

# 判负环

**Idea:** 进行 SPFA，若一个点入队超过  $n$  次，则必定存在负环。

**Complexity:** Worst-Case:  $O(VE)$

**Code:**

```
1 LL dis[N];
2 bool inq[N];
3 int cnt[N];
4 bool SPFA(int s){
5     for(int i = 1; i <= n; i++)
6         dis[i] = INF, cnt[i] = 0, inq[i] = false;
7     queue<int> q;
8     dis[s] = 0, q.push(s), inq[s] = 1, cnt[s]++;
9     while(!q.empty()){
10         int cur = q.front(); q.pop();
11         inq[cur] = 0;
12         for(auto &to : edge[cur]){
13             if(dis[to.first] > dis[cur] + to.second){
14                 dis[to.first] = dis[cur] + to.second;
15                 if(!inq[to.first]){
16                     q.push(to.first);
17                     inq[to.first] = 1;
18                     if(++cnt[to.first] > n) return false;
19                 }
20             }
21         }
22     }
23     return true;
24 }
```