Assignment Solutions | Queue-2 | Week 16

1. Remove last k elements of a queue.

Sol:

```
#include<bits/stdc++.h>
using namespace std;
int main() {
    int n, k;
    cin >> n >> k;
    queue<int> q;
    for (int i = 0 ; i < n; i++) {
        int val;cin >> val;q.push(val);
    }
    int o = n - k;
    while (o--) {
        q.push(q.front());
        q.pop();
    }
    while (k--) {
        q.pop();
    }
    while (q.size()) {
        cout << q.front() << " ";
        q.pop();
    }
}
```

2. Find the Winner of the Circular Game [Leetcode - 1823]

Sol:

```
class MyStack {
    queue<int> q1;
    queue<int> q2;
public:
    MyStack() {
    }
    void push(int x) {
        //keep 'x' at the front of q1
        while(!q1.empty()){
            int val = q1.front();
            q1.pop();
            q2.push(val);
        }
        q1.push(x);
         while(!q2.empty()){
            int val = q2.front();
            q2.pop();
            q1.push(val);
        }
    }
```

```
int pop() {
        int ans = q1.front();
        q1.pop();
        return ans;
    }
int top() {
        return q1.front();
    }
bool empty() {
        if(q1.empty())
            return true;
        else
            return false;
    }
```

3. Find the Winner of the Circular Game [Leetcode - 1823]
   Sol:

```
class Solution {
public:
    int findTheWinner(int n, int k) {
        queue<int>q;
        for(int i=1;i<=n;i++){
            q.push(i);
        }
        while(q.size()>1){
            int x=k;
            while(x>1){
                int f=q.front();
                q.pop();
                q.push(f);
                x--;
            }
            q.pop();
        }
        return q.front();
    }
};
```
