**EX:6.2 ARRAY IMPLEMENTATION OF QUEUE**

**PROGRAM:**

#include<stdio.h>

int rear=-1,front=0,stack[50],size;

void create()

{

printf("\nEnter the size of List:\n");

scanf("%d",&size);

if(size<=0)

{

printf("Invalid Input\n");

create();

}

}

void Enqueue(int data)

{

if(rear==size-1)

{

printf("queue is full\n");

}

else

{

rear=rear+1;

printf("the element is %d",rear);

stack[rear]=data;

}

}

void Dequeue()

{

if(rear==-1 || front-1==rear)

{

printf("queue is empty");

}

else

{

printf("the deleted element is %d", front);

front=front+1;

}

}void IsEmpty()

{

if(rear==-1)

{

printf("queue underflowed");

}

else

{

printf("queue not underflowed");

}

}

void IsFull()

{

if(rear==size-1 || front-1==rear)

{

printf("FULL");

}

else

{

printf("queue is not full");

}

}

void search(int value)

{

int i=0,temp=-1;

for(i=0;i<rear;i++)

{

if(stack[i]==value)

{

temp=i;

break;

}

}

if(temp!=-1)

{

printf("Element Found");

}

else

{

printf("No element Found");

}

}

void display()

{

int i;

if(rear==-1 || front-1==rear)

{

printf("List is Empty");

}

else

{

printf("The Elements are:\n");

for(i=front;i<=rear;i++)

{

printf("%d\n",stack[i]);

}

}

}

void main()

{

int choice,data,value;

printf("Name:R.Sridevi");

printf("\nRoll.no:20UIT021");

printf("\nProgram Name:Array implementation of queue");

create();

do

{

printf("\nMenu\n1.Enqueue\n2. Dequeue\n3.Is Empty\n4.Is Full\n5.Search\n6.Display\n7.Exist\n");

printf("\nEnter the choice: \n");

scanf("%d",&choice);

switch(choice)

{

case 1:

printf("Enqueue\n");

printf("Enter the Element:\n");

scanf("%d",&data);

Enqueue(data);

break;

case 2:

printf("Dequeue\n");

Dequeue();

break;

case 3:

printf("Is Empty\n");

IsEmpty();

break;

case 4:

printf("Is Full\n");

IsFull();

break;

case 5:

printf("Search\n");

printf("Enter the Search element:\n");

scanf("%d",&value);

search(value);

break;

case 6:

printf("Display\n");

display();

break;

case 7:

printf("Bye\n");

break;

default:

printf("Invalid Input\n");

}

}while(choice!=7);

}

**OUTPUT:**

Name:R.Sridevi

Roll.no:20UIT021

Program Name:Array implementation of queue

Enter the size of List:

5

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

6

Display

List is Empty

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

1

Enqueue

Enter the Element:

10

the element is 0

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

1

Enqueue

Enter the Element:

20

the element is 1

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

1

Enqueue

Enter the Element:

30

the element is 2

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

1

Enqueue

Enter the Element:

40

the element is 3

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

1

Enqueue

Enter the Element:

50

the element is 4

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

1

Enqueue

Enter the Element:

60

queue is full

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

4

Is Full

FULL

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

3

Is Empty

queue not underflowed

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

5

Search

Enter the Search element:

20

Element Found

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

5

Search

Enter the Search element:

70

No element Found

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

6

Display

The Elements are:

10

20

30

40

50

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

2

Dequeue

the deleted element is 0

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

6

Display

The Elements are:

20

30

40

50

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

2

Dequeue

the deleted element is 1

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

2

Dequeue

the deleted element is 2

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

2

Dequeue

the deleted element is 3

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

6

Display

The Elements are:

50

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

2

Dequeue

the deleted element is 4

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

2

Dequeue

queue is empty

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

6

Display

List is Empty

Menu

1.Enqueue

2. Dequeue

3.Is Empty

4.Is Full

5.Search

6.Display

7.Exist

Enter the choice:

7

Bye