Hospital management system in c++

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#include <iostream>
#include <string>
#include <vector>

using namespace std;

// Patient Class
class Patient {
public:
    int patientID;
    string name;
    int age;
    string disease;

    // Constructor
    Patient(int id, string n, int a, string d) {
        patientID = id;
        name = n;
        age = a;
        disease = d;
    }

    // Display Patient Details
    void displayPatientInfo() {
        cout << "Patient ID: " << patientID << endl;
        cout << "Name: " << name << endl;
        cout << "Age: " << age << endl;
        cout << "Disease: " << disease << endl;
    }
};

// Doctor Class
class Doctor {
public:
    int doctorID;
    string name;
    string specialization;

    // Constructor
    Doctor(int id, string n, string s) {
        doctorID = id;
        name = n;
        specialization = s;
    }

    // Display Doctor Details
    void displayDoctorInfo() {
        cout << "Doctor ID: " << doctorID << endl;
        cout << "Name: " << name << endl;
        cout << "Specialization: " << specialization << endl;
    }
};

// Hospital Management System Class
class HospitalManagementSystem {
public:
    vector<Patient> patients;
    vector<Doctor> doctors;

    // Add a new patient
    void addPatient(int id, string name, int age, string disease) {
        Patient newPatient(id, name, age, disease);
        patients.push_back(newPatient);
        cout << "Patient added successfully!" << endl;
    }

    // Add a new doctor
    void addDoctor(int id, string name, string specialization) {
        Doctor newDoctor(id, name, specialization);
        doctors.push_back(newDoctor);
        cout << "Doctor added successfully!" << endl;
    }

    // Display all patients
    void displayAllPatients() {
        cout << "\n--- List of All Patients ---\n";

        // Traditional for loop instead of range-based for loop (C++98 compliant)
        for (size_t i = 0; i < patients.size(); i++) {
            patients[i].displayPatientInfo();  // Correct type access
            cout << "-------------------------" << endl;
        }
    }

    // Display all doctors
    void displayAllDoctors() {
        cout << "\n--- List of All Doctors ---\n";

        // Traditional for loop instead of range-based for loop (C++98 compliant)
        for (size_t i = 0; i < doctors.size(); i++) {
            doctors[i].displayDoctorInfo();  // Correct type access
            cout << "------------------------" << endl;
        }
    }

    // Search for a patient by ID
    void searchPatientByID(int id) {
        bool found = false;
        for (size_t i = 0; i < patients.size(); i++) {
            if (patients[i].patientID == id) {
                patients[i].displayPatientInfo();
                found = true;
                break;
            }
        }
        if (!found) {
            cout << "Patient with ID " << id << " not found!" << endl;
        }
    }

    // Search for a doctor by ID
    void searchDoctorByID(int id) {
        bool found = false;
        for (size_t i = 0; i < doctors.size(); i++) {
            if (doctors[i].doctorID == id) {
                doctors[i].displayDoctorInfo();
                found = true;
                break;
            }
        }
        if (!found) {
            cout << "Doctor with ID " << id << " not found!" << endl;
        }
    }
};

int main() {
    HospitalManagementSystem hms;

    int choice;
```

```
do {
    cout << "\n--- Hospital Management System ---\n";
    cout << "1. Add Patient\n";
    cout << "2. Add Doctor\n";
    cout << "3. Display All Patients\n";
    cout << "4. Display All Doctors\n";
    cout << "5. Search Patient by ID\n";
    cout << "6. Search Doctor by ID\n";
    cout << "0. Exit\n";
    cout << "Enter your choice: ";
    cin >> choice;

    if (choice == 1) {
        int id, age;
        string name, disease;
        cout << "Enter Patient ID: ";
        cin >> id;
        cout << "Enter Patient Name: ";
        cin.ignore();
        getline(cin, name);
        cout << "Enter Patient Age: ";
        cin >> age;
        cout << "Enter Disease: ";
        cin.ignore();
        getline(cin, disease);
        hms.addPatient(id, name, age, disease);
    } else if (choice == 2) {
        int id;
        string name, specialization;
        cout << "Enter Doctor ID: ";
        cin >> id;
        cout << "Enter Doctor Name: ";
        cin.ignore();
        getline(cin, name);
        cout << "Enter Specialization: ";
        getline(cin, specialization);
        hms.addDoctor(id, name, specialization);
    } else if (choice == 3) {
        hms.displayAllPatients();
    } else if (choice == 4) {
        hms.displayAllDoctors();
    } else if (choice == 5) {
        int id;
        cout << "Enter Patient ID: ";
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            cin >> id;
            hms.searchPatientByID(id);
        } else if (choice == 6) {
            int id;
            cout << "Enter Doctor ID: ";
            cin >> id;
            hms.searchDoctorByID(id);
        }
    } while (choice != 0);

    return 0;
}
```