JAYPEE INSTITUTE OF INFORMATION TECHNOLOGY - SECTOR 62, NOIDA

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<u>Software Development Fundamentals Lab– II</u> [15B17CI271]

<u>Mini Project in C++ Language – Project REPORT</u>

<u>Project</u>: Hospital Management System

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PROBLEM STATEMENT

We are solving the problem of maintaining and keeping record of everyone and everything in a hospital. A major problem in hospitals is maintaining a record of everything and doing that in registers and files is extremely time taking and not so convenient.

Here we are designing a hospital management system to manage various aspects of a hospital's operations, such as patient data management, medical billing, inventory management, and prescribing medicine to the patient. We keep a record of everything from doctors, nurses, receptionists to store manager. The store manager can order medicines and keep the inventory full.

The purpose of this project is to develop a comprehensive and user-friendly hospital management system that streamlines hospital workflows and improves patient care. The system is capable of managing patient records, maintaining medical histories, maintaining the record of everyone working within the hospital from doctors, nurses to receptionist and store manager. We can search for a patient's record and display his/her entire details and refer to a doctor. The doctor can prescribe medicine to the patient. The project aims to improve hospital efficiency, reduce administrative overhead, and enhance patient satisfaction by providing timely and accurate information and services.

FEATURES OF C++ USED

Libraries

```
#include <stdio.h>
#include<iostream>
#include<fstream>
#include<cctype>
#include<iomanip>
#include <cstdlib>
#include <ctime>
#include <string>
#include <string>
#include <string.h>
#include <string.h>
#include <time.h>
#include<cstring>
```

- Object oriented programming
 - Classes

```
class Person
{  protected:
    char Name[50],Gender[10];
    int Age,Date,Month,Year;
    long int PhoneNum;
    int ZipCode,PersonID;
```

Inheritance

Function overloading(polymorphism)

```
void PersonInfo()
    cout<<"Enter Name :";</pre>
    cin.clear();
    cin.ignore();
    cin.getline(Name,50);
    cout<<"Enter Gender :";</pre>
    cin>>Gender;
    cout<<"Enter Age :";</pre>
    cin>>Age;
    cout<<"Enter Address :";</pre>
    cin>>Country;
    cout<<"Enter Blood group:";</pre>
    cin>>blood g;
void PersonInfo(char n[], char g[],int a,char c[],char bg[])
    strcpy(Name,n);
    strcpy(Gender,g);
    Age = a;
    strcpy(Country,c);
    strcpy(blood_g,bg);
```

Virtual functions

```
virtual void getInfo() = 0;
void PersonInfo()
```

Abstract classes

```
class Person
{    protected:
        char Name[50],Gender[10];
        int Age,Date,Month,Year;
        long int PhoneNum;
        int ZipCode,PersonID;
        char City[50],Country[50],State[50],blood_g[5];
public:
        virtual void getInfo() = 0;
        void PersonInfo()
```

Function declaration and defining

```
char medicine[100];
void patient_bill();
void getdata(); //function to accept data from user
void showdata(); //function to show data on screen
int retidno();
void modify_medicine(int n);
   void write_patient(); //write the record in file
   void display_all(); //read all records from file
   void display_p(int n); //accept reg_no and read record from file
   void modify_patient(int n); //accept reg_no and update record of file
   void delete_patient(int n); //accept reg_no and delete selected records from file
};
```

```
void patient::display_p(int n) //reading specific file
patient p;
ifstream inFile;
inFile.open("patient.dat",ios::binary);
if(!inFile)
cout<<"File could not be open !! Press any Key...";</pre>
cin.ignore();
cin.get();
return;
bool flag=false;
while(inFile.read(reinterpret_cast<char *> (&p), sizeof(patient)))
if(p.retidno()==n)
  p.showdata();
flag=true;
inFile.close();
if(flag==false)
cout<<"\n\nrecord not exist";</pre>
cin.ignore();
cin.get();
```

• File handling using .dat files

```
fstream File;
File.open("patient.dat",ios::binary|ios::in|ios::out);
if(!File)
cout<<"File could not be open !! Press any Key...";</pre>
cin.ignore();
cin.get();
return;
    while(!File.eof() && found==false)
File.read(reinterpret_cast<char *> (&p), sizeof(patient));
if(p.retidno()==n)
p.showdata();
cout<<"\n\nPlease Enter The New Details of patient"<<endl;</pre>
                p.getdata();
    int pos=(-1)*static_cast<int>(sizeof(p));
    File.seekp(pos,ios::cur);
    File.write(reinterpret_cast<char *> (&p), sizeof(patient));
    cout<<"\n\n\t Record Updated";</pre>
    found=true;
```

