Experiment 9
Linear Queue Implementation

Queue ADT:

```
#define MAX 30
#include<stdio.h>
int queue[MAX],front=-1,rear=-1; void enqueue(int x); int dequeue();
void display(); int isEmpty(); int isFull();

void enqueue(int x)
{
   if(!isFull())
   {
      queue[rear++]=x;
   }
   else
   {
      printf("Queue Overflow");
   }
}

int dequeue()
{
   if(!isEmpty())
   {
      return queue[front++];
   }
   else
   {
      printf("Queue Underflow");
   }
   return -1;
```

```
}


void display()
{
   if(!isEmpty())
   {
      printf("Queue Elements Are:");
      int temp=front;
      while(temp!=rear)
      {
         printf("%d\n",queue[temp]);
         temp++;
      }
   }
   else
   {
       printf("Queue Underflow");
   }
}


int isEmpty()
{
   if(front!=0 || front<rear)
   {
      return 0;
   }
   return 1;
}

int isFull()
{
   if(rear==MAX)
```

```
    {
        return 1 ;
    }
    return 0;
}
```

Queue Implementation:

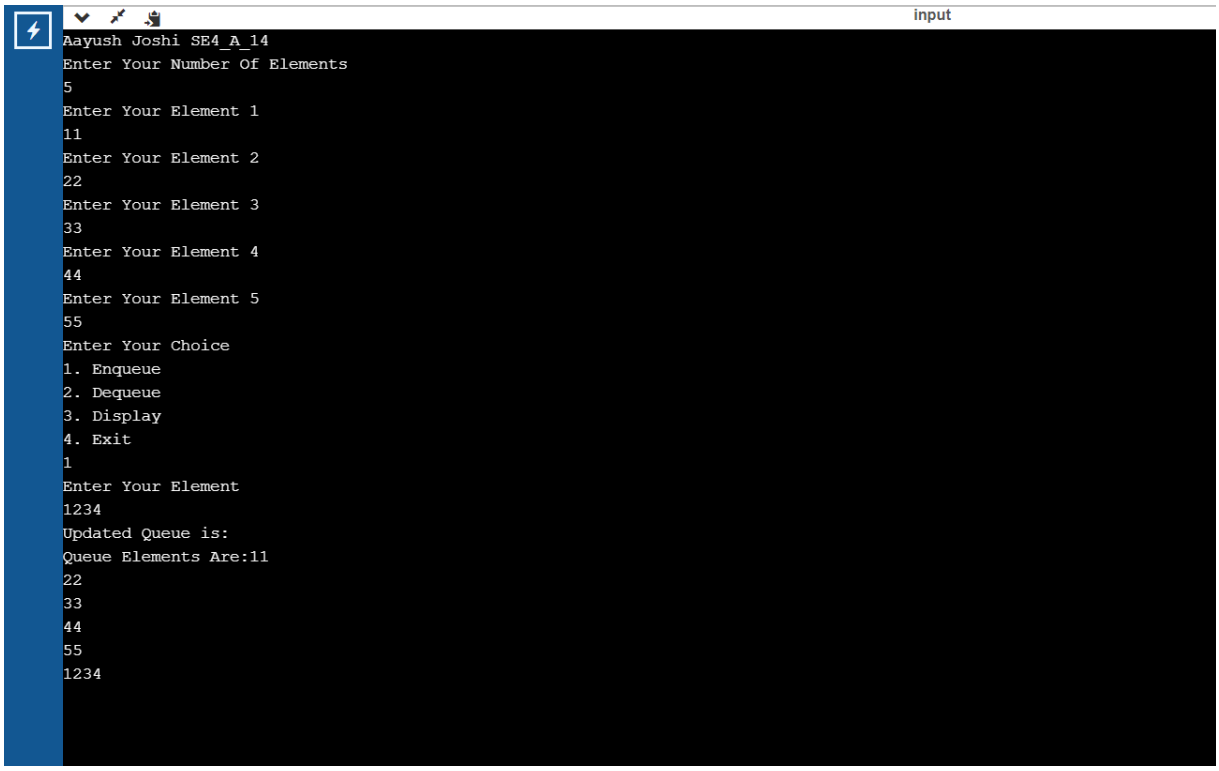
```
#include<stdio.h>
#include<conio.h>
#include "queue.h"
void main()
{
    int en,de,ch,n,i;
    printf("Aayush Joshi SE4_A_14\n");
    printf("Enter Your Number Of Elements\n");
    scanf("%d",&n);
    for(i=0;i<n;i++)
    {
        printf("Enter Your Element %d\n",i+1);
        scanf("%d",&en);
    enqueue(en);
    }
    do
```

