

Exp 3: Implementation of Linear Queue Data Structure using array.

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D10A Roll No: 60

AIM: In this experiment, with the help of the concept of arrays we will implement Linear Queue Data Structure.

CODE:

```
// Exp 03 Implementation of Linear Queue Data Structure using array.

#include <stdio.h>
#include <stdlib.h>

#define MAX 10
int queue[MAX];
int front = -1, rear = -1;
void insert();
void delete ();
void display();

int main()
{
    int choice;
    printf("D10A_60_Shashwat Tripathi\n");
    printf("#####");
    printf("\n Choices are:\n 1.Insert\n 2.Delete\n 3.Display\n 4.Exit\n");
    printf("#####");
    do
    {
        printf("\nEnter your choice: ");
        scanf("%d", &choice);
        switch (choice)
        {
            case 1:
                insert();
                break;
            case 2:
                delete ();
                break;
            case 3:
                printf("\nElements in the Queue are: \n");
                display();
                break;
            case 4:
                break;
        }
    } while (choice != 4);
    return 0;
}
```

```

void insert()
{
    int n;
    printf("Enter the element to be inserted in the queue: ");
    scanf("%d", &n);

    if (rear == MAX - 1)
        printf("Overflow Condition\n");
    else if (front == -1 && rear == -1)
    {
        front = rear = 0;
    }
    else
    {
        rear = rear + 1;
    }
    queue[rear] = n;
}

void delete ()
{
    int Val;
    if (front == -1 || front > rear)
    {
        printf("Underflow Condition\n");
    }
    else
    {
        Val = queue[front];
        if (front == rear)
        {
            front = rear = -1;
        }
        else
        {
            front++;
        }
        printf("Value is Deleted \n");
    }
}

void display()
{
    int i;
    printf("\n");
    if (front == -1 || front > rear)
        printf("Queue is Empty\n");
    else
    {
        for (i = front; i <= rear; i++)
        {
            printf("%d \n", queue[i]);
        }
    }
}

```

OUTPUT:

C:\Windows\System32\cmd.exe

C:\Users\shweta\Documents\Shashwat\Notepad++\DSA>DSAexp3

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#####

Choices are:

- 1.Insert
- 2.Delete
- 3.Display
- 4.Exit

#####

Enter your choice: 1

Enter the element to be inserted in the queue: 23

Enter your choice: 1

Enter the element to be inserted in the queue: 45

Enter your choice: 1

Enter the element to be inserted in the queue: 67

Enter your choice: 3

Elements in the Queue are:

23

45

67

Enter your choice: 2

Value is Deleted

Enter your choice: 3

Elements in the Queue are:

45

67

Enter your choice: 4

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