PROJECT REPORT

ON

HOSPITAL MANAGEMENT SYSTEM

REPORT SUBMITTED

TO

VISHWAKARMA INSTITUTE OF INFORMATION TECHNOLOGY, PUNE

FOR THE PBL OF ENGINEERING COMPUTER

IN

ENGINEERING AND APPLIED SCIENCE DEPARTMENT

INDEX

ABSTRACT:

Our project Hospital Management system includes registration of patients, storing their details into the system. Our software has the facility to give a unique id for every patient and stores the details of every patient. It includes a search facility to know the current status of each room. User can search availability of a doctor and the details of a patient using the id. It is accessible either by an administrator or receptionist. Only they can add data into the database. The data can be retrieved easily. The interface is very user-friendly. The data are well protected for personal use and makes the data processing very fast.

The purpose of the project entitled as "HOSPITAL MANAGEMENT SYSTEM" is to computerize the Front Office Management of Hospital to develop software which is user friendly, simple, fast, and cost – effective. It deals with the collection of patient's information, diagnosis details, etc. Traditionally, it was done manually. The main function of the system is to register and store patient details and retrieve these details as and when required, and also to manipulate these details meaningfully System input contains patient details, diagnosis details;

INTRODUCTION AND THEORY:

The goal of any system development is to develop and implement the system cost effectively; User-friendly and most suited to the user's analysis is the heart of the process. Analysis is the study of the various operations performed by the system and their relationship within and outside of the system.

OPERATING SYSTEM :

Operating system used is windows.

Windows is one of the easiest desktop operating systems to use. One of its primary design characteristics is user friendliness and simplicity of basic system tasks. Its ease lack of difficulty is considered a positive by users who want their system to just work. While Linux operating systems have a steeper learning curve for the average user.

LANGUAGE USED :

Language used for this system is c++.

***C++** is a general-purpose programming language. It has imperative, object-oriented and generic programming features, while also providing facilities for low-level memory manipulation.*

It was designed with a bias toward system programming and embedded, resource-constrained and large systems, with performance, efficiency and flexibility of use as its design highlights. C++ has also been found useful in many other contexts, with key strengths being software infrastructure and resource-constrained applications, including desktop applications, servers (e.g. e-commerce, Web search or SQL servers), and performance-critical applications (e.g. telephone switches or space probes).

COMPILER USED:

Compiler used is Dev c++.

Dev C++ and Turbo c++ are two different IDEs (integrated development environments) for writing, compiling and executing c++ programs. They just use different compilers like Dev C++ uses the MINGW compiler, where Turbo C++ uses Borland's compiler. So its up to user which they prefer to use according to their convenience.

LIST OF THE TOPICS USED IN PROGRAM :

- ***DO-WHILE LOOP***
- ***IF ELSE STATEMENT***
- ***STRUCTURE***
- ***FUNCTIONS***
- ***FILE HADELING***
- ***I/O OPERATIONS***
- ***MULTIDIMENTIONAL ARRAY***
- ***SWITCH CASE STATEMENTS***

DO-WHILE LOOP:- *a **do while loop** is a control flow statement that executes a block of code at least once, and then repeatedly executes the block, or not, depending on a given boolean condition at the end of the block.*

Syntax:
do
{
statements;
}
while(condition);

IF ELSE STATEMENT: *'if else' is a powerful decision making statement.*

It allows the computer to evaluate the condition first and then depending on whether the value of the condition is trueor false,it transfers the control to the particular statement.

Syntax:
if(condition)
{ true statement;}
Else
{ false statement;}

STRUCTURES :

Structure is a user defined data type available in C that allows to combine data items of different kinds.
Syntax:
struct[structure tag]
{
member definition;
member definition;
…
member definition;
}[one or more structure variables];

I/O OPERATIONS:

The cin function reads formatted input from standard inputwhereas;
The cout function sends formatted output to the standard output.

SWITCH CASE STAREMENT:

When we have more than two options, switch….case statement is used.
Syntax:
switch(expression)
{ case constant: code;
*break; /*optional*/*
case constant: code;
*break; /*optional*/*
case constant: code;
*break; /*optional*/*
default:code; //optional(when no one case is satisfied)
}

FUNCTIONS:

- *A function is a block of statements that perform a specific task.*

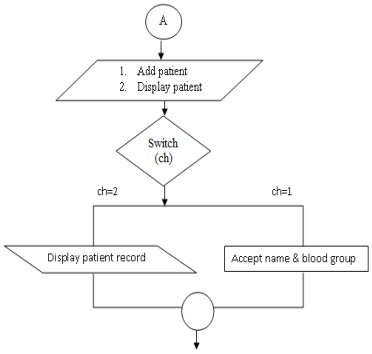
❖ *Every C ++ program has at least one function, which is main().*

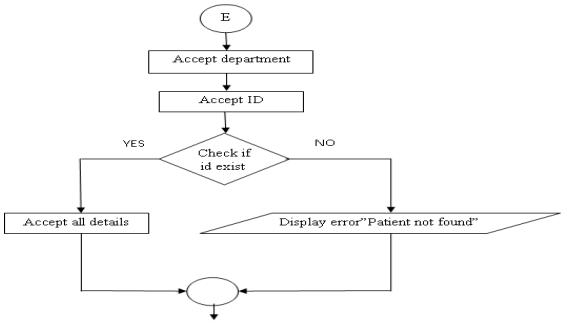
Syntax:

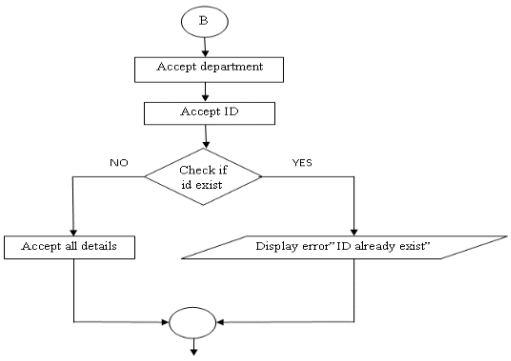
return_type function_name(parameter list)

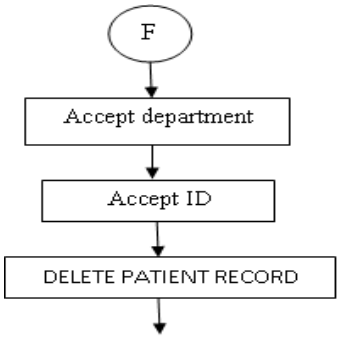
{ body of the Function }

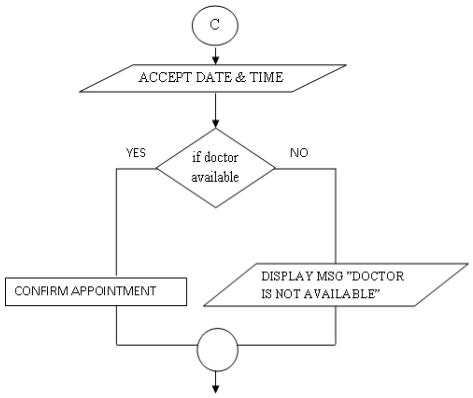
FLOW OF THE PROGRAM :

