# include<stdio.h>

# define MAX 5

int deque\_arr[MAX];

int left = -1;

int right = -1;

void insert\_right()

{

int added\_item;

if((left == 0 && right == MAX-1) || (left == right+1))

{

printf("Queue Overflow\n");

return;

}

if (left == -1){

left = 0;

right = 0;

}

else

if(right == MAX-1)

right = 0;

else

right = right+1;

printf("Input the element for adding in queue : ");

scanf("%d", &added\_item);

deque\_arr[right] = added\_item ;

}

void insert\_left(){

int added\_item;

if((left == 0 && right == MAX-1) || (left == right+1))

{

printf("Queue Overflow \n");

return;

}

if (left == -1){

left = 0;

right = 0;

}

else

if(left== 0)

left=MAX-1;

else

left=left-1;

printf("Input the element for adding in queue : ");

scanf("%d", &added\_item);

deque\_arr[left] = added\_item ;

}

void delete\_left(){

if (left == -1)

{ printf("Queue Underflow\n");

return ;

}

printf("Element deleted from queue is : %d\n",deque\_arr[left]);

if(left == right){

left = -1;

right=-1;

}

else

if(left == MAX-1)

left = 0;

else

left = left+1;

}

void delete\_right()

{

if (left == -1){

printf("Queue Underflow\n");

return ;

}

printf("Element deleted from queue is : %d\n",deque\_arr[right]);

if(left == right){

left = -1;

right=-1;

}

else

if(right == 0)

right=MAX-1;

else

right=right-1;

}

void display\_queue(){

int front\_pos = left,rear\_pos = right;

if(left == -1){

printf("Queue is empty\n");

return;

}

printf("Queue elements :\n");

if( front\_pos <= rear\_pos ){

while(front\_pos <= rear\_pos){

printf("%d ",deque\_arr[front\_pos]);

front\_pos++;

}

}

else

{

while(front\_pos <= MAX-1)

{

printf("%d ",deque\_arr[front\_pos]);

front\_pos++;

}

front\_pos = 0;

while(front\_pos <= rear\_pos)

{ printf("%d ",deque\_arr[front\_pos]);

front\_pos++;

}

}

printf("\n");

}

void input\_que()

{ int choice;

do

{ printf("1.Insert at right\n");

printf("2.Delete from left\n");

printf("3.Delete from right\n");

printf("4.Display\n");

printf("5.Quit\n");

printf("Enter your choice : ");

scanf("%d",&choice);

switch(choice)

{ case 1:insert\_right();

break;

case 2:delete\_left();

break;

case 3:delete\_right();

break;

case 4:display\_queue();

break;

case 5:break;

default:printf("Wrong choice\n");

}

}while(choice!=5);

}

void output\_que()

{

int choice;

do

{

printf("1.Insert at right\n");

printf("2.Insert at left\n");

printf("3.Delete from left\n");

printf("4.Display\n");

printf("5.Quit\n");

printf("Enter your choice : ");

scanf("%d",&choice);

switch(choice){

case 1:insert\_right();

break;

case 2:insert\_left();

break;

case 3:delete\_left();

break;

case 4:display\_queue();

break;

case 5:break;

default:printf("Wrong choice\n");

}

}while(choice!=5);

}

main()

{ int choice;

printf("1.Input restricted dequeue\n");

printf("2.Output restricted dequeue\n");

printf("Enter your choice : ");

scanf("%d",&choice);

switch(choice)

{

case 1 :input\_que();

break;

case 2:output\_que();

break;

default:printf("Wrong choice\n");

}

}