Input restricted deque:

```
#include<stdio.h>
#include<conio.h>
#include<stdlib.h>
#define SIZE 5
int queue[SIZE];
int front=-1,rear=-1;
void insert(int);
void deletion();
void traverse();
void main()
{
        int op,ele;
        while(1)
        {

        printf("menu\n");
        printf("1.input restricted\n");
        printf("2.delte\n");
        printf("3.display\n");
        printf("4.exit\n");
        printf("enter option\n");
        scanf("%d",&op);
        switch(op)
        {
                case 1:
                                printf("enter element\n");
                                scanf("%d",&ele);
                                insert(ele);
```

```
                        break;
                case 2:
                        deletion();
                        break;
                case 3:
                        traverse();
                        break;
                case 4:
                        exit(0);
                        break;
                }
        }

}
void insert(int ele)
{
        if(front==rear+1||(rear==SIZE-1&&front==0))
        {
                printf("queue is full\n");
        }
        else if(front==-1&& rear==-1)
        {
                front=0;
                rear=0;
                queue[rear]=ele;
        }
        else if(rear==SIZE-1&&front!=0)
        {
                rear=0;
```

```
                queue[rear]=ele;
        }
        else
        {
                rear++;
                queue[rear]=ele;
        }
}
void deletion()
{
        if(front==-1&&rear==-1)
        {
                printf("queue is empty\n");
        }
        else if(front==rear)
        {
                printf("deleted element:%d\n",queue[rear]);
                front=-1;
                rear=-1;
        }
        else
        {
                int ch;
                printf("1.leftside deletion\n");
                printf("2.rightside deletion\n");
                printf("enter choice\n");
                scanf("%d",&ch);
                if(ch==1)
                {
```

```
                printf("deleted elemnt:%d\n",queue[front]);
                front++;
            }
            else if(ch==2)
            {
                printf("deleted element:%d\n",queue[rear]);
                rear--;
            }
        }
}
void traverse()
{
        int i;
        if(front<=rear)
        {
            for(i=front;i<=rear;i++)
            {
                printf("%d\t",queue[i]);
            }
        }
        else
        {
            for(i=front;i<SIZE;i++)
            {
                printf("%d\t",queue[i]);
            }
            for(i=0;i<=rear;i++)
            {
                printf("%d\t",queue[i]);
```

```
                }
        }
}
```

Output restricted deque

```
#include<stdio.h>
#include<conio.h>
#include<stdlib.h>
#define SIZE 5
int queue[SIZE];
int front=-1,rear=-1;
void insert(int);
int deletion();
void traverse();
void main()
{
        int op,ele,val;
        while(1)
        {

        printf("menu\n");
        printf("1.input restricted\n");
        printf("2.delte\n");
        printf("3.display\n");
        printf("4.exit\n");
        printf("enter option\n");
        scanf("%d",&op);
        switch(op)
        {
                case 1:
```

```
                printf("enter element\n");
                scanf("%d",&ele);
                insert(ele);
                break;
        case 2:
                val=deletion();
                printf("deleted element:%d\n",val);
                break;
        case 3:
                traverse();
                break;
        case 4:
                exit(0);
                break;
    }
    }

}
void insert(int ele)
{
    if(front==0&&rear==SIZE-1)
    {
        printf("queue is full\n");
    }
    else if(front==-1&&rear==-1)
    {
        front=0;
        rear=0;
        queue[rear]=ele;
```

```
}
else if(front==0)
{
        rear++;
        queue[rear]=ele;
}
else if(rear==SIZE-1)
{
        front--;
        queue[front]=ele;
}
else
{
        int ch;
        printf("1.leftside insert\n");
        printf("2.rightside insertion\n");
        printf("enter choice\n");
        scanf("%d",&ch);
        if(ch==1)
        {
                front--;
                queue[front]=ele;
        }
        else if(ch==2)
        {
                rear++;
                queue[rear]=ele;
        }
        else
```

```
                {
                        printf("invalid option\n");
                }
        }

}
int deletion()
{
        int val;
        if(front==-1&&rear==-1)
        {
                printf("queue is empty\n");
        }
        else if(front==rear)
        {
                val=queue[front];
                front=rear=-1;
        }
        else if(front==SIZE-1)
        {
                val=queue[front];
                front=0;
        }
        else
        {
                val=queue[front];
                front++;
        }
        return val;
```

```
}
void traverse()
{
	int i;
	if(front<=rear)
	{
		for(i=front;i<=rear;i++)
		{
			printf("%d\t",queue[i]);
		}
	}
	else
	{
		for(i=front;i<SIZE;i++)
		{
			printf("%d\t",queue[i]);
		}
		for(i=0;i<=rear;i++)
		{
			printf("%d\t",queue[i]);
		}
	}
}
```