



**DISBELIEF**

# Algorithm Magic

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# std.hpp

```
#include <vector>
#include <random>
#include <iostream>
#include <algorithm>
#include <iterator>
#include <numeric>
#include <cassert>
using namespace std;
```

```

#include "std.hpp"
int main() {
    vector<int> cards(24); iota(cards.begin(),cards.end(),0);
    mt19937 r(random_device{}()); shuffle(cards.begin(),cards.end(),r);
    int U; cin>>U; cout<<"cards["<<U<<"]: "; U = cards[U]; cout<<U<<"\n";
    shuffle(cards.begin(),cards.end(),r);
    for (int i: {0,1,2}) {
        vector<int> decks[4];
        accumulate(cards.begin(),cards.end(),0,[&](int d, int c) {
            decks[d%4].insert(decks[d%4].begin(),c); return (d+1)%4; });
        int d = distance(decks, find_if(decks,decks+4,
            [&](auto &x) { return count(x.begin(),x.end(),U) > 0; }));
        cards.clear(); for (int i: {d,d+1,d+2,d+3}) {
            move(decks[i%4].begin(),decks[i%4].end(),back_inserter(cards)); }
    }
    cout<<cards[4]<<" == "<<U<<"\n"; assert(cards[4] == U);
}

```

# Thank you!

## Disbelief

- We're a games consultation company based out of Cambridge, MA and Chicago, IL.
- We've done AAA development, VR, AR and console development.
- Notable projects we've worked on include Borderlands 3, Gears 5, Borderlands 2 VR, Gears of War 4, Perception, Robo Recall, Torn, Gears of War: Ultimate Edition, Oculus Dreamdeck, Borderlands: The Handsome Collection.
- We're always in the lookout for all levels of developers.

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