

# CollegeWork\DataStructure\queue-using-linked-list-1.c

```
1 //write a c program to implement queue using linked list.
2
3 #include <stdio.h>
4 #include <stdlib.h>
5
6 typedef struct queue{
7     int data;
8     struct queue* next;
9 } queue;
10
11 queue* head = NULL;
12
13 void enqueue(int data){
14     queue* new_queue = (queue*)malloc(sizeof(queue));
15     new_queue->data = data;
16     new_queue->next = head;
17     head = new_queue;
18 }
19
20 void dequeue(){
21     if (!head) {
22         printf("UnderFlow(No item found in this Queue).\n");
23         return;
24     }
25
26     if (!head->next) {
27         int data = head->data;
28         head = NULL;
29         printf("%d Removed.\n",data);
30         return;
31     }
32
33     queue* current = head;
34     while (current->next->next) {
35         current = current->next;
36     }
37
38     int data = current->next->data;
39     free(current->next);
40     current->next = NULL;
41     printf("%d Removed.\n",data);
42     return;
43 }
44
45 void display(){
46     if(head == NULL){
47         printf("Underflow(Queue is Empty).\n");
48         return;
49     }
50     queue* tmp = head;
51     printf("Rear -> ");
52     while(tmp != NULL){
53         printf("%d -> ",tmp->data);
54         tmp = tmp->next;
55     }
56     printf("Front\n");
57 }
58
59 void main(){
60     int data;
61     int op;
62
63     while(1){
```

```

64     printf("1. enqueue, 2. dequeue, 3. Display, 4. Exit.\nEnter Your Choice: ");
65     scanf("%d",&op);
66     switch(op){
67         case 1:
68             printf("Enter the element: ");
69             scanf("%d",&data);
70             enqueue(data);
71             break;
72         case 2:
73             dequeue();
74             break;
75         case 3:
76             display();
77             break;
78         case 4:
79             printf("Oops..");
80             exit(0);
81             break;
82         default:
83             printf("Wrong Input.\n");
84     }
85 }
86 }
87
88 /*OUTPUT
89
90 PS S:\Workspace\CollegeWork\DataStructure> gcc .\queue-using-linked-list-1.c
91 PS S:\Workspace\CollegeWork\DataStructure> ./a
92 1. enqueue, 2. dequeue, 3. Display, 4. Exit.
93 Enter Your Choice: 1
94 Enter the element: 12
95 1. enqueue, 2. dequeue, 3. Display, 4. Exit.
96 Enter Your Choice: 1
97 Enter the element: 13
98 1. enqueue, 2. dequeue, 3. Display, 4. Exit.
99 Enter Your Choice: 1
100 Enter the element: 14
101 1. enqueue, 2. dequeue, 3. Display, 4. Exit.
102 Enter Your Choice: 1
103 Enter the element: 15
104 1. enqueue, 2. dequeue, 3. Display, 4. Exit.
105 Enter Your Choice: 1
106 Enter the element: 16
107 1. enqueue, 2. dequeue, 3. Display, 4. Exit.
108 Enter Your Choice: 2
109 12 Removed.
110 1. enqueue, 2. dequeue, 3. Display, 4. Exit.
111 Enter Your Choice: 2
112 13 Removed.
113 1. enqueue, 2. dequeue, 3. Display, 4. Exit.
114 Enter Your Choice: 2
115 14 Removed.
116 1. enqueue, 2. dequeue, 3. Display, 4. Exit.
117 Enter Your Choice: 3
118 Rear -> 16 -> 15 -> Front
119 1. enqueue, 2. dequeue, 3. Display, 4. Exit.
120 Enter Your Choice: 2
121 15 Removed.
122 1. enqueue, 2. dequeue, 3. Display, 4. Exit.
123 Enter Your Choice: 3
124 Rear -> 16 -> Front
125 1. enqueue, 2. dequeue, 3. Display, 4. Exit.
126 Enter Your Choice: 4
127 Oops..
128 PS S:\Workspace\CollegeWork\DataStructure>*/

```