LAB-5 Linear Queue Implementation.

WAP to simulate the working of a queue of integers using an array. Provide the following operations.

a.) Insert

b.) Delete

c.) Display

The program should print appropriate messages for queue empty and queue overflow conditions.

```
#include <stdio.h>
#include <stdlib.h>
#define MAX 5
int front =0;
int rear =-1;

int queue[MAX];
void Enqueue(int);
int Deque();
void display();
int main()
{
    int option;
    int item;
```

```
do {
    printf ("\n 1. Insert to Queue (EnQueue)");
    printf ("\n 2. Delete from the Queue (DeQueue)");
    printf ("\n 3. Display the content ");
    printf ("\n 4. Exit \n");
    printf (" Enter the option : ");
    scanf ("%d", &option);
    switch (option)
    {
        case 1 : printf (" Enter the elements \n");
                 scanf ("%d, &item);
                 Enque ( item );
                 break;
        case 2 : item = Deque();
                 if ( item = -1)
                 printf("Queue is empty \n");
                 else
                 printf (" Removed element from the
                          queue %d", item);
                 break;
        case 3 : display ();
                 break;
        case 4 : exit(0);
    }
} while(option != 4); return 0; }
```

```
void Enque(int ele)
{
    if (rear == MAX-1)
     printf("Queue is full \n");
     else
     {
       rear ++;
        queue [rear] = ele;
     }
}
int Deque()
{
     int item;
   if (front == -1)
      return -1;
   else
   {
      item = queue [front];
      front ++;
      if ( front > rear)
      {  front = -1;
         rear = -1;
      }
      return item;
   }
}
```

```
void display()
{
    int i;
    if (front == -1)
      printf("\n Queue is empty.\n");
    else
    {
      printf("\n\n Que contents: ");
      for (i = front ; i <= rear ; i++)
          printf(" %d ", queue[i]);
    }
}
```

expected output:

1. Insert to Queue (EnQueue)
2. delete from the Queue (DeQueue)
3. Display the content
4. Exit

Enter the options: 1
Enter the element
1

1. Insert to Queue (EnQueue)
2. delete from the Queue (DeQueue)
3. Display the content
4. Exit

Enter the option: 1

Enter the element
2

1. Insert to Queue (EnQueue)
2. delete from the queue (DeQueue)
3. Display the content
4 - Exit

. Enter the option : 3

Que contents : 12

1. Insert to queue (EnQueue)
2. delete from the Queue (DeQueue)
3. Display the content
4. Exit.

Enter the option : 2

Removed element from the Que 1

1. Insert to Queue (EnQueue)
2. delete from the Queue (DeQueue)
3. display the content
4. Exit
Enter the option : 3

Removed element from the Queue 2

1. Insert to Queue (EnQueue)
2. delete from the Queue (De Queue)
3. Display the content
4 - Exit

Enter the option:2

Queue is Empty

1. Insert to Queue (EnQueue)
2. Delete from the Queue (DeQueue)
3. Display the content
4. Exit

Enter the option :-4