

MyHeader.h

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1 /*****
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3  * STUDENT ID : 1112261
4  * CLASS      : CS1C
5  * SECTION    : MW 5pm
6  * Assign #8  : Templates
7  * DUE DATE   : 25 March 2020
8  *****/
9
10 #ifndef MYHEADER_H_
11 #define MYHEADER_H_
12
13 //Preprocessor directives
14
15 #include<iostream> //for input and output
16
17 //using the name space standard
18 using namespace std;
19
20 //template class for Queue
21 template <class X>
22
23 //class Queue: class with attributes of the queues
24 class Queue
25 {
26 private:
27     X *a;
28     int frnt, rear;
29     int size;
30     int maxSize;
31
32 public:
33     //constructor
34     Queue(int n)
35     {
36         a=new X[n];
37         maxSize=n;
38         frnt =0;
39         rear=-1;
40         size=0;
41     }
42
43     //function to insert element in queue
44     void enqueue(X value)
45     {
46         if(isFull())
47         {
48             cout<<"Queue is full... Can't insert'\n";
49             return;
50         }
51         rear=(rear+1)%maxSize;
52         a[rear]=value;
53         cout<<"Inserted element "<<value<<"\n";
54         size++;
55     }
56
57     //function to remove element from queue
58     X dequeue()
59 }
```

```

60     {
61         X temp;
62         if(isEmpty())
63         {
64             cout<<"Queue is empty....\n";
65             return temp;
66         }
67
68         temp=a[frnt];
69         frnt=(frnt+1)%maxSize;
70         size--;
71         cout<<"Removed element "<<temp<<"\n";
72         return temp;
73     }
74
75
76     //function to get the front element from queue
77     X front()
78     {
79         if(isEmpty())
80         {
81             cout<<"Queue is empty...\n";
82         }
83         return a[frnt];
84     }
85
86
87     //function to check if the queue is full
88     bool isFull()
89     {
90         if(size==maxSize)
91             return true;
92         else
93             return false;
94     }
95
96
97     //function to check is queue is empty
98     bool isEmpty()
99     {
100         if(size==0)
101             return true;
102         else
103             return false;
104     }
105
106
107     //function to get the size of the queue
108     int Size()
109     {
110         return size;
111     }
112 };
113
114
115
116 #endif /* MYHEADER_H_ */
117

```