**Q. WAP to implement double ended queue (de queue) using arrays.**

#include <stdio.h>

#include<stdlib.h>

int queue[100],size;

int front=-1,rear=-1,i;

int x;

void InsertFront()

{

if(front==size-1)

{

printf("OVERFLOW");

}

else if(front==-1)

{

printf("Enter element : ");

scanf("%d",&x);

front++;

rear++;

queue[rear]=x;

}

else

{

printf("Enter element : ");

scanf("%d",&x);

front--;

queue[rear]=x;

}

}

void InsertRear()

{

if (rear==size-1)

{

printf("OVERFLOW");

}

else if (front==-1 && rear==-1)

{

printf("Enter element : ");

scanf("%d",&x);

front=0;

rear=0;

queue[rear]=x;

}

else

{

printf("Enter element : ");

scanf("%d",&x);

rear++;

queue[rear]=x;

}

}

void DeleteFront()

{

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

{

printf("UNDERFLOW");

}

else if(front==rear)

{

front=-1;

rear=-1;

}

else

{

front++;

}

}

void DeleteRear()

{

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

{

printf("UNDERFLOW");

}

else if(rear==front)

{

front=-1;

rear=-1;

}

else

{

rear--;

}

}

void display()

{

int i=0;

printf("Your queue contains : \n");

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

{

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

}

}

void peek()

{

printf("The element at the front of the queue : %d\n",queue[front]);

printf("The element at the front of the queue : %d\n",queue[rear]);

}

int main()

{

int opt,choice;

printf("Enter size of queue : ");

scanf("%d",&size);

for (i=1;i<=size;i++)

{

InsertRear();

}

display();

while(1)

{

printf("\nMENU : 1-InsertFront, 2-InsertRear, 3-DeleteFront, 4-DeleteRear, 5-Peek, 6-Exit");

printf("\nEnter your choice : ");

scanf("%d",&choice);

switch(choice)

{

case 1 : {

InsertFront();display();

break;

}

case 2 : {

InsertRear();display();

break;

}

case 3 : {

DeleteFront();display();

break;

}

case 4 : {

DeleteRear;display();

break;

}

case 5 : {

peek();

break;

}

case 6 : {

exit(1);

break;