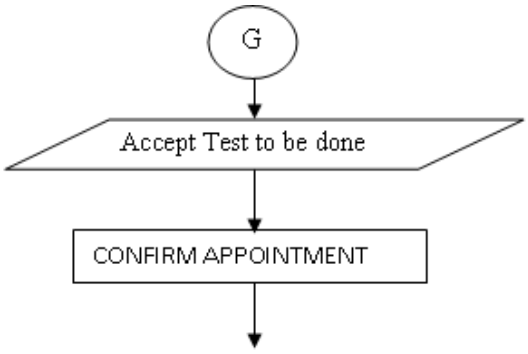


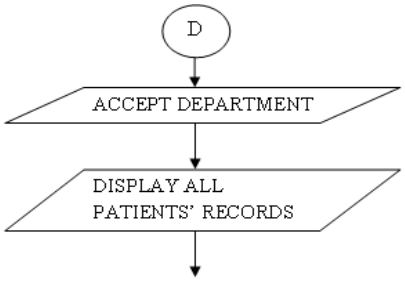


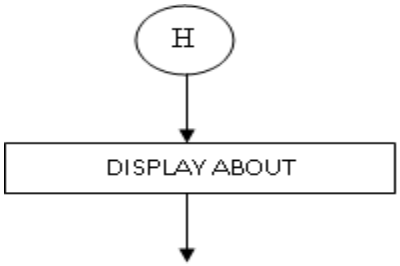


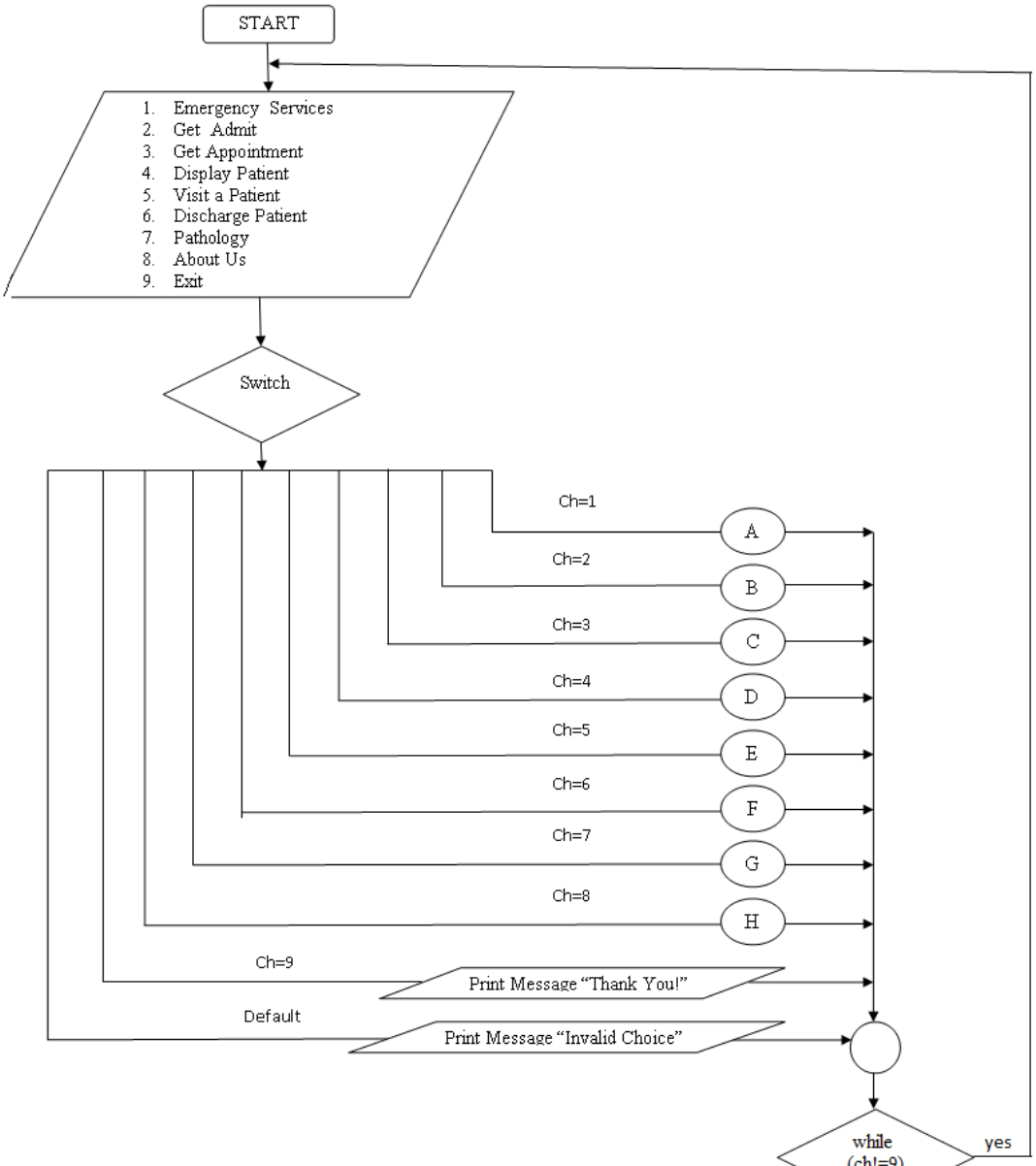



C
ACCEPT DATE & TIME
YES
if doctor available
NO
CONFIRM APPOINTMENT
DISPLAY MSG "DOCTOR IS NOT AVAILABLE"