OVERVIEW OF THE CODE

```
#include <stdio.h>
#include<iostream>
#include<fstream>
#include<cctype>
#include<iomanip>
#include <cstdlib>
#include <ctime>
#include <string>
#include <conio.h>
#include <string.h>
#include <time.h>
#include<cstring>
using namespace std;
class Person
    protected:
    char Name [50], Gender [10];
    int Age, Date, Month, Year;
    long int PhoneNum;
    int ZipCode, PersonID;
    char City[50], Country[50], State[50], blood g[5];
public:
    virtual void getInfo() = 0;
    void PersonInfo()
        cout<<"Enter Name :";</pre>
        cin.clear();
        cin.ignore();
        cin.getline(Name, 50);
        cout<<"Enter Gender :";</pre>
        cin>>Gender;
        cout<<"Enter Age :";</pre>
        cin>>Age;
        cout<<"Enter Address :";</pre>
        cin>>Country;
        cout<<"Enter Blood group:";</pre>
         cin>>blood g;
```

```
void PersonInfo(char n[], char g[],int a,char c[],char bg[])
        strcpy(Name, n);
        strcpy (Gender, g);
        Age = a;
        strcpy(Country,c);
        strcpy(blood g,bg);
    }
    void Display info()
        cout<<"Name: "<<Name<<endl;</pre>
        cout<<"Gender: "<<Gender<<endl;</pre>
        cout<<"Age: "<<Age<<endl;</pre>
        cout<<"Address: "<<this->Country<<endl;</pre>
        cout<<"Blood Group:"<<blood g<<endl;</pre>
    }
};
class Staff:public Person
            int salary;
            char time from [30], time to [30];
    public:
             void getInfo() {
                 cout << "Staff name: "<< Name <<endl<<"Gender:</pre>
"<<Gender<<endl<<"Salary: "<< salary <<endl<< "Working
hours"<<time from<<":"<<time to;
           void staff info()
               PersonInfo();
               cout<<"Enter salary:";cin>>salary;
               cout<<"Enter Duty time:";</pre>
cout<<"From:";cin>>time from;cout<<"To:";cin>>time to;
            void show staff()
                 cout<<"\nSalary: "<<salary;</pre>
                 cout<<"\nDuty Time:</pre>
"<<time from<<"--"<<time to<<endl;
                 Display info();
```

```
};
class patient: public Person
{
int reg no;
char occupation[30];
char date admit[30];
char date discharge[30];
int bill, total;
public:
   void getInfo() {
       cout << "Staff name: "<< Name <<endl<<"Gender:</pre>
"<<Gender<<endl<<"Date of Admission "<< date admit <<endl<<
"Date of Discharge" << date discharge << endl << "Bill: " << bill;
   char medicine[100];
void patient bill();
void getdata(); //function to accept data from user
void showdata(); //function to show data on screen
int retidno();
void modify medicine(int n);
   void write patient(); //write the record in file
   void display all(); //read all records from file
   void display p(int n); //accept reg no and read record from
file
   void modify patient(int n); //accept reg no and update
record of file
   void delete patient(int n); //accept reg no and delete
selected records from file
};
void patient::patient bill() //using scope resolution operator
to define function outside class
   system("CLS");
cout <<
*********
cout << "\n\n\t\t\t\tPatient Fee Charge\n\n ";</pre>
***********
//cout << "\nHospital Room Charges</pre>
                                                   :\t
1000";
```

```
cout << "\nHospital Care Charges</pre>
                                                       :\t 50";
cout << "\nHospital Maintaince Charges</pre>
                                                       :\t 50";
cout << "\nPatient Individual Charges</pre>
                                                       :\t " <<
total = 50 + 50 + bill;
cout << "\nTotal Fee Charge</pre>
                                                        :\t" <<
total << "\n";
cout <<
************
}
void patient::getdata()
PersonInfo();
cout<<"\nEnter The registration number of the patient: ";</pre>
cin>>reg no;
cout<<"\nEnter The occupation of the patient: ";</pre>
cin>>occupation;
cout<<"\nEnter The bill of the patient:";</pre>
cin>>bill;
cout<<"\nEnter The date admitted(dd/mm/yyyy):";</pre>
cin>>date admit;
cout<<"\nEnter The date discharged(dd/mm/yyyy):";</pre>
cin>>date discharge;
patient bill();
strncpy(medicine, "null", sizeof(medicine) - 1);
    medicine[sizeof(medicine) - 1] = 0;
void patient::showdata()
cout<<"\nRegistration number of patient: "<<reg no<<"\n";</pre>
Display info();
cout<<"\nOccupation : "<<occupation;</pre>
cout<<"\nAdmit date : "<<date admit;</pre>
cout<<"\nDischarhge date :"<<date discharge;</pre>
cout<<"\nBill :"<<total;</pre>
cout<<"\nPrescribed Medicine: "<<medicine;</pre>
}
int patient::retidno()
return reg no;
```

```
void patient::modify medicine(int n)
bool found=false;
patient p;
fstream File;
File.open("patient.dat",ios::binary|ios::in|ios::out);
if(!File)
cout<<"File could not be open !! Press any Key...";</pre>
cin.iqnore();
cin.get();
return;
    while(!File.eof() && found==false)
File.read(reinterpret cast<char *> (&p), sizeof(patient));
if(p.retidno() == n)
{
p.showdata();
cout<<"\n\nPlease Enter The Medicine of patient"<<endl;</pre>
                 cin>>p.medicine;
    int pos=(-1) *static cast<int>(sizeof(p));
    File.seekp(pos,ios::cur);
    File.write(reinterpret cast<char *> (&p), sizeof(patient));
    cout<<"\n\n\t Record Updated";</pre>
    found=true;
}
File.close();
if(found==false)
cout<<"\n\n Record Not Found ";</pre>
cin.ignore();
cin.get();
void patient::write patient() // writing into file
