

E4-F 题题解

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最大流模板题

完整代码

```
class Dinic {
public:
    const long long inf = 1e18;

    struct Edge {
        int from, to;
        long long cap, flow;
        Edge(int u, int v, long long c, long long f) : from(u), to(v), cap(c), flow(f) {}
    };

    int n, m;
    vector<Edge> es;
    vector<vector<int>> g;
    vector<int> d;
    vector<int> cur;
    vector<bool> vis;

    Dinic(int _n, int _m) : n(_n), m(_m) {
        g.resize(n);
        d.resize(n);
        cur.resize(n);
        vis.resize(n);
    }

    void add(int from, int to, long long cap) {
        es.push_back(Edge(from, to, cap, 0));
        es.push_back(Edge(to, from, 0, 0));
        int sz = es.size();
        g[from].push_back(sz - 2);
        g[to].push_back(sz - 1);
    }

    bool bfs(int s, int t) {
        fill(vis.begin(), vis.end(), false);
        queue<int> q;
```

```

q.push(s);
d[s] = 0;
vis[s] = true;
while (!q.empty()) {
    int x = q.front(); q.pop();
    for (int id : g[x]) {
        Edge& e = es[id];
        if (!vis[e.to] && e.cap > e.flow) {
            vis[e.to] = true;
            d[e.to] = d[x] + 1;
            q.push(e.to);
        }
    }
}
return vis[t];
}

long long dfs(int x, long long a, int t) {
    if (x == t || a == 0) return a;
    long long ans = 0;
    long long f;
    for (int &i = cur[x]; i < (int) g[x].size(); i++) {
        Edge &e = es[g[x][i]];
        if (d[x] + 1 == d[e.to] && (f = dfs(e.to, min(a, e.cap - e.flow), t)) > 0) {
            e.flow += f;
            es[g[x][i] ^ 1].flow -= f;
            ans += f;
            a -= f;
            if (a == 0) break;
        }
    }
    return ans;
}

long long get(int s, int t) {
    long long ans = 0;

```

```
while (bfs(s, t)) {  
    fill(cur.begin(), cur.end(), 0);  
    ans += dfs(s, inf, t);  
}  
return ans;  
}  
};
```