G
Accept Test to be done
CONFIRM APPOINTMENT


D
ACCEPT DEPARTMENT
DISPLAY ALL PATIENTS' RECORDS


H
DISPLAY ABOUT


START
1. Emergency Services
2. Get Admit
3. Get Appointment
4. Display Patient
5. Visit a Patient
6. Discharge Patient
7. Pathology
8. About Us
9. Exit
Switch
Ch=1
A
Ch=2
B
Ch=3
C
Ch=4
D
Ch=5
E
Ch=6
F
Ch=7
G
Ch=8
H
Ch=9
Print Message "Thank You!"
Default
Print Message "Invalid Choice"
while (ch!=9)
yes

SOURCE CODE:

```
#include<iostream>
#include<conio.h>
#include<string.h>
#include<fstream>
using namespace std;
class patient
{
        protected:
                struct rec
                {
                        int id;
                        char name[10];
                        int age;
                        char gender;
                        char bg[3];
                        char contact_no[10];
                        int room_no;
                };
                int i;
        public:
                void create();
                void display();
```

```
                void search();
                void emergency();
                void getadmit();
                void pathalogy();
                void discharge();
};

class doctor:public patient
{
                int id,day;
                char name[10];
                char department[10];
                string appbook[5][8][3],date;
        public:
                void about();
                void makeappointment();
                void showday();
                void checktime(string);
};

void patient::create()
{
                int dpt;
                char file[15];
                cout<<"\n1.Cardiology\n2.Intensive care
unit(ICU)\n3.Neurology\n4.Gynaecology\n5.Physiotherapy\n6.Urology ";
                cout<<"\n\nPlease enter department :";
                cin>>dpt;
                switch(dpt)
                {

                        case 1:
                                strcpy(file,"Cardiology");
                                break;
                        case 2:
                                strcpy(file,"ICU");
                                break;
                        case 3:
                                strcpy(file,"Neurology");
                                break;
                        case 4:
                                strcpy(file,"Gynaecology");
                                break;
                        case 5:
```

```
                strcpy(file,"Physiotherapy");
                break;
        case 6:
                strcpy(file,"Urology");
                break;
        default:
                cout<<"\nPlease enter valid option :";
                break;
}
fstream fp;
fp.open(file,ios::binary|ios::in);
if(!fp)
{
        cout<<"\nFile not found";
}
else
{

        rec r;
        int id,flag=0;

        cout<<"\nPlease fill the following details";
        cout<<"\nID: ";
        cin>>id;

        while(fp.read((char *)&r,sizeof(r)))
        {
                if(r.id==id){
                        flag=1;
                        break;
                }
        }
        fp.close();
        if(flag==1)
        {
                cout<<"\nID already exist\nID can't be repeated..\n";
        }
        else
        {
        r.id=id;
        cout<<"\nName: ";
        cin>>r.name;
        cout<<"\nAge: ";
        cin>>r.age;
```

```
                cout<<"\nGender: ";
                cin>>r.gender;
                cout<<"\nBlood Group:";
                cin>>r.bg;
                cout<<"\nContact number:";
                cin>>r.contact_no;
                cout<<"\nRoom Number:";
                cin>>r.room_no;

                fp.open(file,ios::app|ios::binary);
                fp.write((char *)&r,sizeof(r));
                cout<<"\n-----------------------------------------\n";
                fp.close();
                cout<<"\nPatient is admitted\n";
            }
        }
        system("pause");
        system("cls");
}
void patient::display()
{
            fstream fp;
            rec t;
            int flag=0;
            int dpt;
            char file[15];
            cout<<"\n1.Cardiology\n2.Intensive care
unit(ICU)\n3.Neurology\n4.Gynaecology\n5.Physiotherapy\n6.Urology\n";
            cout<<"\n\nPlease enter department :";
            cin>>dpt;
            switch(dpt)
            {
                case 1:
                    strcpy(file,"Cardiology");
                    break;
                case 2:
                    strcpy(file,"ICU");
                    break;
                case 3:
                    strcpy(file,"Neurology");
                    break;
                case 4:
                    strcpy(file,"Gynaecology");
                    break;
```

```
                        case 5:
                                strcpy(file,"Physiotherapy");
                                break;
                        case 6:
                                strcpy(file,"Urology");
                                break;
                        default:
                                cout<<"\nPlease enter valid option :";
                                break;
                }

                fp.open(file,ios::binary|ios::in);
                if(fp==NULL)
                {
                        cout<<"\nFile not created..";
                }
                else
                {
                        cout<<"\nID\tName\tAge\tGender\tBlood
Group\tRoom_no\t\tContact number";
                        cout<<"\n-------------------------------------------------------------------------
-------------------------\n";

                        while(fp.read((char *)&t,sizeof(t)))
                        {

        cout<<"\n"<<t.id<<"\t"<<t.name<<"\t"<<t.age<<"\t"<<t.gender<<"\t"<<t.bg<<"\t
\t"<<t.room_no<<"\t\t"<<t.contact_no;
                                //fp.read((char *)&t,sizeof(t));
                        }
                }
                fp.close();
                cout<<"\n";
                system("pause");
                system("cls");
}

void patient::search()
{
                fstream fp;
                rec q;
                int flag=0;
                int dpt;
                char file[15];
```

```
cout<<"\n1.Cardiology\n2.Intensive care
unit(ICU)\n3.Neurology\n4.Gynaecology\n5.Physiotherapy\n6.Urology ";
cout<<"\n\nPlease enter department :";
cin>>dpt;
switch(dpt)
{

        case 1:
                strcpy(file,"Cardiology");
                break;
        case 2:
                strcpy(file,"ICU");
                break;
        case 3:
                strcpy(file,"Neurology");
                break;
        case 4:
                strcpy(file,"Gynaecology");
                break;
        case 5:
                strcpy(file,"Physiotherapy");
                break;
        case 6:
                strcpy(file,"Urology");
                break;
        default:
                cout<<"\nPlease enter valid option :";
                break;
}

fp.open(file,ios::binary|ios::in);
if(!fp)
        cout<<"\nFile not found..\n";
else
{
        int rl;
        cout<<"\nEnter patient ID to be visited: ";
        cin>>rl;

        while(fp.read((char *)&q,sizeof(q)))
        {
                if(q.id==rl)
                {
                        cout<<"\n-----------------------------------------\n";
```

```
                                        cout<<"Patient details are:";
                                        cout<<"\nID: "<<q.id;
                                        cout<<"\nName: "<<q.name;
                                        cout<<"\nAge: "<<q.age;
                                        cout<<"\nGender: "<<q.gender;
                                        cout<<"\nBlood Group: "<<q.bg;
                                        cout<<"\nContact number: "<<q.contact_no;
                                        cout<<"\nRoom number: "<<q.room_no;
                                        cout<<"\n-----------------------------------";
                                        flag=1;
                                        break;
                                }
                                //else
                                        //fp.read((char *)&q,sizeof(q));
                        }
                        if(flag==0)
                                cout<<"\nPatient not found....\n";
                }
                cout<<"\n";
                fp.close();
                system("pause");
                system("cls");
}

void patient::emergency()
{
        fstream fp;
        int ch;
        rec e;
        cout<<"1. Add patient\n2. Display patients\nEnter your choice: ";
        cin>>ch;
        switch(ch){
                case 1: cout<<"\nEnter patient name:";
                                cin>>e.name;
                                cout<<"\nEnter blood group:";
                                cin>>e.bg;
                                fp.open("Emergency",ios::app|ios::binary);
                                fp.write((char*)&e,sizeof(e));
                                fp.close();
                                cout<<"\nPatient is admitted\n";
                                break;
                case 2: cout<<"\nName\tBlood Group\n";