{
patient p;
ofstream outFile;
outFile.open("patient.dat",ios::binary|ios::app);
p.getdata();
outFile.write(reinterpret cast<char *> (&p), sizeof(patient));
outFile.close();
    cout<<"\n\nPatient record Has Been Created ";</pre>
cin.ignore();
```

```
cin.get();
}
void patient::display all() //reading from file
patient p;
ifstream inFile;
inFile.open("patient.dat",ios::binary);
if(!inFile)
cout<<"File could not be open !! Press any Key...";</pre>
cin.ignore();
cin.get();
return;
cout << "\n\n\t\tDISPLAY ALL RECORD !!!\n\n";
while(inFile.read(reinterpret cast<char *> (&p),
sizeof(patient)))
{
p.showdata();
=======\n";
inFile.close();
cin.ignore();
cin.get();
void patient::display p(int n) //reading specific file
patient p;
ifstream inFile;
inFile.open("patient.dat",ios::binary);
if(!inFile)
cout<<"File could not be open !! Press any Key...";</pre>
cin.ignore();
cin.get();
return;
}
bool flag=false;
while(inFile.read(reinterpret cast<char *> (&p),
sizeof(patient)))
if(p.retidno() == n)
 p.showdata();
```

```
flag=true;
}
inFile.close();
if(flag==false)
cout<<"\n\nrecord not exist";</pre>
cin.ignore();
cin.get();
}
void patient:: modify patient(int n) //modifying patient
details
bool found=false;
patient p;
fstream File;
File.open("patient.dat",ios::binary|ios::in|ios::out);
if(!File)
cout<<"File could not be open !! Press any Key...";</pre>
cin.iqnore();
cin.get();
return;
}
    while(!File.eof() && found==false)
File.read(reinterpret cast<char *> (&p), sizeof(patient));
if (p.retidno() == n)
p.showdata();
cout<<"\n\nPlease Enter The New Details of patient"<<endl;</pre>
                 p.getdata();
    int pos=(-1)*static cast<int>(sizeof(p));
    File.seekp(pos,ios::cur);
    File.write(reinterpret cast<char *> (&p), sizeof(patient));
    cout<<"\n\n\t Record Updated";</pre>
    found=true;
}
}
File.close();
if(found==false)
cout<<"\n\n Record Not Found ";</pre>
cin.ignore();
cin.get();
}
```

```
void patient:: delete patient(int n) //deleting a particular
file
{
patient p;
ifstream inFile;
inFile.open("patient.dat",ios::binary);
if(!inFile)
cout<<"File could not be open !! Press any Key...";</pre>
cin.ignore();
cin.get();
return;
ofstream outFile;
outFile.open("Temp.dat",ios::out);
inFile.seekg(0,ios::beg);
while(inFile.read(reinterpret cast<char *> (&p),
sizeof(patient)))
if(p.retidno()!=n)
outFile.write(reinterpret cast<char *> (&p), sizeof(patient));
}
outFile.close();
inFile.close();
remove("patient.dat");
rename("Temp.dat", "patient.dat");
cout<<"\n\n\tRecord Deleted ..";</pre>
cin.ignore();
cin.get();
class Doctor: public Staff
    int DocID;
    patient p;
    char Spz[500];
public:
     bool CheckRegNo(int n)
      {
      bool found=false;
```

```
Doctor d;
 fstream File;
 File.open("Doctor.dat",ios::binary|ios::in);
 if(!File)
 {
cout<<"File could not be open !! Press any Key...";</pre>
cin.ignore();
cin.get();
 }
    while(!File.eof() && found==false)
         {
File.read(reinterpret cast<char *> (&d), sizeof(Doctor));
if(d.DocID==n)
    found=true;
}
        File.close();
        return found;
        cin.ignore();
        cin.get();
      }
    void DoctorInfo()
        staff info();
        cout<<"Enter Doctor ID(1200-1299):";</pre>
        int m;
        cin>>m;
        if (CheckRegNo(m) == false)
             DocID=m;
         }
        else
             cout<<"ID already taken\n";</pre>
             goto id;
        cout<<"Enter Doctor Specialize :";</pre>
        cin>>Spz;
```

```
system("pause");
    }
    void show doctor()
        cout<<"Doctor ID: "<<DocID;</pre>
        show staff();
        cout<<"\nDoctor Specialize: "<<Spz;</pre>
    }
    int retDid()
return DocID;
    void Prescribe Medicine()
        int n;
        cout<<"\n\n\tEnter Reg Number Of patient : "; cin>>n;
        p.modify medicine(n);
    }
    void write doctor()
Doctor d;
ofstream outFile;
outFile.open("Doctor.dat",ios::binary|ios::app);
d.DoctorInfo();
outFile.write(reinterpret cast<char *> (&d), sizeof(Doctor));
    cout<<"\n\nDoctor record Has Been Created ";</pre>
outFile.close();
cin.ignore();
   }
   void display all Doctor()
Doctor d;
ifstream inFile;
inFile.open("Doctor.dat", ios::binary);
if(!inFile)
cout<<"File could not be open !! Press any Key...";</pre>
cin.ignore();
```

```
cin.get();
return;
cout<<"\n\n\t\tDISPLAY ALL RECORD !!!\n\n";</pre>
while(inFile.read(reinterpret cast<char *> (&d),
sizeof(Doctor)))
d.show doctor();
========\n";
inFile.close();
cin.ignore();
cin.get();
void display d(int n)
{
Doctor d;
ifstream inFile;
inFile.open("Doctor.dat",ios::binary);
if(!inFile)
cout<<"File could not be open !! Press any Key...";</pre>
cin.ignore();
cin.get();
return;
bool flag=false;
while(inFile.read(reinterpret cast<char *> (&d),
sizeof(Doctor)))
{
if(d.DocID==n)
 d.show doctor();
flag=true;
inFile.close();
if(flag==false)
cout<<"\n\nrecord not exist";</pre>
cin.iqnore();
cin.get();
void modify_doctor(int n)
```

```
bool found=false;
Doctor d;
fstream File;
File.open("Doctor.dat",ios::binary|ios::in|ios::out);
if(!File)
cout<<"File could not be open !! Press any Key...";</pre>
cin.ignore();
cin.get();
return;
    while(!File.eof() && found==false)
File.read(reinterpret cast<char *> (&d), sizeof(Doctor));
if(d.DocID==n)
   d.show doctor();
   cout<<"\n\nPlease Enter The New Details:"<<endl;</pre>
                 d.DoctorInfo();
    int pos=(-1)*static cast<int>(sizeof(d));
