

Pradnyesh Kamble  
Syt 22

```
#include<stdio.h>
```

```
#define SIZE 5
```

```
int q[SIZE], front = -1, rear = -1, c, n;
```

```
void input_dq();
```

```
void output_dq();
```

```
void insertf();
```

```
void insertr();
```

```
void deletef();
```

```
void deleter();
```

```
void display();
```

```
int main() {
```

```
do {
```

```
printf("Menu:\n1.Input Restricted Deque\t2.Output  
Restricted Deque\t3.Exit\nEnter choice of
```

```
deque:");
```

```
scanf("%d", &c);
```

```
switch (c) {
```

```
case 1:
```

```
input_dq();
```

```
break;
```

```
case 2:
```

```
output_dq();
```

```
break;
```

```
case 3:
```

```
return 0;
```

```
default:
```

```
printf("Invalid Choice\n");
```

```
}
```

```
} while (c != 3);
```

```
return 0;
```

```
}
```

```
void input_dq() {
```

```
do {
```

```
    printf("Input Restricted Deque:\n1.Insert at rear\t2.Delete at  
front\t3.Delete at rear\t4.Display\t5.Exit\nEnter operation:");
```

```
    scanf("%d", &c);
```

```
    switch (c) {
```

```
        case 1:
```

```
            insertr();
```

```
            break;
```

```
        case 2:
```

```
            deletef();
```

```
            break;
```

```
if (front == -1) {  
  
    printf("Underflow\n");  
  
} else {  
  
    printf("Deleted element is %d\n", q[front]);  
  
    if (front == SIZE - 1) {  
  
        front = 0;  
  
    } else {  
  
        front++;  
  
    }  
  
}  
  
}  
  
void display() {  
  
    int i, j;  
  
    i = front;  
  
    j = rear;
```

```
if (i == -1) {  
  
    printf("Queue is Empty\n");  
  
} else {  
  
    printf("Queue is:\n");  
  
    if (i <= j) {  
  
        while (i <= j) {  
  
            printf("%d\n", q[i]);  
  
            i++;  
  
        }  
  
    } else {  
  
        while (i <= SIZE - 1) {  
  
            printf("%d\n", q[i]);  
  
            i++;  
  
        }  
  
        for (i = 0; i <= j; i++) {
```

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

```
}
```

```
}
```

```
}
```

```
}
```

```
Input Restricted Deque:
1.Insert at rear      2.Delete at front      3.Delete at rear      4.Display      5.Exit
Enter operation:1
Enter number to insert:333
Input Restricted Deque:
1.Insert at rear      2.Delete at front      3.Delete at rear      4.Display      5.Exit
Enter operation:4
Queue is:
234
333
Input Restricted Deque:
1.Insert at rear      2.Delete at front      3.Delete at rear      4.Display      5.Exit
Enter operation:2
Deleted element is 234
Input Restricted Deque:
1.Insert at rear      2.Delete at front      3.Delete at rear      4.Display      5.Exit
Enter operation:5
Menu:
1.Input Restricted Deque      2.Output Restricted Deque      3.Exit
Enter choice of deque:2
Output Restricted Deque:
1.Insert at front      2.Insert at rear      3.Delete at rear      4.Display      5.Exit
Enter operation:1
Enter number to insert:235
Output Restricted Deque:
1.Insert at front      2.Insert at rear      3.Delete at rear      4.Display      5.Exit
Enter operation:3
Deleted element is 333
Output Restricted Deque:
1.Insert at front      2.Insert at rear      3.Delete at rear      4.Display      5.Exit
Enter operation:1
Enter number to insert:290
Output Restricted Deque:
1.Insert at front      2.Insert at rear      3.Delete at rear      4.Display      5.Exit
Enter operation:4
Queue is:
290
235
Output Restricted Deque:
1.Insert at front      2.Insert at rear      3.Delete at rear      4.Display      5.Exit
Enter operation:5
Menu:
1.Input Restricted Deque      2.Output Restricted Deque      3.Exit
Enter choice of deque:3
d1041801@ade1n:~$ ./a.out
```

```
Menu:
1.Input Restricted Deque      2.Output Restricted Deque      3.Exit
Enter choice of deque:1
Input Restricted Deque:
1.Insert at rear      2.Delete at front      3.Delete at rear      4.Display      5.Exit
Enter operation:1
Enter number to insert:234
Input Restricted Deque:
1.Insert at rear      2.Delete at front      3.Delete at rear      4.Display      5.Exit
Enter operation:1
Enter number to insert:333
Input Restricted Deque:
1.Insert at rear      2.Delete at front      3.Delete at rear      4.Display      5.Exit
Enter operation:4
Queue is:
234
333
Input Restricted Deque:
1.Insert at rear      2.Delete at front      3.Delete at rear      4.Display      5.Exit
Enter operation:2
Deleted element is 234
Input Restricted Deque:
1.Insert at rear      2.Delete at front      3.Delete at rear      4.Display      5.Exit
Enter operation:5
Menu:
1.Input Restricted Deque      2.Output Restricted Deque      3.Exit
Enter choice of deque:2
Output Restricted Deque:
1.Insert at front      2.Insert at rear      3.Delete at rear      4.Display      5.Exit
Enter operation:1
Enter number to insert:235
Output Restricted Deque:
1.Insert at front      2.Insert at rear      3.Delete at rear      4.Display      5.Exit
Enter operation:3
Deleted element is 333
Output Restricted Deque:
1.Insert at front      2.Insert at rear      3.Delete at rear      4.Display      5.Exit
Enter operation:1
Enter number to insert:290
Output Restricted Deque:
1.Insert at front      2.Insert at rear      3.Delete at rear      4.Display      5.Exit
Enter operation:1
```