IT DS 201 LAB

SUBMITTED BY ADITYA SINGH 2K19/EP/005

Program 10 : Write a program to reverse the first k elements of a given Queue.

CODE

```
void reverseK(int k, queue<int>& Queue){
    if (Queue.empty() == true || k > Queue.size()) return;
    if (k <= 0)return;

    stack<int> Stack;

    for (int i = 0; i < k; i++) {
        Stack.push(Queue.front());
        Queue.pop();
    }
    while (!Stack.empty()) {
        Queue.push(Stack.top());
        Stack.pop();
    }
    for (int i = 0; i < Queue.size() - k; i++) {
        Queue.push(Queue.front());
        Queue.pop();
    }
}

void Print(queue<int>& Queue){
    while (!Queue.empty()) {
        cout << Queue.front() << " ";
        Queue.pop();
    }
}
```

ALGORITHM

1. Create an empty stack.
2. One by one dequeue first K items from the given queue and push the dequeued items to stack.
3. Enqueue the contents of stack at the back of the queue
4. Dequeue (size-k) elements from the front and enque them one by one to the same queue.

INPUT/OUTPUT

```
int main(){
    queue<int> Queue;
    Queue.push(1);
    Queue.push(2);
    Queue.push(3);
    Queue.push(4);
    Queue.push(5);
    Queue.push(6);

    reverseK(4, Queue);
    Print(Queue);
}
```

```
4 3 2 1 5 6 [Finished in 1.3s]
```

Line 28, Column 6

END

Program 11 : Write a program to check whether the given string is Palindrome or not using DEQUE.

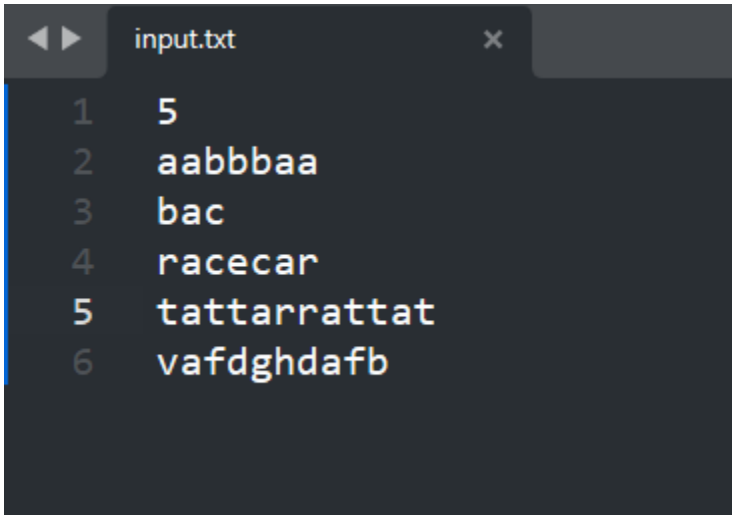
CODE

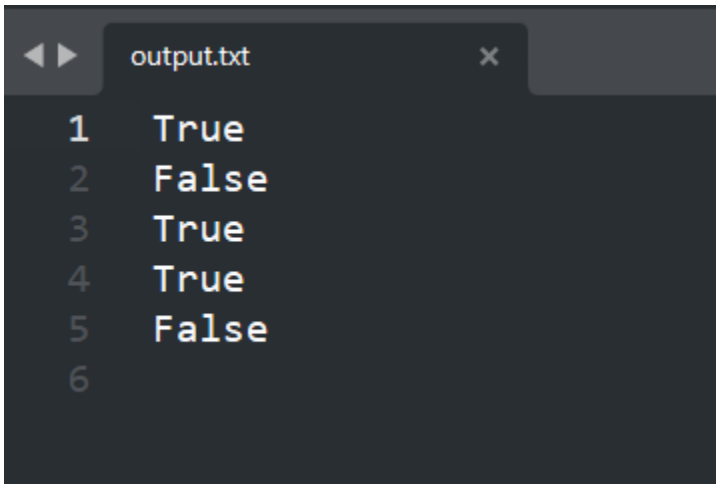
```
void solve() {
    string s;
    cin>>s;
    deque<char> dq;

    for(int i=0; i<s.length(); i++){
        dq.push_back(s[i]);
    }
    while(dq.size()>1){
        char front = dq.front();
        char rear = dq.back();
        if(front!=rear){
            cout<<"False\n";
            return;
        }
        dq.pop_front();
        dq.pop_back();
    }
    cout<<"True\n";
}
```

ALGORITHM

1. Create an empty Deque of type char.
2. One by one insert characters of string in deque.
3. Check the front and back characters of deque, if they are not equal return false.
4. Pop both characters from the front and back of deque.

INPUT/OUTPUT





END