                                cout<<"\n-----------------------------------";
                                fp.open("Emergency",ios::binary|ios::in);
```

```
                        while(fp.read((char*)&e,sizeof(e)))
                        {
                                cout<<"\n"<<e.name<<"\t"<<e.bg;
                        }
                        break;
        }
        cout<<"\n";
        system("pause");
        system("cls");
}

void patient::getadmit()
{
        create();
}

void patient::pathalogy()
{
        int test;
        cout<<"\n1.Blood Test\n2.TSH (Thyroid Stimulating Hormone)\n3.Iron
test\n4.Urinalysis\n5.Liver Function Tests\n";
        cout<<"\nWhich test do u wanna to do:";
        cin>>test;
        switch(test)
        {
                case 1:
                        cout<<"\nAppointment for Blood test has been confirmed\n";
                        break;
                case 2:
                        cout<<"\nAppointment for TSh(thyroid Stimulating Harmone) has
been confirmed\n";
                        break;
                case 3:
                        cout<<"\nAppointment for Iron test has been confirmed\n";
                        break;
                case 4:
                        cout<<"\nAppointment for Urinalysis test has been confirmed\n";
                        break;
                case 5:
                        cout<<"\nAppointment for Liver function test has been
confirmed\n";
                        break;
                default:
                        cout<<"\nPlease enter valid choice:";
```

```
                        cout<"\n";
                        break;
        }
        cout<<"\nPlease wait for reports on reception\n";
        system("pause");
        system("cls");
}

void doctor::about()
{
        string str1;
        ifstream infile;
        infile.open("About.txt");
        cout<<"\nMultispeciality hospital specialised in different department like
cardiology,neurology,gynaecology and many more , with skilled doctors.";
        cout<<"\n\nWe have following departments:";
        cout<<"\n-->Emergency Department\n-->Cardiology\n-->Intensive care
unit(ICU)\n-->Neurology\n-->Gynaecology\n-->Physiotherapy\n-->Urology ";
        cout<<"\n\nSpecialist doctors we have are :";
        cout<<"\nDoctor\t\tDepartment\n";
        cout<<"----------------------------------------";
        while(!infile.eof())
        {
                getline(infile,str1);
                cout<<"\n"<<str1;

        }
        infile.close();
        cout<<"\n";
        system("pause");
        system("cls");
}

void doctor::makeappointment()
{
        string date;
        int day;
        cout<<"\n1.Monday\n2.Tuesday\n3.Wednesday\n4.Thursday\n5.Friday\n6.Satur
day\n";
        cout<<"\nSelect the day :";
        cin>>day;

        switch(day)
        {
```

```
                case 1:
                        date="Monday";
                        checktime(date);
                        break;
                case 2:
                        date="Tuesday";
                        checktime(date);
                        break;
                case 3:
                        date="Wednesday";
                        checktime(date);
                        break;
                case 4:
                        date="Thursday";
                        checktime(date);
                        break;
                case 5:
                        date="Friday";
                        checktime(date);
                        break;
                case 6:
                        date="Saturday";
                        checktime(date);
                        break;
                default:
                        cout<<"\nEnte valid option..";
                        break;
        }
        system("pause");
        system("cls");
}
void doctor::checktime(string date)
{
        int time;
        string  patient;
        bool checksum=false;
        do{
                cout<<"\nEnter time for appointment:";
                cin>>time;
                if(appbook[day][time][0]=="")
                {
                        cout<<"\nEnter patient name :";
                        cin>>patient;
                        cout<<"\nEnter Department :";
```

```
                cin>>department;
                appbook[day][time][0]=date;
                appbook[day][time][1]=patient;
                appbook[day][time][2]=department;
                checksum=true;
        }
        else
        {
                cout<<"\nDoctor is not available..\nPlease choose another time: ";
        }
    }while(checksum==false);
