MediLink Pro - Patient & Medicine Management System

# 1. Introduction

MediLink Pro is a patient and medicine management system built using FastAPI and MongoDB. It provides a RESTful API for creating, reading, updating, and deleting patient and medicine records. This project is designed for healthcare environments to maintain structured and scalable data management.

# 2. Objectives

- Simplify patient management.  
- Track medicines and stock levels.  
- Provide a reliable backend system.  
- Store data in both MongoDB and JSON for backup.

# 3. Technology Stack

Backend: FastAPI  
Database: MongoDB (with Compass)  
Language: Python  
Libraries: Pydantic, Motor, Uvicorn  
Tools: Postman, GitHub

# 4. Project Structure

medilink\_pro/  
│── app/  
│ ├── main.py  
│ ├── db.py  
│ ├── config.py  
│ ├── models.py  
│ ├── routers/  
│ │ ├── patients.py  
│ │ ├── medicines.py  
│── patients.json  
│── medicines.json

# 5. Setup Instructions

1. Clone the repository from GitHub.  
2. Create a virtual environment and activate it.  
3. Install dependencies using `pip install -r requirements.txt`.  
4. Start MongoDB and configure URI in `config.py`.  
5. Run server with: `uvicorn app.main:app --reload`  
6. Access API docs at: http://127.0.0.1:8000/docs

# 6. API Endpoints

## Patients API

POST /api/patients → Create patient  
GET /api/patients → Get all patients  
GET /api/patients/{id} → Get patient by ID  
PUT /api/patients/{id} → Update patient  
DELETE /api/patients/{id} → Delete patient

## Medicines API

POST /api/medicines → Create medicine  
GET /api/medicines → Get all medicines  
GET /api/medicines/{id} → Get medicine by ID  
PUT /api/medicines/{id} → Update medicine  
DELETE /api/medicines/{id} → Delete medicine

# 7. Future Enhancements

- Add authentication & authorization.  
- Implement role-based access.  
- Build a frontend dashboard.  
- Add analytics and reporting.