

3b) WAP to simulate the working of a circular queue of integers using an array. Provide the following operations: Insert, Delete & Display
The program should print appropriate messages for queue empty and queue overflow conditions

```

1 #include <stdio.h>
2 #include <stdlib.h>
3
4 #define MAX 5
5
6 int queue [MAX];
7 int front = -1, rear = -1;
8
9 void insert (int x) {
10     if ((front == 0 && rear == MAX - 1) || (rear + 1 == front)) {
11         printf ("Queue Overflow\n");
12     } else {
13         if (front == -1) {
14             front = rear = 0;
15         } else {
16             rear = (rear + 1) % MAX;
17         }
18         queue [rear] = x;
19         printf ("%d inserted\n", x);
20     }
21 }
22
23 void del () {
24     if (front == -1) {
25         printf ("Queue Underflow\n");
26     } else {
27         printf ("Deleted element: %d\n", queue [front]);
28         if (front == rear) {
29             front = rear = -1;
30         } else {
31             front = (front + 1) % MAX;
32         }
33     }
34 }

```

Compiler: GCC 4.9.2 64-bit Release
 Compilation results...
 - Errors: 0
 - Warnings: 0
 - Output Filename: C:\Users\apurv\Documents\c_programs\p32.exe
 - Output Size: 130,570,3125 KiB
 - Compilation Time: 0.34s

```

35
36 void display () {
37     if (front == -1) {
38         printf ("Queue is empty\n");
39     } else {
40         int i = front;
41         while (1) {
42             printf ("%d ", queue [i]);
43             if (i == rear) break;
44             i = (i + 1) % MAX;
45         }
46         printf ("\n");
47     }
48 }
49
50 int main () {
51     int choice, value;
52
53     while (1) {
54         printf ("\n1. Insert\n2. Delete\n3. Display\n4. Exit\nEnter your choice: ");

```

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