    File.seekp(pos,ios::cur);
    File.write(reinterpret cast<char *> (&d), sizeof(Doctor));
    cout<<"\n\n\t Record Updated";</pre>
    found=true;
}
}
File.close();
if(found==false)
cout<<"\n\n Record Not Found ";</pre>
cin.ignore();
cin.get();
void Doctor choice()
    char ch;
    do
{
int n;
system("cls");
        cout<<"\n\n\t01. Prescribe Medicine for patient ";</pre>
cout<<"\n\n\t02. Search DOCTOR ";</pre>
```

```
cout << "\n\n\t03. To exit....";
         cout<<"\n\n\tPlease Select Your Option (1-3) ";</pre>
        cin>>ch;
switch(ch)
case '1': Prescribe Medicine();
     break;
case '2':
         cout<<"Enter Doctor ID :";cin>>n;
                       display d(n);
                       break;
             case '3':break;
default :cout<<"\b";</pre>
    }while(ch!='3');
}
  void Doctor menu()
{
    char ch;
do
int n;
system("cls");
cout<<"\n\n\t01. INSERT DOCTOR DATA";</pre>
cout<<"\n\n\t02. Search DOCTOR ";</pre>
cout<<"\n\n\t03. ALL DOCTOR ";</pre>
cout<<"\n\n\t04. MODIFY DOCTOR DATA";</pre>
cout << "\n\n\t05. TO EXIT....";
cout<<"\n\n\tPlease Select Your Option (1-5) ";</pre>
cin>>ch;
        system("cls");
switch(ch)
case '1': write doctor();
     break;
case '2':
         cout<<"Enter Doctor ID :";cin>>n;
                        display d(n);
                       break;
```

```
case '3':
        display all Doctor();
case '4':
        cout<<"Enter Doctor ID :";cin>>n;
        modify doctor(n);
       break;
/*case '5':break;
default :cout<<"\b";*/</pre>
}
    } while (ch!='5');
}
};
class Nurse: public Staff
{
   int NurseID;
   char ChargeRoom [50];
   patient p;
public:
      void GetNurseInfo()
    {
       cout<<"----"<<endl;
       staff info();
       cout<<"Enter Nurse ID:";</pre>
       cin>>NurseID;
      cout<<"Enter Nurse Duty Room :";</pre>
      cin>>ChargeRoom;
    }
   void Display NurseInfo()
        cout<<"----"<<endl;
        cout<<"Nurse ID :"<<NurseID;</pre>
        show staff();
        cout<<"\n"<<"Nurse in charge Room :"<<ChargeRoom;</pre>
        cout<<endl;</pre>
    }
```

```
void Write NurseInfo()
{
    Nurse n;
ofstream outFile;
outFile.open("NurseInfo.dat",ios::binary|ios::app);
n.GetNurseInfo();
outFile.write(reinterpret cast<char *> (&n), sizeof(Nurse));
outFile.close();
    cout<<"\n\nrecord Has Been Created ";</pre>
cin.ignore();
cin.get();
    void display n(int m)
Nurse n;
ifstream inFile;
inFile.open("NurseInfo.dat",ios::binary);
if(!inFile)
cout<<"File could not be open !! Press any Key...";</pre>
cin.ignore();
cin.get();
return;
bool flag=false;
while(inFile.read(reinterpret cast<char *> (&n), sizeof(Nurse)))
if(n.NurseID==m)
  n.Display NurseInfo();
flag=true;
}
inFile.close();
if(flag==false)
cout<<"\n\nrecord does not exist";</pre>
cin.iqnore();
cin.get();
  void modify Nurse(int m)
bool found=false;
Nurse n;
fstream File;
```

```
File.open("NurseInfo.dat",ios::binary|ios::in|ios::out);
if(!File)
cout<<"File could not be open !! Press any Key...";</pre>
cin.iqnore();
cin.get();
return;
    while(!File.eof() && found==false)
File.read(reinterpret cast<char *> (&n), sizeof(Nurse));
if(n.NurseID==m)
n.Display NurseInfo();
cout<<"\n\nPlease Enter The New Details of nurse"<<endl;</pre>
                 n.GetNurseInfo();
    int pos=(-1) *static cast<int>(sizeof(n));
    File.seekp(pos,ios::cur);
    File.write(reinterpret cast<char *> (&n), sizeof(Nurse));
    cout<<"\n\n\t Record Updated";</pre>
    found=true;
}
}
File.close();
if(found==false)
cout<<"\n\n Record does Not Found ";</pre>
cin.ignore();
cin.get();
}
void display all Nurse()
{
Nurse n;
ifstream inFile;
inFile.open("NurseInfo.dat",ios::binary);
if(!inFile)
cout<<"File could not be open !! Press any Key...";</pre>
cin.ignore();
cin.get();
return;
cout<<"\n\n\t\tDISPLAY ALL RECORD !!!\n\n";</pre>
while(inFile.read(reinterpret cast<char *> (&n), sizeof(Nurse)))
n.Display NurseInfo();
```

```
=======\n";
inFile.close();
cin.iqnore();
cin.get();
void Nurse menu()
   char ch;
do
int n;
system("cls");
cout<<"\n\n\t01. INSERT NURSE DATA";</pre>
cout<<"\n\n\t02. Search NURSE ";</pre>
cout<<"\n\n\t03. ALL NURSE ";</pre>
cout<<"\n\n\t04. MODIFY NURSE DATA";</pre>
cout << "\n\n\t05. To EXIT....";
cout<<"\n\n\tPlease Select Your Option (1-5) ";</pre>
cin>>ch;
switch(ch)
case '1': Write NurseInfo();
    break;
case '2':
        cout<<"Enter NURSE ID :";cin>>n;
                    display n(n);
                    break;
case '3':
       display all Nurse();
   break;
case '4':
       cout<<"Enter Nurse ID :";cin>>n;
       modify Nurse(n);
       break;
}
   } while (ch!='5');
}
```

```
};
class Receptionist:public Staff
    patient p;
    int RecID;
public:
  void RecInfo()
         staff info();
         cout << "Enter Receptionist ID :";</pre>
         cin>>RecID;
    }
    void show receptionist()
         show staff();
         cout<<"Receptionist ID: "<<RecID;</pre>
    }
void entry Patient()
char ch;
int num;
do{
system("cls");
cout<<"\n\n\tENTRY MENU";</pre>
cout<<"\n\n\t1.CREATE PATIENT RECORD";</pre>
cout<<"\n\n\t2.DISPLAY ALL PATIENTS RECORDS";</pre>
cout<<"\n\n\t3.SEARCH PATIENT RECORD ";</pre>
cout<<"\n\n\t4.MODIFY PATIENT RECORD";</pre>
cout<<"\n\n\t5.DELETE PATIENT RECORD";</pre>
```

```
cout<<"\n\n\t6.TO EXIT";
cout << "\n\n\tPlease Enter Your Choice (1-6) ";
cin>>ch;
system("cls");
switch(ch)
case '1': p.write patient();break;
case '2': p.display all(); break;
