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/*
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Assignment 10 : Priority Queue
Consider a scenario for hospital to cater services to different kinds of
patients as Serious (top priority), b) non-serious (medium priority), c)
General Check-up (Least priority). Implement the priority queue to cater
services to the patients.
*/
#include <iostream>
#include <string.h> using
namespace std; struct
node
{
int data, prior;
char pnm[10], name[10];
struct node *next; }
*front, *rear; class
Queue
{
public:
int isempty(); void pq_insert(int prior,
char name[10]); void display(); void
p_delete();
};
int Queue::isempty()
{
if ((rear = front) == NULL)
{
return 1;
}
```

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return 0;
}
struct node *createnode(int prior, char

name[10])
 {
struct node *temp; temp =
new node; strcpy(temp-
>pnm, name); temp->prior
= prior; temp->next =
NULL; return temp;
}

void Queue::pq_insert(int prior, char

name[10])
 { int
i;
struct node *temp; temp =
createnode(prior, name);
if (isempty())
{
front = rear = temp;
}
else if (front->prior > temp->prior)
{
temp->next = front;
front = temp;
}
else
{
```

```
rear = front;
while (rear->next != NULL && temp->prior >=

rear->next->prior)
 {
rear = rear->next;
}
temp->next = rear->next; rear->next
= temp;
}
}
void Queue::display()
{
struct node *temp; cout << "priority \t name \t\t
patient name" << endl; for (temp = front; temp !=
NULL; temp = temp->next)
{
if (temp->prior == 1) cout << temp->prior << "\t
\tserious\t\t" << temp->pnm <<

endl;

if (temp->prior == 2) cout << temp->prior
<< "\t \t medium \t \t

"<<temp->pnm<<endl; if(temp->prior==3)

cout
<< temp->prior << "\t \t normal \t\t

"<<temp->pnm<<endl; }
```

```
}
void Queue::p_delete()
 {
struct node *temp;
temp = front; front
= front->next;
temp->next = NULL; cout
<< "\n"
<< temp->pnm << " patient checked successfully


\n"<<endl; delete temp;
display();
 }
int main()
{
int priority, i, ch, n;
int ans, patient_no;
char name[10];
Queue q; do
{
cout << "\n hospital history"; cout <<
"\n 1.enter the record u want"; cout <<
"\n 2.display";

cout << "\n 3.delete"; cout << "\n
enter ur choice"<<endl; cin >> ch ;
switch (ch)
{
case 1:{ cout << "\n 1.serious"; cout
<< "\n 2.medium"; cout << "\n
3.normal"; cout << "\n enter the no
```

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of patient"; cin >> n; for (i = 0; i < n;
i++)
{
cout << "\n enterseverity="; cin >>
priority; cout << "\n enter patient
name = "; cin>>name;
q.pq_insert(priority, name);
}
break;
}
case 2:{
q.display();

break;
}
case 3:
{
q.p_delete(); break;
}
case 4: {
cout << "\n wrong choice";
cin >> ch; break;
}
}
cout << "\n is any patient = ? ";
std::cin >> ans; } while (ans ==
1); return 0;
}
```

OUTPUT

hospital history

1.enter the record u want

2.display

3.delete enter

ur choice 1

1.serious

2.medium 3.normal

enter the no of patient5

enterseverity=1 enter

patient name = sha

enterseverity=3 enter

patient name = cal

enterseverity=2 enter patient

name = hannah

enterseverity=1 enter

patient name = ron

enterseverity=3 enter

patient name = mol is any

patient = ? 1 hospital history

1.enter the record u want

2.display 3.delete enter ur

choice 2 priority name

patient name 1 serious sha

1 serious ron

2 medium hannah

3 normal cal 3 normal mol

is any patient = ? 1 hospital

history

1.enter the record u want

2.display 3.delete enter ur

choice 3 sha patient checked

successfully priority name

patient name 1 serious ron

2 medium hannah

3 normal cal

3 normal mol

is any patient = ? n