



PRESENTATION SLIDE

DATA STRUCTURE AND ALGORITHM



JUNE 26, 2024

PUSH CODER

Hospital Management System

Project Overview

Objective:

- Efficiently manage hospital patient records including admission and discharge processes.

Features:

- Patient admission with automatic date and time recording.
 - Doctor assignment.
 - Patient list display.
 - Patient discharge with doctor confirmation.
 - Data persistence through file handling.
-

System Components

1. Patient Structure

- Stores details such as ID, name, address, disease, admission date & time, and assigned doctor.
- Automatic timestamp generation for priority queue management.

2. Node Structure

- Represents each patient in the linked list.

3. PatientList Class

- Manages patients using a linked list and a priority queue.
- Supports operations like adding, displaying, removing patients, and file handling.

Key Functionalities

1. Admit Patient

- Input patient details.
- Assign a doctor from a predefined list.
- Automatically records admission date and time.

2. Display Patient List

- Outputs the list of admitted patients along with their details.

3. Discharge Patient

- Find patient by ID.
- Doctor confirmation required for discharge.
- Remove patient from the list upon confirmation.

4. File Handling

- Load patients from a file at startup.
- Save patient data to a file before exiting.

User Interface

Main Menu

```
<== Hospital Management System ==>
```

```
1. Admit Patient  
2. Display Patient List  
3. Discharge Patient  
0. Exit
```

```
Enter your choice: |
```

- Options to admit a patient, display patient list, discharge a patient, and exit.

Admit Patient

```
<== Hospital Management System ==>

1. Admit Patient
2. Display Patient List
3. Discharge Patient
0. Exit

Enter your choice: 1

Enter Patient ID: 01
Enter Patient Name: Munyim
Enter Patient Address: AK KHAN
Enter Patient Disease: Heart Attack

Select a Doctor from the list below:
1. Dr. Debi Sheti(Cardiologist)
2. Dr. Hamid Hasan(Neurologist)
3. Dr. Anisul Awal(Medicine Specialist)
4. Dr. Abdul Karim(Internal Medicine)
5. Dr. Rasel Viper(Poison Specialist)
Enter your choice: 1

Patient Admitted Successfully.

<== Hospital Management System ==>

1. Admit Patient
2. Display Patient List
3. Discharge Patient
0. Exit

Enter your choice: |
```

- Prompts for patient details and doctor selection.

Display Patient List

```
<== Hospital Management System ==>

1. Admit Patient
2. Display Patient List
3. Discharge Patient
0. Exit

Enter your choice: 2

<== Patient List ==>

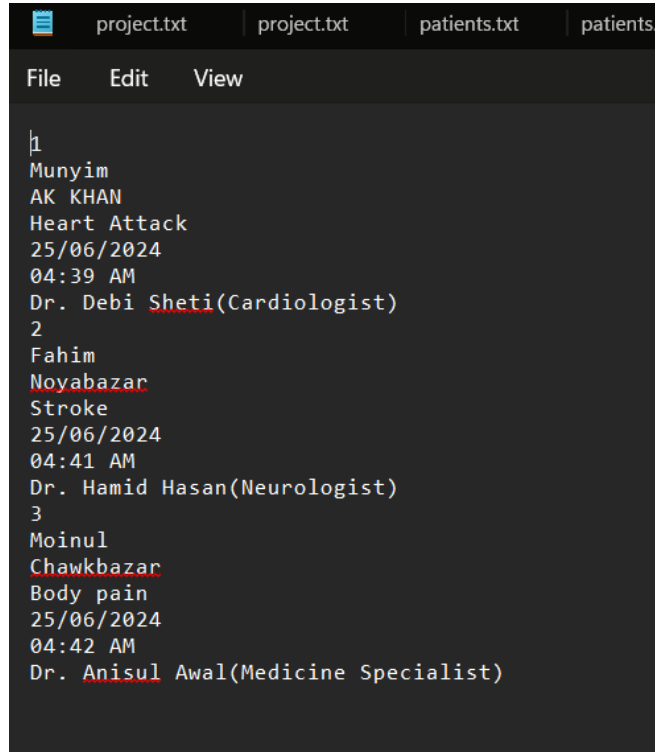
ID      Name      Address      Disease      Date      Admission Time  Doctor Name
1      Munyim      AK KHAN      Heart Attack  25/06/2024    04:39 AM       Dr. Debi Sheti(Cardiologist)
2      Fahim      Noyabazar    Stroke        25/06/2024    04:41 AM       Dr. Hamid Hasan(Neurologist)
3      Moinul      Chawkbazar    Body pain     25/06/2024    04:42 AM       Dr. Anisul Awal(Medicine Specialist)

<== Hospital Management System ==>

1. Admit Patient
2. Display Patient List
3. Discharge Patient
0. Exit

Enter your choice: |
```