case '3': cout<<"\n\n\tPlease Enter The reg  number "; cin>>num;
   p.display p(num);break;
case '4': cout<<"\n\n\tPlease Enter The reg number "; cin>>num;
   p.modify patient(num);break;
case '5': cout<<"\n\n\tPlease Enter The reg number "; cin>>num;
   p.delete patient(num);break;
}while(ch!='6');
void write receptionist()
Receptionist r;
ofstream outFile;
outFile.open("Receptionist.dat",ios::binary|ios::app);
r.RecInfo();
outFile.write(reinterpret cast<char *> (&r),
sizeof(Receptionist));
outFile.close();
    cout<<"\n\nReceptionist record Has Been Created ";</pre>
cin.iqnore();
cin.get();
   }
   void display all Receptionist()
Receptionist r;
ifstream inFile;
inFile.open("Receptionist.dat", ios::binary);
if(!inFile)
{
cout << "File could not be open !! Press any Key...";
cin.ignore();
cin.get();
return;
}
```

```
cout << "\n\n\t\tDISPLAY ALL RECORD !!!\n\n";
while(inFile.read(reinterpret cast<char *> (&r),
sizeof(Receptionist)))
r.show receptionist();
=======\n";
inFile.close();
cin.ignore();
cin.get();
void display r(int n)
Receptionist r;
ifstream inFile;
inFile.open("Receptionist.dat", ios::binary);
if(!inFile)
cout<<"File could not be open !! Press any Key...";</pre>
cin.ignore();
cin.get();
return;
bool flag=false;
while(inFile.read(reinterpret cast<char *> (&r),
sizeof(Receptionist)))
if(r.RecID==n)
 r.show receptionist();
flag=true;
inFile.close();
if(flag==false)
cout<<"\n\nrecord not exist";</pre>
cin.ignore();
cin.get();
}
void modify receptionist(int n)
bool found=false;
Receptionist r;
```

```
fstream File;
File.open("Receptionist.dat",ios::binary|ios::in|ios::out);
if(!File)
cout<<"File could not be open !! Press any Key...";</pre>
cin.ignore();
cin.get();
return;
    while(!File.eof() && found==false)
{
File.read(reinterpret cast<char *> (&r), sizeof(Receptionist));
if(r.RecID==n)
   r.show receptionist();
   cout<<"\n\nPlease Enter The New Details "<<endl;</pre>
                 r.RecInfo();
    int pos=(-1) *static cast<int>(sizeof(r));
    File.seekp(pos,ios::cur);
    File.write(reinterpret cast<char *> (&r),
sizeof(Receptionist));
    cout<<"\n\n\t Record Updated";</pre>
    found=true;
}
File.close();
if(found==false)
cout<<"\n\n Record Not Found ";</pre>
cin.ignore();
cin.get();
}
void Receptionist menu()
    char ch;
do
int n;
system("cls");
cout<<"\n\n\t01. INSERT Receptionist DATA";</pre>
cout<<"\n\n\t02. Search Receptionist ";</pre>
cout<<"\n\n\t03. ALL Receptionist ";</pre>
cout<<"\n\n\t04. MODIFY Receptionist DATA";</pre>
```

```
cout << "\n\n\t05. To EXIT....;
cout<<"\n\n\tPlease Select Your Option (1-5) ";</pre>
cin>>ch;
switch(ch)
case '1': write receptionist();
    break;
case '2':
         cout<<"Enter Receptionist ID :";cin>>n;
                       display r(n);
                       break;
case '3':
        display all Receptionist();
    break;
case '4':
        cout<<"Enter Receptionist ID :";cin>>n;
        modify receptionist(n);
        break;
}
    }while(ch!='5');
};
class store manager:public Staff
    private:
        string productName;
        string supplierName;
        int unit;
        int bill;
        int SID;
    public:
       void SInfo()
    {
        staff info();
        cout<<"Enter Receptionist ID :";</pre>
        cin>>SID;
```

```
}
    void show StoreManager()
        show staff();
        cout<<"Store Manager ID: "<<SID;</pre>
    }
       void orderproducts()
         cout << "\n\n|----- ORDER Products & SUPPLIES
-----| "<<endl<<endl;
         cout<<"Enter Product Name: ";</pre>
         cin>>productName;
         cout<<"\nEnter Supplier's Name: ";</pre>
         cin>>supplierName;
         cout<<"\nEnter Number of Unit: ";</pre>
         cin>>unit;
         cout<<"\nEnter Total bill: ";</pre>
         cin>>bill;
         ofstream fout;
         fout.open("Products&Supplies.txt",ios::app);
        fout<<"Product Name: "<< productName<<endl;</pre>
        fout<<"Supplier's Name: "<< supplierName<<endl;</pre>
        fout<<"Number of Unit: "<< unit<<endl;</pre>
        fout<<"Total Bill: "<< bill<<endl<<endl;</pre>
         fout.close();
        cout<<"\n\nPRODUCT ORDERED SUCCESSFULLY!!"<<endl<<endl;</pre>
        int choice;
        cout<<"Do you want to order more?"<<endl;</pre>
        cout<<"(1) Yes"<<endl;</pre>
        cout<<"(2) No"<<endl<<endl;</pre>
        cin>>choice;
    if(choice==1)
        system("cls");
        orderproducts();
    }
    else
        return;
}
```

```
void readFromFile()
    ifstream fin;
    fin.open("Products&Supplies.txt");
    string str;
    if(!fin)
        cout<<"\nERROR LOADING FILE!!"<<endl;</pre>
        return;
    }
    else
        while(!fin.eof())
            getline(fin,str);
            cout<<str;
            cout << endl;
    cout << endl << endl;
    fin.close();
    cin.get();
    system("pause");
}
void write store manager()
   {
store manager s;
ofstream outFile;
outFile.open("StoreManager.dat",ios::binary|ios::app);
s.SInfo();
outFile.write(reinterpret cast<char *> (&s),
sizeof(store manager));
outFile.close();
    cout<<"\n\nrecord Has Been Created ";</pre>
cin.iqnore();
cin.get();
   void display all storeManager()
store manager s;
ifstream inFile;
inFile.open("StoreManager.dat",ios::binary);
```

```
if(!inFile)
cout<<"File could not be open !! Press any Key...";</pre>
cin.ignore();
cin.get();
return;
cout << "\n\n\t\tDISPLAY ALL RECORD !!!\n\n";
