

WAP to simulate the working of a 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.

Program:

```
#include<stdio.h>
#include<string.h>
#include<conio.h>
#define SIZE 5

int queue[SIZE];
int front =-1, rear =-1;
void enqueue(int value);
int dequeue();
void display();

int main(){
    int value, option;
    while(1){
        printf("Enter 1 to INSERT, 2 to DELETE, 3 to DISPLAY, 4 to EXIT: \n");
        scanf("%d",&option);
        switch(option){
            case 1:
                printf("Enter value to be inserted: \n");
                scanf("%d",&value);
                enqueue(value);
                break;
            case 2:
                value = dequeue();
                printf("Value deleted is: %d\n",value);
                break;
            case 3:
                display();
                break;
            case 4:
                exit(1);
                break;
            default:
                printf("Invalid Input.\n");
        }
    }
}

void enqueue(int value){
    if(rear == (SIZE-1)){
        printf("Queue OVERFLOW\n");
    }else if (front== -1 && rear== -1){
```



```

        front++;
        rear++;
        queue[rear] = value;
    }else {
        rear++;
        queue[rear] = value;
    }
}

int dequeue(){
    int value;
    if((front== -1 && rear== -1)|| front>rear){
        printf("Queue UNDERFLOW\n");
    }else{
        value = queue[front];
        front++;
        return value;
    }
}

void display(){
    if(front== -1){
        printf("Queue is EMPTY.\n");
    }else{
        for(int i = front; i<rear; i++){
            printf("Queue elements are: \n");
            printf("%d",queue[i]);
            printf("\n");
        }
    }
}
}

```

OUTPUT:



```
Enter 1 to INSERT, 2 to DELETE, 3 to DISPLAY, 4 to EXIT:
1
Enter value to be inserted:
12
Enter 1 to INSERT, 2 to DELETE, 3 to DISPLAY, 4 to EXIT:
2
Value deleted is: 12
Enter 1 to INSERT, 2 to DELETE, 3 to DISPLAY, 4 to EXIT:
2
Queue UNDERFLOW
Value deleted is: 0
Enter 1 to INSERT, 2 to DELETE, 3 to DISPLAY, 4 to EXIT:
1
Enter value to be inserted:
12
Enter 1 to INSERT, 2 to DELETE, 3 to DISPLAY, 4 to EXIT:
1
Enter value to be inserted:
2
Enter 1 to INSERT, 2 to DELETE, 3 to DISPLAY, 4 to EXIT:
1
Enter value to be inserted:
34
Enter 1 to INSERT, 2 to DELETE, 3 to DISPLAY, 4 to EXIT:
1
Enter value to be inserted:
45
```

```
Enter 1 to INSERT, 2 to DELETE, 3 to DISPLAY, 4 to EXIT:
1
Enter value to be inserted:
56
Queue OVERFLOW
Enter 1 to INSERT, 2 to DELETE, 3 to DISPLAY, 4 to EXIT:
3
Queue elements are:
12
2
34
Enter 1 to INSERT, 2 to DELETE, 3 to DISPLAY, 4 to EXIT:
4

Process returned 1 (0x1)   execution time : 48.149 s
Press any key to continue.
|
```