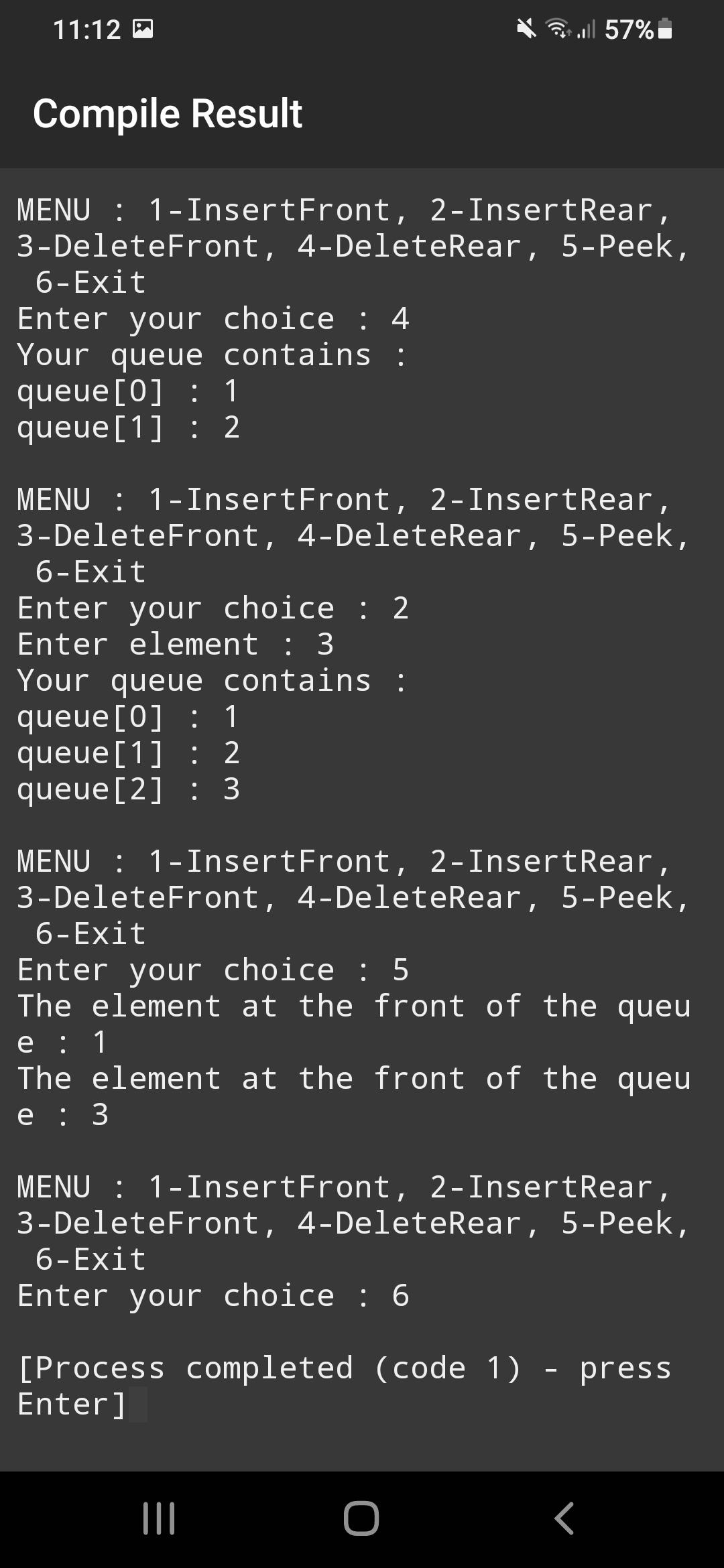
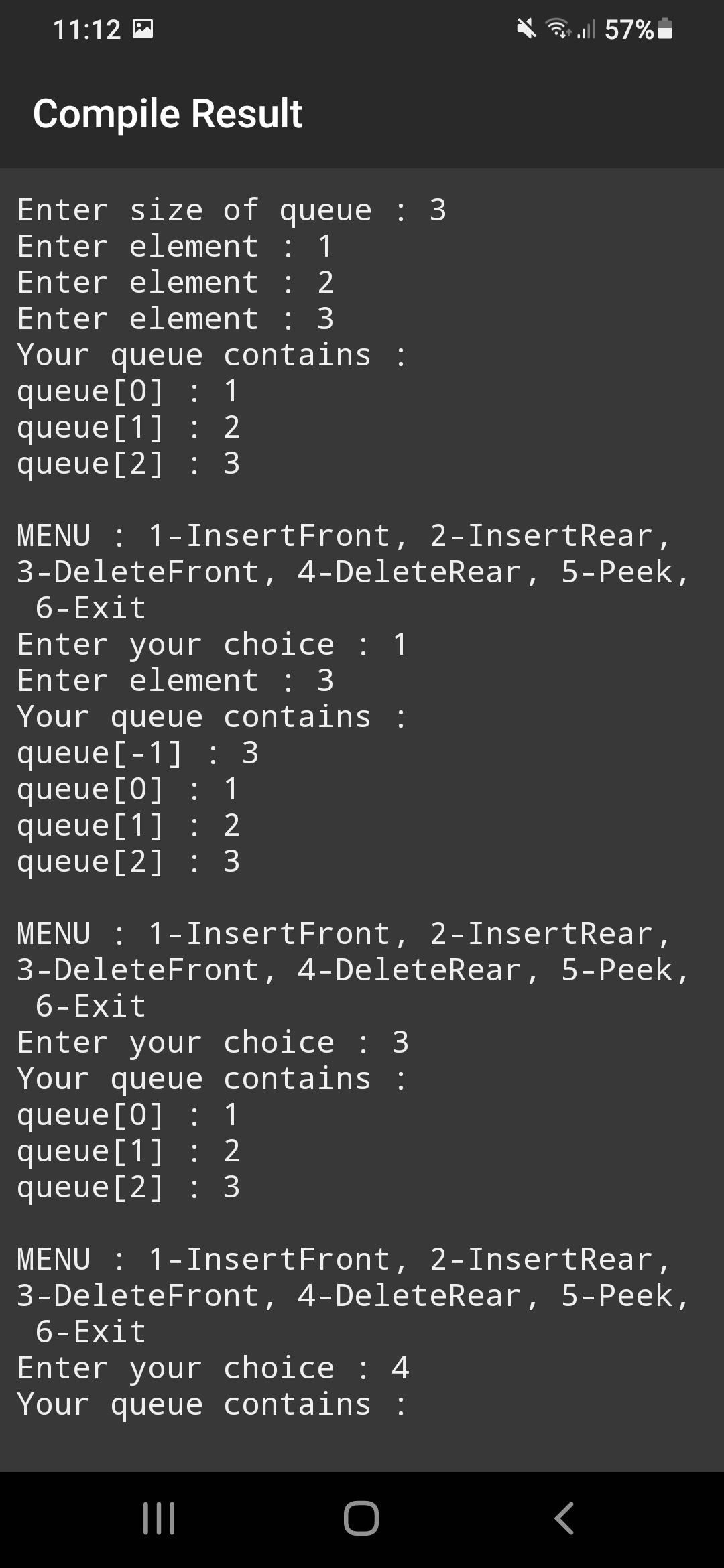
}

}

}

}

**OUTPUT :**

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