3.write a program to stimulate the working of a queue of integers using an array. Provide the following operation

a. Insert b. Delete c. Display

```
#include <stdio.h>

#define N 5


int q[N];

int front = -1, rear = -1;

void insert(int);

int delete();

void display();

void main()

{

   int n, choice;

   printf("SHREE VARNA M\n");

   printf("1BM22CS263\n");

   do

   {

      printf("\n1.Insert\n2.Delete\n3.Display\n4.Exit\n");

      printf("Enter your option :");

      scanf("%d", &choice);

      switch (choice)

      {

      case 1:

         printf("Enter the number to be inserted in the queue :");

         scanf("%d", &n);

         insert(n);
```

```
            break;
        case 2:
            n = delete ();
            if (n != -1)
                printf("\n The number deleted is : %d", n);
            break;
        case 3:
            display();
            break;
        case 4:
            exit(0);
            break;
        default:
            printf("Invalid option\n");
            exit(0);
            break;
        }
    } while (choice != 4);
}
void insert(int num)
{

    if (rear == N - 1)
        printf("\n OVERFLOW");
    else if (front == -1 && rear == -1)
        front = rear = 0;
```

```
    else
        rear++;
    q[rear] = num;
}
int delete()
{
    int val;
    if (front == -1 || front > rear)
    {
        printf("\n UNDERFLOW");
        return -1;
    }
    else
    {
        val = q[front];
        front++;
        if (front > rear)
            front = rear = -1;
        return val;
    }
}
void display()
{
    int i;
    printf("\n");
    if (front == -1 || front > rear)
```

```
        printf("\n QUEUE IS EMPTY");
    else
    {
        for(i=front;i<=rear;i++)
        {
            printf("\t %d",q[i]);
        }
    }
}
```

OUTPUT:

```
SHREE VARNA M
1BM22CS263

1.Insert
2.Delete
3.Display
4.Exit
Enter your option :1
Enter the number to be inserted in the queue :1

1.Insert
2.Delete
3.Display
4.Exit
Enter your option :1
Enter the number to be inserted in the queue :2

1.Insert
2.Delete
3.Display
4.Exit
Enter your option :2

 The number deleted is : 1
1.Insert
2.Delete
3.Display
4.Exit
Enter your option :3

         2
1.Insert
2.Delete
3.Display
4.Exit
Enter your option :4

Process returned 0 (0x0)   execution time : 24.321 s
Press any key to continue.
```