                cout<<appbook[day][time][1]<<" is getting an appointment in
"<<appbook[day][time][2]<<" department on "<<appbook[day][time][0]<<" at "<<time;
        cout<<"\n";
}
void patient::discharge()
{
    int dpt;
    char file[15];
    cout<<"\n1.Cardiology\n2.Intensive care
unit(ICU)\n3.Neurology\n4.Gynaecology\n5.Physiotherapy\n6.Urology ";
        cout<<"\n\nPlease enter department :";
        cin>>dpt;
        switch(dpt)
        {

                case 1:
                    strcpy(file,"Cardiology");
                    break;
                case 2:
                    strcpy(file,"ICU");
                    break;
                case 3:
                    strcpy(file,"Neurology");
                    break;
                case 4:
                    strcpy(file,"Gynaecology");
                    break;
                case 5:
                    strcpy(file,"Physiotherapy");
                    break;
                case 6:
                    strcpy(file,"Urology");
                    break;
```

```
        default:
                cout<<"\nPlease enter valid option :";
                break;
}
fstream dept, temp;
int id,flag=0;
cout<<"\nPlease enter ID: ";
cin>>id;
dept.open(file,ios::binary|ios::in);
rec r;
while(dept.read((char *)&r,sizeof(r)))
{
        if(r.id==id)
        {
                flag=1;
                break;
        }
}
dept.close();
if(flag==0)
{
        cout<<"\nPatient not found..";
}
else
{
        temp.open("temp",ios::binary|ios::out);
        dept.open(file,ios::in|ios::binary);
        while(dept.read((char *)&r,sizeof(r)))
        {
                if(r.id==id)
                        continue;
                else
                        temp.write((char *)&r,sizeof(r));
        }
        temp.close();
        dept.close();
        dept.open(file,ios::binary|ios::out);
        temp.open("temp",ios::binary|ios::in);
        while(temp.read((char *)&r,sizeof(r)))
        {
                dept.write((char *)&r,sizeof(r));
        }
        dept.close();
        temp.close();
```

```
                cout<<"\nPatient is discharged";
            }
            cout<<"\n";
            system("pause");
            system("cls");
}

int main()
{

    int ch,c;
    patient p;
    doctor d;
    do
    {
        cout<<"\n\n\n\t\t\t\t\t\t\t********** APEX MULTISPECIALITY
HOSPITAL**********";
        cout<<"\n\n\t\t\t\t\t\t\t----------\n";
        cout<<"\n\t\t\t\t\t\t\tHow may we help you?\n";
        cout<<"\n\t\t\t\t\t\t\t1 >> Emergency Services\n\t\t\t\t\t\t\t2 >>
    Get admitted\n\t\t\t\t\t\t\t3 >>  Get appointment\n\t\t\t\t\t\t\t4 >> Display
Patients\n\t\t\t\t\t\t\t5 >>  Visit a patient";
        cout<<"\n\t\t\t\t\t\t\t6 >>  Discharge patient\n\t\t\t\t\t\t\t7 >>
Pathology\n\t\t\t\t\t\t\t8 >>About us\n\t\t\t\t\t\t\t9 >>  Exit";
        cout<<"\n\t\t\t\t\t\t\t----------\n";
        cout<<"\t\t\t\t\t\tENTER YOUR CHOICE: ";
        cin>>ch;
        switch(ch)
        {
            case 1:
                p.emergency();
                system("cls");
                break;
            case 2:
                        p.getadmit();
                        break;

            case 3:
                d.makeappointment();
                break;
            case 5:
                p.search();
                break;
            case 7:
```

```
                p.pathalogy();
                break;
            case 8:
                d.about();
                break;
            case 4:
                p.display();
                break;
            case 6:
                p.discharge();
                break;
            case 9:
                break;
        }
    }while(ch!=8);


cout<<"\t\t\t\t\t_____
_____ \n";
cout<<"\t\t\t\t\t                                                \n";
cout<<"\t\t\t\t\t                                                \n";
cout<<"\t\t\t\t\t                                                \n";
cout<<"\t\t\t\t\t          THANK YOU FOR VISITNG US                    \n";
cout<<"\t\t\t\t\t                                          \n";
cout<<"\t\t\t\t\t                                          \n";
cout<<"\t\t\t\t\t_____
_____\n";


    return 0;
}
```

CONCLUSION:

Since we are entering details of the patients electronically in the" Hospital Management System", data will be secured. Using this application we can retrieve patient's history with a single click.

Thus processing information will be faster. It guarantees accurate maintenance of Patient details. It easily reduces the book keeping task and thus reduces the human effort and increases accuracy speed