while(inFile.read(reinterpret cast<char *> (&s),
sizeof(store manager)))
{
s.show StoreManager();
========\n":
inFile.close();
cin.ignore();
cin.get();
}
void display s(int n)
{
store manager s;
ifstream inFile;
inFile.open("StoreManager.dat",ios::binary);
if(!inFile)
cout<<"File could not be open !! Press any Key...";</pre>
cin.ignore();
cin.get();
return;
bool flag=false;
while(inFile.read(reinterpret cast<char *> (&s),
sizeof(store manager)))
{
if(s.SID==n)
 s.show StoreManager();
flag=true;
inFile.close();
if(flag==false)
cout<<"\n\nrecord not exist";</pre>
cin.ignore();
cin.get();
```

```
}
void store manager choice()
    char ch;
    do
{
int n;
system("cls");
        cout<<"\n\n\t01. Order Products ";</pre>
cout<<"\n\n\t02. Show Order Products & Bills ";</pre>
cout << "\n\t03. To exit....";
        cout<<"\n\n\tPlease Select Your Option (1-3) ";</pre>
        cin>>ch;
switch(ch)
case '1':
         orderproducts();
     break;
case '2':
         readFromFile();
                        break;
             case '3':break;
default :cout<<"\b";</pre>
    } while (ch!='3');
}
void store manager menu()
    char ch;
do
int n;
system("cls");
cout<<"\n\n\t01. INSERT STORE MANAGER DATA";</pre>
cout<<"\n\n\t02. Search STORE MANAGER ";</pre>
cout<<"\n\n\t03. ALL STORE MANAGER ";</pre>
```

```
cout<<"\n\n\t04. To exit this menu";
cout<<"\n\n\tPlease Select Your Option (1-4) ";</pre>
cin>>ch;
switch(ch)
case '1': write store manager();
     break;
case '2':
          cout<<"Enter STORE MANAGER ID :";cin>>n;
                        display s(n);
                        break;
case '3':
        display all storeManager();
    break;
case '4':break;
default :cout<<"\b";</pre>
    }while (ch!='4');
}
};
class admin
  Doctor d;
 patient p;
 Receptionist r;
  store manager s;
  Nurse n;
  public:
    void staff menu()
    {
        char ch;
        do{
system("cls");
cout<<"\n\n\tStaff Menu";</pre>
cout<<"\n\n\t1.Doctor";</pre>
cout<<"\n\n\t2.Nurse";</pre>
cout<<"\n\n\t3.Receptionist";</pre>
cout<<"\n\n\t4.Store Manger";</pre>
```

```
cout<<"\n\n\t5.TO EXIT";</pre>
cout<<"\n\n\tPlease Enter Your Choice (1-4) ";</pre>
cin>>ch;
system("cls");
switch(ch)
  case '1': d.Doctor menu();break;
  case '2': n.Nurse menu(); break;
  case '3': r.Receptionist menu();break;
  case '4': s.store manager menu();break;
}while(ch!='5');
    }
};
void fordelay(int j)
   int i, k;
    for(i=0;i<j;i++)
         k=i;
}
int main()
    system("color f5");
    admin a;
    Receptionist r;
    Doctor d;
    store manager s;
    int ch;
    char pass[15];
    int n;
    cout << "\n\n\n\n\t\t\t\tWELCOME TO OUR HOSPITAL</pre>
MANAGEMENT SYSTEM";
     for(int i=0;i<6;i++)
        fordelay(100000000);
        printf(".");
    }
    do{
             fomo:
                   system("cls");
    cout<<"\t\t\n\n\n";</pre>
    cout<<"\t\t\t\t\tSELECT AN OPTION\n\n";</pre>
```

```
cout<<"\t\t\t\t1.Admin\n";</pre>
    cout<<"\t\t\t\t2.Receptionist\n";</pre>
    cout<<"\t\t\t\t3.Doctor\n";</pre>
    cout<<"\t\t\t\t4.Store Manager\n";</pre>
    cout<<"\t\t\t\t5.Exit From The SYSTEM\n";</pre>
    cin>>ch;
    switch(ch) {
         case 1:
                   login1:
                   cout<<"Enter ADMIN password: ";</pre>
                   cin>>pass;
                   if (strcmp(pass, "admin") == 0)
                     a.staff menu();
                   else
                      cout<<"WRONG PASSWORD!!!\n";</pre>
                       cout << "PRESS 1 TO TRY AGAIN OR 5 TO GO BACK
TO MENU\n";
                      cin>>n;
                      if(n==1)
                      goto login1;
                       else
                           goto fomo;
                   break:
         case 2:
                   login2:
                   cout<<"Enter Receptionist password: ";</pre>
                   cin>>pass;
                   if (strcmp(pass, "receptionist") == 0)
                     r.entry Patient();
                   else
                      cout<<"WRONG PASSWORD!!!\n";</pre>
                      cout << "PRESS 1 TO TRY AGAIN OR 5 TO GO BACK
TO MENU\n";
```

```
cin>>n;
                      if(n==1)
                      goto login2;
                      else
                          goto fomo;
                   }
                 break;
         case 3:
                   login3:
                   cout<<"Enter Doctor password: ";</pre>
                   cin>>pass;
                   if (strcmp(pass, "doctor") == 0)
                     d.Doctor choice();
                   }
                   else
                      cout<<"WRONG PASSWORD!!!\n";</pre>
                      cout<<"PRESS 1 TO TRY AGAIN OR 5 TO GO BACK
TO MENU\n";
                      cin>>n;
                      if(n==1)
                      goto login3;
                      else
                          goto fomo;
                  break;
        case 4:
                   login4:
                   cout<<"Enter STORE MANAGER password: ";</pre>
                   cin>>pass;
                   if (strcmp(pass, "store") == 0)
                     s.store manager choice();
                   }
                   else
                      cout<<"WRONG PASSWORD!!!\n";</pre>
                      cout << "PRESS 1 TO TRY AGAIN OR 5 TO GO BACK
TO MENU\n";
```

```
cin>>n;
    if(n==1)
    goto login4;

else
        goto fomo;
}
    break;
}
while(ch!=5);
```

