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\* circualeQueue.cpp

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#include<iostream>

using namespace std;

struct Patient

{

int id;

string name,city,disease;

};

//class

class Queue

{

private:

int front,rear;

Patient p[20];

public:

Queue(){

front=-1;

rear=-1;

}

void enqueue(int);

void dequeue(int);

void display(int);

};

//definition to add new patient

void Queue::enqueue(int n)

{

if((front+1)%n==((rear+1)%n)+1)

{

cout<<"Overflow condition!!!!"<<endl;

return;

}

if(front==-1) //if it is first element to be inserted

front=0;

rear=(rear+1)%n; //increment rear pointer

//Input details at rear position

cout<<"Enter details:";

cout<<"Id:";

cin>>p[rear].id;

cin.ignore();

cout<<"Name:";

getline(cin,p[rear].name);

cout<<"City:";

getline(cin,p[rear].city);

cout<<"Disease:";

getline(cin,p[rear].disease);

cout<<"Record added....."<<endl;

}

//definition to discharge a patient

void Queue::dequeue(int n)

{

if(front==-1)

{

cout<<"Underflow condition!!!"<<endl;

return;

}

int temp=front;//to display record of discharged patient

if(front==rear)

front=rear=-1;//if queue has only 1 element

//normal deletion

else

front=(front+1)%n;

cout<<"Patient discharged...."<<endl;

//display details of discharged patient

cout<<"Details of discharged patient:"<<endl;

cout<<"Id:"<<p[temp].id<<endl<<"Name:"<<p[temp].name<<endl<<"City:"<<p[temp].city<<endl;

}

//definition for display

void Queue::display(int n)

{

if(front==-1)

{

cout<<"No records available"<<endl;

return;

}

else if(front>rear)

{

cout<<"Id\tName\tCity\tDisease"<<endl;

for(int i=front;i<n;i++)

cout<<p[i].id<<"\t"<<p[i].name<<"\t"<<p[i].city<<"\t"<<p[i].disease<<endl;

for(int i=0;i<=rear;i++)

cout<<p[i].id<<"\t"<<p[i].name<<"\t"<<p[i].city<<"\t"<<p[i].disease<<endl;

}

else

{

cout<<"Id\tName\tCity\tDisease"<<endl;

for(int i=front;i<=rear;i++)

cout<<p[i].id<<"\t"<<p[i].name<<"\t"<<p[i].city<<"\t"<<p[i].disease<<endl;

}

}

//driver function

int main()

{

Queue queue;

int n;

cout<<"Enter number of patients:";

cin>>n;

int choice;

do

{

cout<<"--------------------"<<endl;

cout<<"1:Admit new Patient"<<endl<<"2:Discharge patient"<<endl<<"3:Display all patients"<<endl<<"4:Exit"<<endl;

cout<<"Enter choice:";

cin>>choice;

cout<<"--------------------"<<endl;

switch(choice)

{

case 1:

queue.enqueue(n);

break;

case 2:

queue.dequeue(n);

break;

case 3:

queue.display(n);

break;

case 4:

cout<<"Thank you...";

break;

}

}while(choice!=4);

return 0;

}