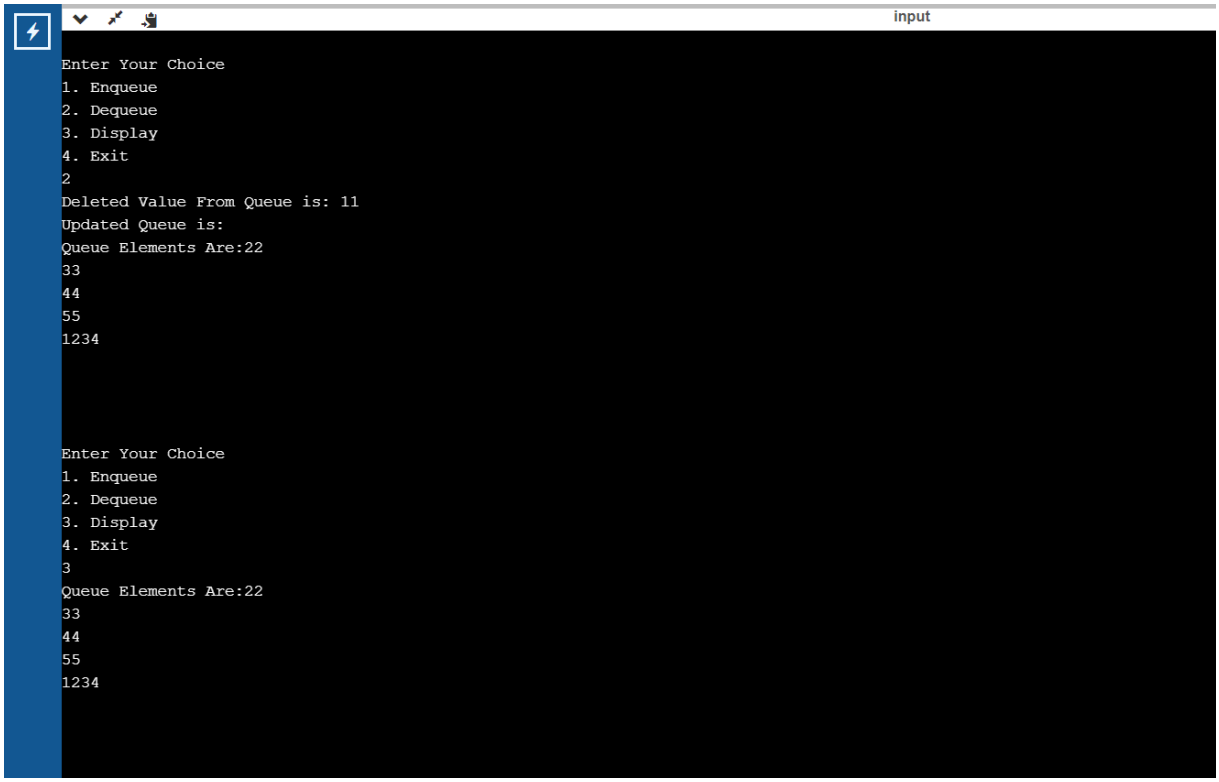
```
    {
        printf("Enter
Your Choice\n");
        printf("1.
Enqueue\n");
        printf("2.
Dequeue\n");
        printf("3.
Display\n");
        printf("4.
Exit\n");
        scanf("%d",&ch);
        switch(ch)
        {
            case 1:
printf("Enter Your
Element\n");

scanf("%d",&en);

enqueue(en);

printf("Updated Queue
is:\n");

display();

printf("\n");
```