OUTPUT AND EXPLANATION

Welcome Screen:

WELCOME TO OUR HOSPITAL MANAGEMENT SYSTEM...

Main menu:

SELECT AN OPTION

- 1.Admin
- 2.Receptionist
- 3.Doctor
- 4.Store Manager
- 5.Exit From The SYSTEM

Log-In as Admin: Ensuring the correct password is entered!

```
1.Admin
2.Receptionist
3.Doctor
4.Store Manager
5.Exit From The SYSTEM

1
Enter ADMIN password: password
WRONG PASSWORD!!!
PRESS 1 TO TRY AGAIN OR 5 TO GO BACK TO MENU
1
Enter ADMIN password: admin
```

ADMIN MENU: The options visible to the Admin of the Management System

```
Staff Menu

1.Doctor

2.Nurse

3.Receptionist

4.Store Manger

5.TO EXIT

Please Enter Your Choice (1-4)
```

ADMIN MENU: STAFF MENU - 1. DOCTOR

```
01. INSERT DOCTOR DATA

02. Search DOCTOR

03. ALL DOCTOR

04. MODIFY DOCTOR DATA

05. TO EXIT...........

Please Select Your Option (1-5)
```

ADMIN MENU: DOCTOR - Insert Doctor Data

Enter Name :Ashwin Enter Gender :Male

Enter Age :20

Enter Address :Mysore Enter Blood group:A+ Enter salary:10000000

Enter Duty time:From:10AM

To:3PM

Enter Doctor ID(1200-1299):1201

Enter Doctor Specialize :GeneralPhysic

Press any key to continue . . .

Doctor ID Can't be repeated:

Enter Doctor ID(1200-1299):1203

ID already taken

Enter Doctor ID(1200-1299):1204

ADMIN MENU: DOCTOR == 2. SEARCH DOCTOR

Enter Doctor ID :1207

Doctor ID: 1207 Salary: 1200000

Duty Time: 9pm--12pm

Name: Janvi Gender: Female

Age: 19

Address: Gujarat Blood Group:O+

Doctor Specialize: Surgeon

ADMIN MENU: DOCTOR == 3. Display All Doctor Data:

```
DISPLAY ALL RECORD !!!
Doctor ID: 1201
Salary: 10000000
Duty Time: 10AM--3PM
Name: Ashwin
Gender: Male
Age: 20
Address: Mysore
Blood Group:A+
Doctor Specialize: GeneralPhysic
______
Doctor ID: 1202
Salary: 2000000
Duty Time: 3pm--7pm
Name: Devansh
Gender: Male
Age: 21
Address: Delhi
Blood Group:B+
Doctor Specialize: GeneralPhysc
______
Doctor ID: 1203
Salary: 3000000
Duty Time: 7pm--9pm
Name: Sparsh
Gender: Male
Age: 21
Address: Noida
Blood Group: AB+
Doctor Specialize: Surgeon
_____
Doctor ID: 1203
Salary: 3000000
Duty Time: 7pm--9pm
Name: Sparsh
Gender: Male
Age: 21
Address: Noida
Blood Group:AB+
Doctor Specialize: Surgeon
Doctor ID: 1204
Salary: 1200000
Duty Time: 7am--9am
Name: Mohak
Gender: male
Age: 21
Address: Rithala
Blood Group:0+
Doctor Specialize: GeneralPhysc
------
Doctor ID: 1207
Salary: 1200000
Duty Time: 9pm--12pm
Name: Janvi
Gender: Female
Age: 19
Address: Gujarat
Blood Group:0+
Doctor Specialize: Surgeon
_____
```

ADMIN MENU: DOCTOR == 4. Modify Doctor Data

Enter Doctor ID :1207 Doctor ID: 1207 Salary: 1200000 Duty Time: 9pm--12pm Name: Janvi Gender: Female Age: 19 Address: Gujarat Blood Group:0+ Doctor Specialize: Surgeon Please Enter The New Details: Enter Name :Janvi Enter Gender : Female Enter Age :19 Enter Address : Bharuch Enter Blood group:o+ Enter salary:125890 Enter Duty time:From:4pm Enter Doctor ID(1200-1299):1208 Enter Doctor Specialize :HeartSurgeon Press any key to continue . . .

Record Updated

ADMIN MENU: 2. NURSE

01. INSERT NURSE DATA

02. Search NURSE

03. ALL NURSE

04. MODIFY NURSE DATA

05. To EXIT......

Please Select Your Option (1-5) 1

ADMIN MENU: NURSE ==1.INSERT NURSE DATA

Enter Name :Ujjawal

Enter Gender : Male

Enter Age :21

Enter Address :Delhi Enter Blood group:O+ Enter salary:1900000

Enter Duty time:From:9am

To:9pm

Enter Nurse ID:1001

Enter Nurse Duty Room :B12

record Has Been Created

ADMIN MENU: NURSE == 2. SEARCH NURSE

Please Select Your Option (1-5) 2

Enter NURSE ID :1002

Nurse ID :1002 Salary: 12000

Duty Time: 3am--3pm

Name: Deepanshu Gender: male

Age: 21

Address: gurgaon Blood Group:a+

Nurse in charge Room :b12

ADMIN MENU: NURSE == 3. DISPLAY ALL NURSE DATA

DISPLAY ALL RECORD !!! Nurse ID :1001 Salary: 1900000 Duty Time: 9am--9pm Name: Ujjawal Gender: Male Age: 21 Address: Delhi Blood Group: 0+ Nurse in charge Room :B12 ______ Nurse ID :1003 Salary: 133333 Duty Time: 1am--1pm Name: Archit Gender: Male Age: 22 Address: Muzzafarnagar Blood Group:a+ Nurse in charge Room :b15 _______ Nurse ID :1002 Salary: 12000 Duty Time: 3am--3pm Name: Deepanshu Gender: male Age: 21 Address: gurgaon Blood Group:a+ Nurse in charge Room :b12

ADMIN MENU: NURSE == 4. Modify Nurse Data

```
Please Select Your Option (1-5) 4
Enter Nurse ID :5
Nurse ID :5
Salary: 5
Duty Time: 5--5
Name: Deepanshu
Gender: 130000
Age: 3
Address: am
Blood Group:5
Nurse in charge Room :5
Please Enter The New Details of nurse
Enter Name :Deepanshu
Enter Gender : Male
Enter Age :21
Enter Address : Gurgaon
Enter Blood group: A+
Enter salary:1230000
Enter Duty time:From:1am
To:9pm
Enter Nurse ID:1002
Enter Nurse Duty Room :b12
         Record Updated
```

ADMIN MENU: RECEPTIONIST == 1. ADD DATA

```
Please Select Your Option (1-5) 1
Enter Name :Anita
Enter Gender :Female
Enter Age :20
Enter Address :Mysore
Enter Blood group:A+
Enter salary:10000
Enter Duty time:From:9am
To:9pm
Enter Receptionist ID :3001

Receptionist record Has Been Created
```

ADMIN MENU: RECEPTIONIST == 2. SEARCH RECEPTIONIST

Please Select Your Option (1-5) 2

Enter Receptionist ID :3001

Salary: 10000

Duty Time: 9am--9pm

Name: Anita Gender: Female

Age: 20

Address: Mysore Blood Group:A+

Receptionist ID: 3001

ADMIN MENU: RECEPTIONIST == 3. DISPLAY ALL RECORDS

DISPLAY ALL RECORD !!!

