

```
/*
Title- Queue Implimentation using array(statically)
Author- Bhakare Mahesh Santosh
ID- 492
Batch- TechnOrbit(PPA-8)
*/

#include<stdio.h>
#define MAX 10

// ----- STRUCTURE DECLARATION -----

struct QUEUE
{
    int arr[MAX];
    int front;
    int rear;
};

// ----- FUNCTION TO INITILIZE QUEUE -----

void init_queue(struct QUEUE* queue)
{
    queue->front = queue->rear = -1;
}

// ----- FUNCTION TO CHECK QUEUE FULL OR NOT -----

int full(struct QUEUE* queue)
{
    if(queue->rear == MAX-1)
    {
        return 1;
    }
    else
    {
        return 0;
    }
}

// ----- FUNCTION TO CHECK EMPTY QUEUE -----

int empty(struct QUEUE* queue)
{
    if(queue->rear == queue->front)
    {
        queue->rear = queue->front = -1;
    }
    if(queue->rear == -1)
    {
        return 1;
    }
    else
    {
        return 0;
    }
}

// ----- FUNCTION TO INSERT ELEMENT IN QUEUE -----

void enqueue(struct QUEUE* queue)
{
    (queue->rear)++;
```

```

    printf("Please Enter value: ");
    scanf("%d",&(queue->arr[queue->rear]));
}

// ----- FUNCTION TO DELETE ELEMENT FROM QUEUE
-----

void dequeue(struct QUEUE* queue)
{
    (queue->front)++;
    printf("Dequeued Element is: %d\n",queue->arr[queue->front]);
}

// ----- FUNCTION TO DISPLAY QUEUE
-----

void display(struct QUEUE* queue)
{
    int i;
    printf("Your Queue is: ");
    for(i=(queue->front)+1;i<=queue->rear;i++)
    {
        printf("%d <=",queue->arr[i]);
    }
    printf("\n");
}

// ----- ENTRY POINT FUNCTION -----

void main()
{
    int choice;
    struct QUEUE queue;
    init_queue(&queue);
    do
    {
        printf("*****\n");
        printf("1. Enqueue\n2. Dequeue\n3. IsFull\n4. IsEmpty\n5. Display\n6. Exit\nEnter Your Choice: ");
        scanf("%d",&choice);
        switch(choice)
        {
            case 1: if(full(&queue))
                {
                    printf("Queue is Full.....\n");
                }
                else
                {
                    enqueue(&queue);
                }
                break;

            case 2: if(empty(&queue))
                {
                    printf("Queue is Empty....\n");
                }
                else
                {
                    dequeue(&queue);
                }
                break;

            case 3: if(full(&queue))
                {
                    printf("Queue is full....\n");
                }

```

```
        else
        {
            printf("%d positions vaccent...\n", (MAX-queue.rear-1));
        }
        break;
    case 4: if(empty(&queue))
    {
        printf("Queue is empty...\n");
    }
    else
    {
        printf("%d elements in queue...\n", (queue.rear - queue.front));
    }
    break;

    case 5: if(empty(&queue))
    {
        printf("Queue is Empty...\n");
    }
    else
    {
        display(&queue);
    }
    break;

    case 6: printf("Exiting.....\n");
    break;

    default : printf("Wrong choice please enter proper choice.....\n");
}

}while(choice != 6);
}
```