Circular QUEUE.

```c
#include <stdio.h>
#include <stdlib.h>
#define size 3

int Q[size];
int F = -1;
int R = -1;

void Insert();
void Delete();
void Display();

void main()
{
    int choice;
    while (1)
    {
        printf("\n1.INSERT\n2.DELETE\n3.DISPLAY\n4.EXIT\n");
        printf("Enter your choice\n");
        scanf("%d", &choice);
        switch (choice)
        {
        case 1:
            Insert();
            break;
        case 2:
            Delete();
```

```c
            break;
        case 3:
            Display();
            break;
        case 4:
            exit(0);
            break;
        default:
            printf("Wrong choice");
        }
    }
}


void Insert()
{
    int item;
    if (F == 0 && R == size - 1 || F == R + 1)
    {
        printf("\nQueue is Full\n");
        return;
    }
    else if (F == -1 && R == -1)
    {
        F = 0;
        R = 0;
    }
    else
        R = (R + 1) % size;

    printf("Enter an element\n");
```

```c
    scanf("%d", &item);

    Q[R] = item;

}


void Delete()

{

    int x;

    if (F == -1 && R == -1)

    {

        printf("\nQueue is empty\n");

        return;

    }

    else

    {

        x = Q[F];

        if (F == R)

        {

            F = -1;

            R = -1;

        }

        else

        {

            F = (F + 1) % size;

        }

        printf("\nDeleted Element is %d\n", x);

    }

}


void Display()

{
```

```c
    if (F == -1 && R == -1)
    {
        printf("\nQueue is empty\n");
        return;
    }
    else
    {
        printf("\nQUEUE CONTENTS\n");

        if (F <= R)
        {
            for (int i = F; i <= R; i++)
            {
                printf("%d\n", Q[i]);
            }
        }
        // else if(F==R){
        //     printf("%d\n",Q[F]);
        // }
        else
        {
            for (int i = F; i <= size - 1; i++)
                printf("%d\n", Q[i]);
            for (int i = 0; i <= R; i++)
                printf("%d\n", Q[i]);
        }
    }
}
```

OUTPUT:

```
PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

PS C:\Users\VIGNESH\OneDrive\Desktop\DSLAB> gcc CircularQ.c
PS C:\Users\VIGNESH\OneDrive\Desktop\DSLAB> ./a.exe

1.INSERT
2.DELETE
3.DISPLAY
4.EXIT
Enter your choice
1
Enter an element
100

1.INSERT
2.DELETE
3.DISPLAY
4.EXIT
Enter your choice
1
Enter an element
200

1.INSERT
2.DELETE
3.DISPLAY
4.EXIT
Enter your choice
1
Enter an element
300
```

```
1.INSERT
2.DELETE
3.DISPLAY
4.EXIT
Enter your choice
1

Queue is Full

1.INSERT
2.DELETE
3.DISPLAY
4.EXIT
Enter your choice
3

QUEUE CONTENTS
100
200
300

1.INSERT
2.DELETE
3.DISPLAY
4.EXIT
Enter your choice
2

Deleted Element is 100
```

```
1.INSERT
2.DELETE
3.DISPLAY
4.EXIT
Enter your choice
1
Enter an element
400

1.INSERT
2.DELETE
3.DISPLAY
4.EXIT
Enter your choice
3

QUEUE CONTENTS
200
300
400

1.INSERT
2.DELETE
3.DISPLAY
4.EXIT
Enter your choice
4
PS C:\Users\VIGNESH\OneDrive\Desktop\DSLAB>
```