Salary: 10000

Duty Time: 9am--9pm

Name: Anita Gender: Female

Age: 20

Address: Mysore Blood Group:A+

Receptionist ID: 3001

ADMIN MENU: RECEPTIONIST == 4. MODIFY RECORDS

Enter Receptionist ID :3001 Salary: 10000 Duty Time: 9am--9pm Name: Anita Gender: Female Age: 20 Address: Mysore Blood Group:A+ Receptionist ID: 3001 Please Enter The New Details Enter Name :AnitaJoshi Enter Gender :Female Enter Age :21 Enter Address : Mysore Enter Blood group:A+ Enter salary:12000 Enter Duty time:From:9am To:9pm Enter Receptionist ID :3002

ADMIN MENU: STORE MANAGER == 1. ADD RECORDS

Record Updated

Enter Name :dubey
Enter Gender :male
Enter Age :22
Enter Address :jhansi
Enter Blood group:a+
Enter salary:120000
Enter Duty time:From:9am
To:9pm
Enter Receptionist ID :4001
record Has Been Created

ADMIN MENU: STORE MANAGER == 2. SEARCH BY RECORD

Enter STORE MANAGER ID :4001

Salary: 120000

Duty Time: 9am--9pm

Name: dubey Gender: male

Age: 22

Address: jhansi Blood Group:a+

Store Manager ID: 4001

ADMIN MENU: STORE MANAGER == 3. DISPLAY ALL RECORDS

DISPLAY ALL RECORD !!!

Salary: 120000

Duty Time: 9am--9pm

Name: dubey Gender: male

Age: 22

Address: jhansi Blood Group:a+

Store Manager ID: 4001

RECEPTIONIST MENU::

ENTRY MENU

- 1.CREATE PATIENT RECORD
- 2.DISPLAY ALL PATIENTS RECORDS
- 3.SEARCH PATIENT RECORD
- 4.MODIFY PATIENT RECORD
- 5.DELETE PATIENT RECORD
- 6.TO EXIT

Please Enter Your Choice (1-6)

RECEPTIONIST:: MENU OF RECEPTIONIST

Enter Name :Abhi

Enter Gender :male

Enter Age :21

Enter Address :mysore Enter Blood group:a+

Enter The registration number of the patient: 5001

Enter The occupation of the patient: business

Enter The bill of the patient:10000

Enter The date admitted(dd/mm/yyyy):12/02/2023

Enter The date discharged(dd/mm/yyyy):13/03/2023

RECEPTIONIST MENU :: BILL OF PATIENT

Patient Fee Charge

Hospital Care Charges : 50
Hospital Maintaince Charges : 50
Patient Individual Charges : 10000
Total Fee Charge : 10100

Patient record Has Been Created

RECEPTIONIST MENU:: SEARCH PATIENT BY RECORD

Please Enter The reg number 5001

Registration number of patient: 5001

Name: Abhishek Gender: male

Age: 19

Address: delhi Blood Group:a+

Occupation : business Admit date : 12/02/2003

Discharhge date :12/02/2003

Bill :1300

Prescribed Medicine: null

Registration number of patient: 5001

Name: Abhi Gender: male

Age: 21

Address: mysore Blood Group:a+

Occupation : business Admit date : 12/02/2023

Discharhge date :13/03/2023

Bill :10100

Prescribed Medicine: null

RECEPTIONIST MENU:: MODIFY PATIENT BY RECORD

Please Enter The reg number 5001

Registration number of patient: 5001

Name: Abhishek
Gender: male

Age: 19

Address: delhi
Blood Group:a+

Occupation: business

Admit date: 12/02/2003

Discharhge date: 12/02/2003

Bill:1300

Prescribed Medicine: null

Please Enter The New Details of patient
Enter Name:

RECEPTIONIST MENU:: DELETE PATIENT BY RECORD

Please Enter The reg number 5001
Record Deleted ..

DOCTOR MENU:: MAIN MENU

01. Prescribe Medicine for patient02. Search DOCTOR03. To exit....

Please Select Your Option (1-3)

DOCTOR MENU:: 1. PRESCRIBE MEDICINE FOR THE PATIENT

Please Select Your Option (1-3) Enter Reg Number Of patient : 5001 Registration number of patient: 5001 Name: Abhi Gender: male Age: 21 Address: mysore Blood Group:a+ Occupation : business Admit date : 23/02/2003 Discharhge date :21/03/2004 Bill :12100 Prescribed Medicine: null Please Enter The Medicine of patient ASPIRINE Record Updated

DOCTOR MENU :: SEARCH DOCTOR

```
01. Prescribe Medicine for patient

02. Search DOCTOR

03. To exit....

Please Select Your Option (1-3) 2

Enter Doctor ID :
1208

Doctor ID: 1208

Salary: 125890

Duty Time: 4pm--9pm

Name: Janvi

Gender: Female
Age: 19

Address: Bharuch

Blood Group:o+

Doctor Specialize: HeartSurgeon
```

STORE MANAGER:: MAIN MENU

```
01. Order Products02. Show Order Products & Bills03. To exit....Please Select Your Option (1-3)
```

STORE MANAGER:: ORDER PRODUCTS

STORE MANAGER:: SHOW ORDERED PRODUCTS AND BILLS

```
Please Select Your Option (1-3) 2
Product Name: aspirine
Supplier's Name: vexa
Number of Unit: 24
Total Bill: 1200

Press any key to continue . . .
```