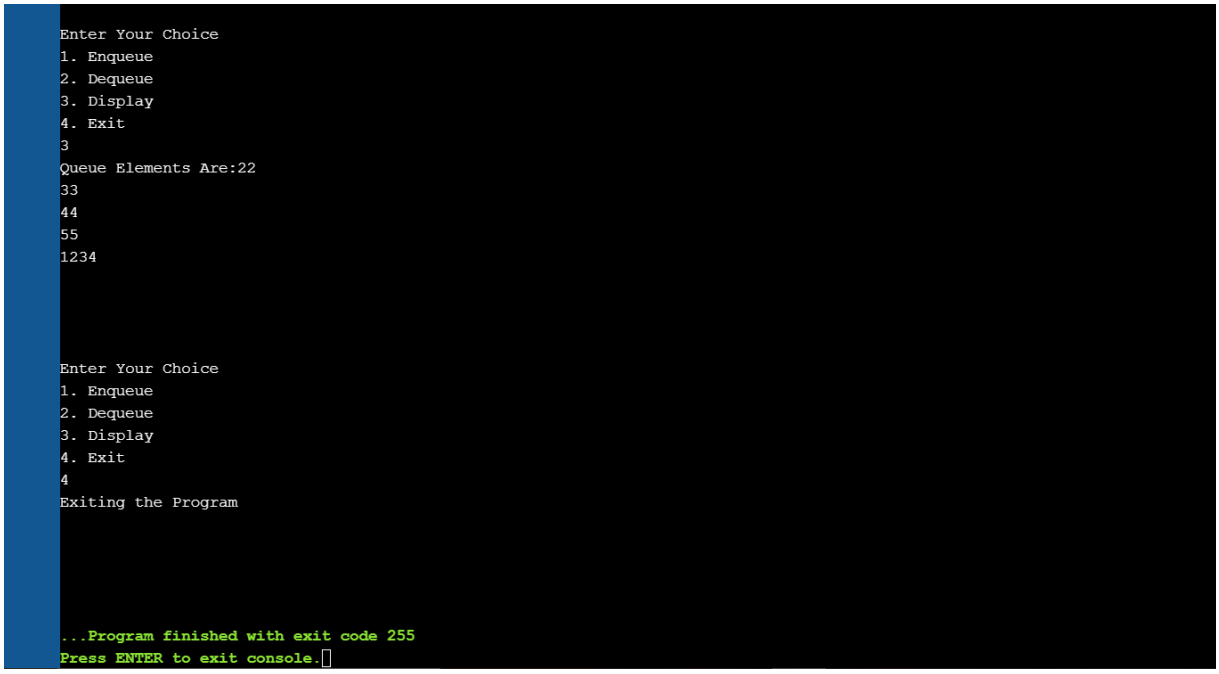
```
                    break;
            case 2:
de=dequeue();

printf("Deleted Value
From Queue is:
%d\n",de);

printf("Updated Queue
is:\n");
                    display();

printf("\n");
                    break;
            case 3:
display();

printf("\n");
                    break;
            case 4:
printf("Exiting the
Program\n");
                    break;

default:printf("Invalid
Choice\n");
        }
        printf("\n\n\n");
```

```
    }
    while(ch!=4);
getch();
}
```

Output:




input
Enter Your Choice
1. Enqueue
2. Dequeue
3. Display
4. Exit
2
Deleted Value From Queue is: 11
Updated Queue is:
Queue Elements Are:22
33
44
55
1234
Enter Your Choice
1. Enqueue
2. Dequeue
3. Display
4. Exit
3
Queue Elements Are:22
33
44
55
1234


Enter Your Choice
1. Enqueue
2. Dequeue
3. Display
4. Exit
3
Queue Elements Are:22
33
44
55
1234
Enter Your Choice
1. Enqueue
2. Dequeue
3. Display
4. Exit
4
Exiting the Program
...Program finished with exit code 255
Press ENTER to exit console.