**USN:- 1NT21IS039**

## Aim:- ORDINARY QUEUE IMPLEMENTATION USING ARRAY

[GitHub-Link](https://github.com/logan-14/Queue-Using-Array)

**ALGORITHM:-**

**Algorithm to insert any element in a queue:-**

**Step 1: IF REAR = MAX - 1**

**Write OVERFLOW**

**Go to step**

**Step 2: IF FRONT = -1 and REAR = -1**

**SET FRONT = REAR = 0**

**ELSE**

**SET REAR = REAR + 1**

**Step 3: Set QUEUE[REAR] = NUM**

**Step 4: EXIT**

**Algorithm to delete an element from the queue:-**

**Step 1: IF FRONT = -1 or FRONT > REAR**

**Write UNDERFLOW**

**ELSE**

**SET VAL = QUEUE[FRONT]**

**SET FRONT = FRONT + 1**

**Step 2: EXIT**

**Code:-**

#include <stdio.h>

#include <stdlib.h>

#define maxsize 5

void insert();

void delete();

void display();

int front = -1, rear = -1;

int queue[maxsize];

void main()

{

    int choice;

    while (choice != 4)

    {

        printf("\n1.insert an element\n2.Delete an element\n3.Display the queue\n4.Exit\n");

        printf("\nEnter your choice ?");

        scanf("%d", &choice);

        switch (choice)

        {

        case 1:

            insert();

            break;

        case 2:

            delete ();

            break;

        case 3:

            display();

            break;

        case 4:

            exit(0);

            break;

        default:

            printf("\nEnter valid choice??\n");

        }

    }

}

void insert()

{

    int item;

    printf("\nEnter the element\n");

    scanf("\n%d", &item);

    if (rear == maxsize - 1)

    {

        printf("\nOVERFLOW\n");

        return;

    }

    if (front == -1 && rear == -1)

    {

        front = 0;

        rear = 0;

    }

    else

    {

        rear = rear + 1;

    }

    queue[rear] = item;

    printf("\nValue inserted ");

}

void delete()

{

    int item;

    if (front == -1 || front > rear)

    {

        printf("\nUNDERFLOW\n");

        return;

    }

    else

    {

        item = queue[front];

        if (front == rear)

        {

            front = -1;

            rear = -1;

        }

        else

        {

            front = front + 1;

        }

        printf("\nvalue deleted ");

    }

}

void display()

{

    int i;

    if (rear == -1)

    {

        printf("\nEmpty queue\n");

    }

    else

    {

        printf("\nprinting values .....\n");

        for (i = front; i <= rear; i++)

        {

            printf("\n%d\n", queue[i]);

        }

    }

**Output:-**

1.insert an element

2.Delete an element

3.Display the queue

4.Exit

Enter your choice ?1

Enter the element

10

Value inserted

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Main Menu\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

=================================================================

1.insert an element

2.Delete an element

3.Display the queue

4.Exit

Enter your choice ?1

Enter the element

20

Value inserted

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Main Menu\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

=================================================================

1.insert an element

2.Delete an element

3.Display the queue

4.Exit

Enter your choice ?1

Enter the element

30

Value inserted

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Main Menu\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

=================================================================

1.insert an element

2.Delete an element

3.Display the queue

4.Exit

Enter your choice ?3

printing values .....

10

20

30

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Main Menu\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

=================================================================

1.insert an element

2.Delete an element

3.Display the queue

4.Exit

Enter your choice ?3

printing values .....

10

20

30

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Main Menu\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

=================================================================

1.insert an element

2.Delete an element

3.Display the queue

4.Exit

Enter your choice ?2

value deleted

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Main Menu\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

=================================================================

1.insert an element

2.Delete an element

3.Display the queue

4.Exit

Enter your choice ?