

```

1 // Max Flow:
2 // Adjacency list implementation of Dinic's blocking flow algorithm.
3 // This is very fast in practice, and only loses to push-relabel flow.
4 //
5 // Running time:
6 //  $O(|V|^2 |E|)$ 
7 //
8 // INPUT:
9 // - graph, constructed using AddEdge()
10 // - source
11 // - sink
12 //
13 // OUTPUT:
14 // - maximum flow value
15 // - To obtain the actual flow values, look at all edges with
16 // capacity > 0 (zero capacity edges are residual edges).
17 #include <bits/stdc++.h>
18 using namespace std;
19 #define clr(a) (a.clear())
20 #define sz(x) (int)x.size()
21 #define pb push_back
22 const int INF = 2000000000;
23
24 struct Edge {
25     int from, to, cap, flow, index;
26     Edge(int from, int to, int cap, int flow, int index) :
27         from(from), to(to), cap(cap), flow(flow), index(index) {}
28 };
29 struct Dinic{
30     int N;
31     vector< vector<Edge> > G;
32     vector<Edge *> dad;
33     vector<int> Q;
34
35     Dinic(int N) : N(N), G(N), dad(N), Q(N) {}
36
37     void AddEdge(int from, int to, int cap) {
38         G[from].push_back(Edge(from, to, cap, 0, G[to].size()));
39         if (from == to) G[from].back().index++;
40         G[to].push_back(Edge(to, from, 0, 0, G[from].size()-1));
41     }
42
43     long long BlockingFlow(int s, int t) {
44         fill(dad.begin(), dad.end(), (Edge *) NULL);
45         dad[s] = &G[0][0] - 1;
46
47         int head = 0, tail = 0;
48         Q[tail++] = s;
49         while (head < tail) {
50             int x = Q[head++];
51             for (int i = 0; i < G[x].size(); i++) {
52                 Edge &e = G[x][i];
53                 if (!dad[e.to] && e.cap - e.flow > 0) {
54                     dad[e.to] = &G[x][i];
55                     Q[tail++] = e.to;
56                 }
57             }
58         }
59         if (!dad[t]) return 0;
60
61         long long totflow = 0;
62         for (int i = 0; i < G[t].size(); i++) {
63             Edge *start = &G[G[t][i].to][G[t][i].index];
64             int amt = INF;
65             for (Edge *e=start; amt && e!=dad[s]; e=dad[e->from]){
66                 if (!e) {
67                     amt = 0;
68                     break;
69                 }
70                 amt = min(amt, e->cap - e->flow);
71             }

```

```

72         if (amt == 0) continue;
73         for (Edge *e=start; amt&&e!=dad[s]; e=dad[e->from]){
74             e->flow += amt;
75             G[e->to][e->index].flow -= amt;
76         }
77         totflow += amt;
78     }
79     return totflow;
80 }
81
82 long long GetMaxFlow(int s, int t) {
83     long long totflow = 0;
84     while (long long flow = BlockingFlow(s, t))
85         totflow += flow;
86     return totflow;
87 }
88 };
89 int main(){
90     int n, m; cin >> n >> m;
91     vector <int> a(n + 1), b(n + 1);
92
93     int tot1 = 0;
94     for (int i = 1; i <= n; i++) {
95         cin >> a[i];
96         tot1 += a[i];
97     }
98
99     int tot2 = 0;
100    for (int i = 1; i <= n; i++) {
101        cin >> b[i];
102        tot2 += b[i];
103    }
104    int src = 0, snk = n + n + 1;
105
106    Dinic din(n + n + 2);
107
108    for (int i = 1; i <= n; i++) {
109        din.AddEdge(src, i, a[i]);
110        din.AddEdge(i, i + n, INF);
111    }
112    for (int i = 1; i <= n; i++) {
113        din.AddEdge(i + n, snk, b[i]);
114    }
115    for (int i = 0; i < m; i++) {
116        int from, to; cin >> from >> to;
117        din.AddEdge(from, to + n, INF);
118        din.AddEdge(to, from + n, INF);
119    }
120
121    int Flow = din.GetMaxFlow(src, snk);
122
123    if (Flow == tot1 && Flow == tot2) {
124        cout << "YES" << endl;
125        int ans[n + 1][n + 1];
126        memset (ans, 0, sizeof ans);
127        for (int i = 1; i <= n; i++) {
128            for (int j = 0; j < sz(din.G[i]); j++) {
129                int to = din.G[i][j].to - n;
130                if (to >= 1 && to <= n) {
131                    ans[i][to] = din.G[i][j].flow;
132                }
133            }
134        }
135        for (int i = 1; i <= n; i++) {
136            for (int j = 1; j <= n; j++) {
137                cout << ans[i][j] << ' ';
138            }
139            cout << endl;
140        }
141    } else {
142        cout << "NO" << endl;
143    }
144 }

```