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SEMESTER: 03
EN. NO.:190130107007
SUBJECT: Data structure

PRACTICAL: 07

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 5

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\t");
   time_t curtime;
   time(&curtime);
   printf("Current time = %s\n\n", ctime(&curtime));

        int choice, val;
        while(1)
        {
                printf("\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;
         printf("\n Enter the number to be inserted in the queue : ");
         scanf("%d", &num);
```

```
        if(rear == MAX-1)
        {
          printf("\n QUEUE OVERFLOW...");
          return ;
        }
        rear++;
        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++;
        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++)
            printf("\t %d", queue[i]);
        printf("<-REAR \n");
```

}

OUTPUT :

```
enrollment no:190130107007
practical no:7  Current time = Mon Aug 17 16:58:07 2020



***** 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 : 1256

***** 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 : 25564

***** 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 : 5646

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

Queue is as follows:
FRONT->  1256    25564   5646<-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 : 1256
***** MAIN MENU *****
1. Insert an element
2. Delete an element
3. Display the queue
4. EXIT
Enter your option : 2

The number deleted is : 25564
***** MAIN MENU *****
1. Insert an element
2. Delete an element
3. Display the queue
4. EXIT
Enter your option : 3

Queue is as follows:
FRONT->  5646<-REAR
```