |
      +---------v---------+           +---------v---------+
      |  PatientService   |           | AppointmentService |
      |  (ASP.NET Web API)|           | (ASP.NET Web API)  |
      +---------+---------+           +---------+---------+
                |                               |
       +--------v--------+            +---------v---------+
       |  MySQL Database |            |  MySQL Database   |
       +-----------------+            +-------------------+
```

📦 Additional Files (Included in Repo)

- ✅ README.md (this file)
- ✅ .gitignore (for Visual Studio)
- ✅ PatientDB.sql , AppointmentDB.sql   (MySQL Workbrench)
- ✅ Postman_Collection.json (for test automation)