- Shows a table of all admitted patients with their respective details.



```
1
Munyim
AK KHAN
Heart Attack
25/06/2024
04:39 AM
Dr. Debi Sheti(Cardiologist)
2
Fahim
Noyabazar
Stroke
25/06/2024
04:41 AM
Dr. Hamid Hasan(Neurologist)
3
Moinul
Chawkbazar
Body pain
25/06/2024
04:42 AM
Dr. Anisul Awal(Medicine Specialist)
```

Discharge Patient

```
<== Patient List ==>
ID      Name      Address      Disease      Date      Admission Time      Doctor Name
1      Munyim     AK KHAN     Heart Attack  25/06/2024  04:39 AM           Dr. Debi Sheti(Cardiologist)
2      Fahim      Noyabazar   Stroke       25/06/2024  04:41 AM           Dr. Hamid Hasan(Neurologist)
3      Moinul      Chawkbazar  Body pain    25/06/2024  04:42 AM           Dr. Anisul Awal(Medicine Specialist)

<== Hospital Management System ==>
1. Admit Patient
2. Display Patient List
3. Discharge Patient
0. Exit

Enter your choice: 3

Enter Patient ID to discharge: 2

Doctor Dr. Hamid Hasan(Neurologist) needs to confirm discharge.
Enter 'yes' to confirm: yes

Patient discharged successfully by Dr. Dr. Hamid Hasan(Neurologist).

<== Hospital Management System ==>
1. Admit Patient
2. Display Patient List
3. Discharge Patient
0. Exit

Enter your choice: 2

<== Patient List ==>
ID      Name      Address      Disease      Date      Admission Time      Doctor Name
1      Munyim     AK KHAN     Heart Attack  25/06/2024  04:39 AM           Dr. Debi Sheti(Cardiologist)
3      Moinul      Chawkbazar  Body pain    25/06/2024  04:42 AM           Dr. Anisul Awal(Medicine Specialist)
```

- Requires patient ID and doctor confirmation.

```
File      Edit      View

1
Munyim
AK KHAN
Heart Attack
25/06/2024
04:39 AM
Dr. Debi Sheti(Cardiologist)
3
Moinul
Chawkbazar
Body pain
25/06/2024
04:42 AM
Dr. Anisul Awal(Medicine Specialist)
```

Code Highlights

Patient Admission

```
Patient p;  
cout << "Enter Patient ID: ";  
cin >> p.id;  
cin.ignore();  
cout << "Enter Patient Name: ";  
getline(cin, p.patientName);  
cout << "Enter Patient Address: ";  
getline(cin, p.patientAddress);  
cout << "Enter Patient Disease: ";  
getline(cin, p.disease);  
// Select doctor  
patientList.addPatient(p);
```

Display Patients

```
void displayPatients() {  
    if (!head) {  
        cout << "Patient List is empty.\n";  
        return;  
    }  
    cout << "<== Patient List ==>\n";  
    Node* temp = head;  
    while (temp) {  
        Patient& p = temp->data;  
        cout << p.id << "\t" << p.patientName << "\n";  
        temp = temp->next;  
    }  
}
```

Remove Patient

```
void removePatient(int id) {  
    Node* current = head;  
    Node* prev = nullptr;  
    while (current) {  
        if (current->data.id == id) {  
            // Confirm discharge  
            delete current;  
            return;  
        }  
        prev = current;  
        current = current->next;  
    }  
}
```

File Handling

```
void loadPatientsFromFile(const string& filename) {
    ifstream inFile(filename);
    while (!inFile.eof()) {
        Patient p;
        inFile >> p.id;
        getline(inFile, p.patientName);
        addPatient(p);
    }
    inFile.close();
}

void savePatientsToFile(const string& filename) {
    ofstream outFile(filename);
    Node* temp = head;
    while (temp) {
        Patient& p = temp->data;
        outFile << p.id << "\n" << p.patientName << "\n";
        temp = temp->next;
    }
    outFile.close();
}
```

!

