Double Ended Queue

#include<stdio.h>

#include<conio.h>

#define SIZE 100

void enQueue(int);

int deQueueFront();

int deQueueRear();

void enQueueRear(int);

void enQueueFront(int);

void display();

int queue[SIZE];

int rear = 0, front = 0;

int main()

{

char ch;

int choice1, choice2, value;

clrscr();

printf("\n\*\*\*\*\*\*\* Type of Double Ended Queue \*\*\*\*\*\*\*\n");

do

{

printf("\n1.Input-restricted deque \n");

printf("2.output-restricted deque \n");

printf("\nEnter your choice of Queue Type : ");

scanf("%d",&choice1);

switch(choice1)

{

case 1:

printf("\nSelect the Operation\n");

printf("1.Insert\n2.Delete from Rear\n3.Delete from Front\n4. Display");

do

{

printf("\nEnter your choice for the operation in c deque: ");

scanf("%d",&choice2);

switch(choice2)

{

case 1:

enQueueRear(value);

display();

break;

case 2:

value = deQueueRear();

printf("\nThe value deleted is %d",value);

display();

break;

case 3:

value=deQueueFront();

printf("\nThe value deleted is %d",value);

display();

break;

case 4:

display();

break;

default:

printf("Wrong choice");

}

printf("\nDo you want to perform another operation (Y/N): ");

ch=getch();

}while(ch=='y'||ch=='Y');

getch();

break;

case 2 :

printf("\n---- Select the Operation ----\n");

printf("1. Insert at Rear\n2. Insert at Front\n3. Delete\n4. Display");

do

{

printf("\nEnter your choice for the operation: ");

scanf("%d",&choice2);

switch(choice2)

{

case 1:

enQueueRear(value);

display();

break;

case 2:

enQueueFront(value);

display();

break;

case 3:

value = deQueueFront();

printf("\nThe value deleted is %d",value);

display();

break;

case 4:

display();

break;

default:

printf("Wrong choice");

}

printf("\nDo you want to perform another operation (Y/N): ");

ch=getch();

} while(ch=='y'||ch=='Y');

getch();

break ;

}

printf("\nDo you want to continue(y/n):");

ch=getch();

}while(ch=='y'||ch=='Y');

}

void enQueueRear(int value)

{

char ch;

if(front == SIZE/2)

{

printf("\nQueue is full!!! Insertion is not possible!!! ");

return;

}

do

{

printf("\nEnter the value to be inserted:");

scanf("%d",&value);

queue[front] = value;

front++;

printf("Do you want to continue insertion Y/N");

ch=getch();

}while(ch=='y');

}

void enQueueFront(int value)

{

char ch;

if(front==SIZE/2)

{

printf("\nQueue is full!!! Insertion is not possible!!!");

return;

}

do

{

printf("\nEnter the value to be inserted:");

scanf("%d",&value);

rear--;

queue[rear] = value;

printf("Do you want to continue insertion Y/N");

ch = getch();

}while(ch == 'y');

}

int deQueueRear()

{

int deleted;

if(front == rear)

{

printf("\nQueue is Empty!!! Deletion is not possible!!!");

return 0;

}

front--;

deleted = queue[front+1];

return deleted;

}

int deQueueFront()

{

int deleted;

if(front == rear)

{

printf("\nQueue is Empty!!! Deletion is not possible!!!");

return 0;

}

rear++;

deleted = queue[rear-1];

return deleted;

}

void display()

{

int i;

if(front == rear)

printf("\nQueue is Empty!!! Deletion is not possible!!!");

else

{

printf("\nThe Queue elements are:");

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

{

printf("%d\t ",queue[i]);

}

}

}

OUTPUT:

