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\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* **Assignment No : 2** \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**Title :** Implement priority queue as ADT using single linked list for servicing patients in an hospital with priorities as i) Serious (top priority) ii) medium illness (medium priority) iii) General (Least priority).

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#include<iostream>

#include<string>

using namespace std;

class queue

{

struct patient //strcture of patient

{

char name[20];

patient \*next;

patient()

{

name[0] = '\0';

next = NULL;

}

void accept()

{

cout<<" \n\t Enter the name of patient : ";

cin>>name;

}

void display()

{

cout<<" \n\t The name of the patient : "<<name;

}

};

patient \*front,\*rear,\*temp;

public:

queue() //default constructor

{

Front = rear = NULL;

}

int empty()

{

if( rear == NULL ) //queue is empty

return 1;

return 0;

}

void insert();

void remove();

void display();

};

void queue :: insert() //insert element into the queue

{

patient \*npatient = new patient;

npatient->accept();

if( empty() ) //inserting the first element

front = rear = npatient;

else

{

rear->next = npatient;

rear = npatient;

}

}

void queue :: remove() //delete element to the queue

{

patient \*t = front;

if( empty() )

{

cout<<" \n\t Queue empty ";

}

else

{

if( front == rear )

front = rear = NULL;

else

front = front->next;

t->display();

cout<<" \n\t Got the treatment \n";

}

}

void qtype( int q )

{

if(q == 0)

cout<<" \t Serious patient queue : ";

else if(q==1)

cout<<" \t Medium patient queue : ";

else

cout<<" \t General patient queue : ";

}

void queue::display() //display the front element of the queue

{

patient \*temp = front;

while(temp! = NULL)

{

cout<<" "<<temp->name;

temp = temp->next;

}

}

int main()

{

queue q[3];

char ans, \*n;

int pri, choice;

do

{

cout<<" \n\t 1. Insert Patient \n\t 2. Remove Patient \n\t 3. Display Patients in

Queue \n\t Enter u r choice : ";

cin>>choice;

switch (choice)

{

case 1 :

cout<<" \n\t Enter the priority \n\t 0 : Serious \n\t 1 : Medium \n\t 2 :

general \n\n\t ";

cin>>pri;

q[pri].insert();

break;

case 2 :

for(int i=0 ; i<3 ; i++)

{

qtype(i);

if( !q[i].empty() )

{

q[i].remove();

break;

}

else

cout<<" \tEmpty\n ";

}

break;

case 3 :

for(int i=0 ; i<3 ; i++)

{

cout<<" \n\t "<<i;

qtype(i);

q[i].display();

}

break;

}

cout<<" \n\n\t Do u want to continue (y/n) ";

cin>>ans;

}while( ans=='y' || ans=='Y' );

return 1;

}

***OUTPUT :***

resham@ubuntu:~/Desktop/resham$ g++ assgn2.cpp

resham@ubuntu:~/Desktop/resham$ ./a.out

1. Insert Patient in Queue

2. Remove Patient from Queu

3. Display patients in Queue

Enter u r choice : 1

Enter the priority

0: Serious

1: Medium

2: General

1

Enter the name of patient : resham

Do u want to continue(y/n) : y

1. Insert Patient in Queue

2. Remove Patient from Queu

3. Display patients in Queue

Enter u r choice : 1

Enter the priority

0: Serious

1: Medium

2: General

0

Enter the name of patient : om

Do u want to continue(y/n) : y

1. Insert Patient in Queue

2. Remove Patient from Queu

3. Display patients in Queue

Enter u r choice : 1

Enter the priority

0: Serious

1: Medium

2: General

2

Enter the name of patient : kalpesh

Do u want to continue(y/n) : y

1. Insert Patient in Queue

2. Remove Patient from Queu

3. Display patients in Queue

Enter u r choice : 2

Serious patient queue :

The name of the patient : om

Got the treatment

Do u want to continue(y/n) : y

1. Insert Patient in Queue

2. Remove Patient from Queu

3. Display patients in Queue

Enter u r choice : 2

Serious patient queue : Empty

Medium patient queue :

The name of the patient : resham

Got the treatment

Do u want to continue(y/n) : y

1. Insert Patient in Queue

2. Remove Patient from Queu

3. Display patients in Queue

Enter u r choice : 3

0 Serious patient queue :

1 Medium patient queue :

2 General patient queue : kalpesh

Do u want to continue(y/n) : n

resham@ubuntu:~/Desktop/resham$