NAME: Baldha Smit K.
BRANCH: C.E.
DIVISION: A1
SEMESTER: 03
EN. NO.:190130107007
SUBJECT: Data structure

PRACTICAL: 07(B)

AIM:

Write a program to implement QUEUE using arrays that performs following operations:
(a)INSERT (b) DELETE (c) DISPLAY

CODE:

```
#include <stdio.h>
#include <conio.h>
#include<time.h>

#define MAX 9

int queue[MAX];
int front = -1, rear = -1;

void insert(void);
int delete_element(void);
void display(void);
```

```
int  main()
{
        printf("enrollment no:190130107007\npractical no:7(B)\t");
        time_t curtime;
        time(&curtime);
        printf("Current time = %s\n\n", ctime(&curtime));

        int choice, val;
        while(1)
        {
                display();
                printf("\n\n ***** MAIN MENU *****");
                printf("\n 1. Insert an element");
                printf("\n 2. Delete an element");
                printf("\n 3. Display the queue");
                printf("\n 4. EXIT");
                printf("\n Enter your option : ");
                scanf("%d", &choice);
                switch(choice)
                {
                        case 1: insert();
                                break;
                        case 2: val = delete_element();
                                if (val != -1)
                                printf("\n The number deleted is : %d", val);
                                break;
                        case 3: display();
                                break;
                        case 4: printf("\nEnd of Queue Program..Press any Key..");
                                getch();
                                break ;
                        default : printf("\nInvalid Choice..");
                }
        }
}

void insert()
{
         int num ,tempr;
         printf("\n Enter the number to be inserted in the queue : ");
         scanf("%d", &num);
         tempr=(rear+1)%MAX ;
```

```
        if(tempr == front)
        {
          printf("\n QUEUE OVERFLOW...");
          return ;
        }
        rear = tempr ;
        queue[rear] = num;
        if(front == -1)
        front = 0 ;
}

int delete_element()
{
        int val;
        if(front == -1 )
        {
                printf("\n UNDERFLOW");
                return( -1);
        }
        val = queue[front];
        if(front == rear)
          front = rear = -1 ;
        else
          front=(front+1) % MAX ;
        return(val);
}

void display()
{
        int i;
        if(front == -1 )
        {
          printf("\n QUEUE IS EMPTY");
          return ;
        }
        printf("\nQueue is as follows:\nFRONT->");
        for(i = front ; i != rear ; i=(i+1)%MAX )
        {
           printf("\t %d", queue[i]);
        }
        printf("\t %d <-REAR \n",queue[rear]);
}
```

OUTPUT :

```
enrollment no:190130107007
practical no:7(B)       Current time = Mon Aug 24 14:13:55 2020



 QUEUE IS EMPTY

 ***** MAIN MENU *****
 1. Insert an element
 2. Delete an element
 3. Display the queue
 4. EXIT
 Enter your option : 1

 Enter the number to be inserted in the queue : 12653

Queue is as follows:
FRONT->  12653 <-REAR


 ***** MAIN MENU *****
 1. Insert an element
 2. Delete an element
 3. Display the queue
 4. EXIT
 Enter your option : 1

 Enter the number to be inserted in the queue : 5616

Queue is as follows:
FRONT->  12653   5616 <-REAR


 ***** MAIN MENU *****
 1. Insert an element
 2. Delete an element
 3. Display the queue
 4. EXIT
 Enter your option : 1

 Enter the number to be inserted in the queue : 56456
```

```
Queue is as follows:
FRONT->  12653   5616    56456 <-REAR


 ***** MAIN MENU *****
 1. Insert an element
 2. Delete an element
 3. Display the queue
 4. EXIT
 Enter your option : 2

 The number deleted is : 12653
Queue is as follows:
FRONT->  5616    56456 <-REAR


 ***** MAIN MENU *****
 1. Insert an element
 2. Delete an element
 3. Display the queue
 4. EXIT
 Enter your option : 2

 The number deleted is : 5616
Queue is as follows:
FRONT->  56456 <-REAR


 ***** MAIN MENU *****
 1. Insert an element
 2. Delete an element
 3. Display the queue
 4. EXIT
 Enter your option : 4

End of Queue Program..Press any Key..
```