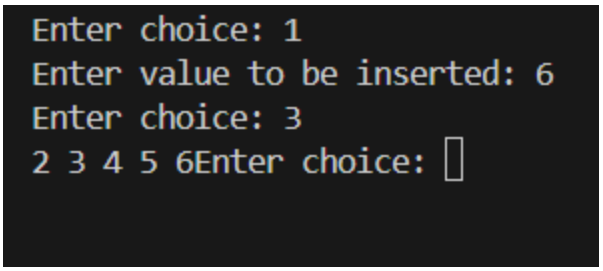
```
+ <stdio.h>
#define size 5
#define n 5
int queue[n], i;

int queue[n];
int front = -1;
int rear = -1;

int isFull() {
    if ((front == (rear + 1) % n)) {
        return 1;
    } else {
        return 0;
    }
}

int isEmpty() {
    if ((front == -1) && (rear == -1)) {
        return 1;
    } else {
        return 0;
    }
}

void enqueue(int v) {
    if (isFull()) {
        printf("Queue is Full");
    } else {
        if (front == -1)
            front = 0;
        rear = (rear + 1) % n;
        queue[rear] = v;
    }
}

void dequeue() {
    if (isEmpty()) {
        printf("Queue is empty");
    } else {
        if (front == rear) {
            front = -1;
            rear = -1;
        } else {
            front = (front + 1) % n;
```

```
        }
    }
}

void display() {
    if (isEmpty()) {
        printf("Queue is empty");
    } else {
        for (int i = front; i != rear; i = (i + 1) % n) {
            printf("%d ", queue[i]);
        }
        printf("%d", queue[rear]);
    }
}

void main() {
    int value;
    int c;
    printf("Enter 1 to Enqueue, 2 to Dequeue, 3 to Display, 4 to Exit\n");
    while (c != 4) {
        printf("Enter choice: ");
        scanf("%d", &c);
        if (c == 1) {
            printf("Enter value to be inserted: ");
            scanf("%d", &value);
            enqueue(value);
        } else if (c == 2) {
            dequeue();
        } else if (c == 3) {
            display();
        } else if (c == 4) {
            break;
        } else {
            printf("Invalid Input");
        }
    }
}
```

```
Enter 1 to Enqueue, 2 to Dequeue, 3 to Display, 4 to Exit
Enter choice: 1
Enter value to be inserted: 1
Enter choice:
1
Enter value to be inserted: 2
Enter choice: 1
Enter value to be inserted: 3
Enter choice: 1
Enter value to be inserted: 4
Enter choice: 1
Enter value to be inserted: 4
Enter value to be inserted: 4
Enter choice: 1
Enter value to be inserted: 5
Enter choice: 1
Enter value to be inserted: 6
Enter value to be inserted: 4
Enter choice: 1
Enter value to be inserted: 5
Enter choice: 1
Enter value to be inserted: 4
Enter choice: 1
Enter value to be inserted: 5
Enter choice: 1
Enter value to be inserted: 6
Queue is FullEnter choice: 2
Enter choice: 1
Enter value to be inserted: 4
Enter choice: 1
Enter value to be inserted: 5
Enter choice: 1
Enter value to be inserted: 6
Enter value to be inserted: 4
Enter choice: 1
Enter value to be inserted: 4
Enter choice: 1
Enter value to be inserted: 5
Enter choice: 1
Enter value to be inserted: 6
Queue is FullEnter choice: 2
```


Enter choice: 1
Enter value to be inserted: 6
Enter choice: 3
2 3 4 5 6Enter choice:

Circular Queue

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```
#include <stdio.h>
#define SIZE 5
#define n 5;
int queue int n;
printf("Enter size of array");
scanf("%d", &n);

int queue[n];
int front = -1;
int rear = -1;

int isFull()
{
   if(front == (rear+1)%n)
    {
       return 1;
    }
   else
       return 0;

int isEmpty()
{
   if((front == rear) && (rear == -1))
    {
       front = -1;
       rear = -1;
       return 1;
    }
   else
      return 0;
}
```

```
void enqueue (int v)
{
    if (isFull())
      {
        printf ("Queue is Full");
      }
    else
    {
       if (front == -1)
         front = 0;
       rear = (rear+1) % n;
       queue[rear] = value;
    }
}

void dequeue
{
    if (isEmpty())
    {
       printf ("Queue is Empty\n");
    }
    else
    {
       if (front == rear)
       {
          front = -1;
          rear = -1;
       }
    %  else
       {
          front = (front+1) % n;
       }
    }
}
```

```
void display()
{
  if (isempty())
  {
    printf("Queue is empty");
  }
  else
  {
    for(int i = front; i != rear ; i=(i+1)%n)
    {
      printf("%d", queue[i])
    }
    printf("%d", queue[rear]);
  }

void main()
{
  int value;
  int c;
  printf("Enter 1 to Enqueue, 2 to Dequeue, 3 to Display,
      4 to Exit \n");
  while(c != 4)
  {
    printf("Enter choice:")
    scanf("%d", &c);
    if(c == 1)
    {
      printf("Enter value to be inserted: ");
      scanf("%d", &value);
      enqueue(value);
    }
```

```
else if (c==2)
{
    dequeue();
}
else if (c==3)
{
    display();
}
else if (c==4)
{
    break;
}
else
    printf("Invalid Input");
}
```

O/p:

Enter the size of the array : 5
Enter 1 to enqueue, 2 to dequeue, 3 to display, 4 to e

Enter choice : 1	
Enter value : 1	Enter choice : 2
Enter choice : 1	Enter choice : 3
Enter value : 2	2345
Enter choice : 1	Enter choice : 2
Enter value : 3	Enter choice : 2
Enter choice : 1	Enter choice : 2