Python Mini Project-2

# 🏥💻 Mini Project: Patient Health Record Management System

### 🩺 "Track, Update, and Monitor Patients Like a Pro!"

## 🔍 Project Overview

You will build a **console-based application** that helps **doctors or health administrators** to:

- 🧑‍⚕️ Add new patient records
- 📋 View all patients
- 🔍 Search patients by name or ID
- 💉 Update vitals (like temperature, BP, etc.)
- ⚠️ Alert if any vitals are critical
- 🗑️ Delete a record

This app uses **dictionary as the primary data structure**, and also makes great use of **strings and lists** for storing and formatting data.

## 🧠 Concepts Covered

- ✅ Dictionary operations: Create, Read, Update, Delete
- ✅ String formatting and manipulation
- ✅ List usage for organizing data
- ✅ Basic conditional logic and loops

## 📦 Features To Implement

**Add Patient Record**
Input:

Name: Riya Sen
Age: 27
Gender: Female
Patient ID: P1001
Vitals:
- Temperature: 101.2
- Blood Pressure: 145/95
- Heart Rate: 110

Output:

✅ Patient 'Riya Sen' added successfully!

1.

**View All Patients**
Output:

👨‍⚕️ Patient Records:
---
ID: P1001 | Name: Riya Sen | Age: 27 | Temp: 101.2°F | BP: 145/95 | HR: 110 bpm
---

2.

**Search Patient by ID**
Input: `P1001`
Output:

🗒️ Record Found:
Name: Riya Sen
Age: 27
Temperature: 101.2°F
Blood Pressure: 145/95
Heart Rate: 110 bpm

3.

**Update Patient Vitals**
Input:

Enter ID: P1001
New Temperature: 98.6

New BP: 120/80
New HR: 80
Output:

🔄 Vitals updated for patient 'Riya Sen'.

4.
5. **Critical Health Alert System**
   While viewing or updating, if:
   - Temp > 100°F
   - BP > 140/90
   - HR > 100
     Then:

⚠️ Alert: Patient vitals are in critical range! Immediate attention required.

6.

**Delete Patient Record**
Input: `P1001`
Output:

🗑️ Patient record for ID 'P1001' deleted.

7.

## 🗃️ Data Structure Design (Main Dictionary

```
patients = {
   "P1001": {
      "name": "Riya Sen",
      "age": 27,
      "gender": "Female",
      "vitals": {
         "temperature": 101.2,
         "bp": "145/95",
         "heart_rate": 110
      }
   },
   "P1002": {
      ...
```

```
    }
}
```

## 🛠️ Suggested File Structure

Just a single Python file like `healthcare_system.py` is enough. You can later extend it with:

- Saving data in JSON
- Loading data from file
- Login for doctors

## 🏁 Learning Goals

By completing this project, students will:

- Learn to **structure data with nested dictionaries**
- Practice **logic building** for conditionals
- Strengthen their **string and list manipulation**
- Gain confidence with **real-world scenarios**