Baseball Elimination

Flow Network Representation

Input File

As shown in the figure below this is the input file used in the program. The first line contains the number of teams in the table. Then, each line contains the following: the team's name, number of wins, losses, number of remaining games, and the number of games to be played against each of the remaining teams.

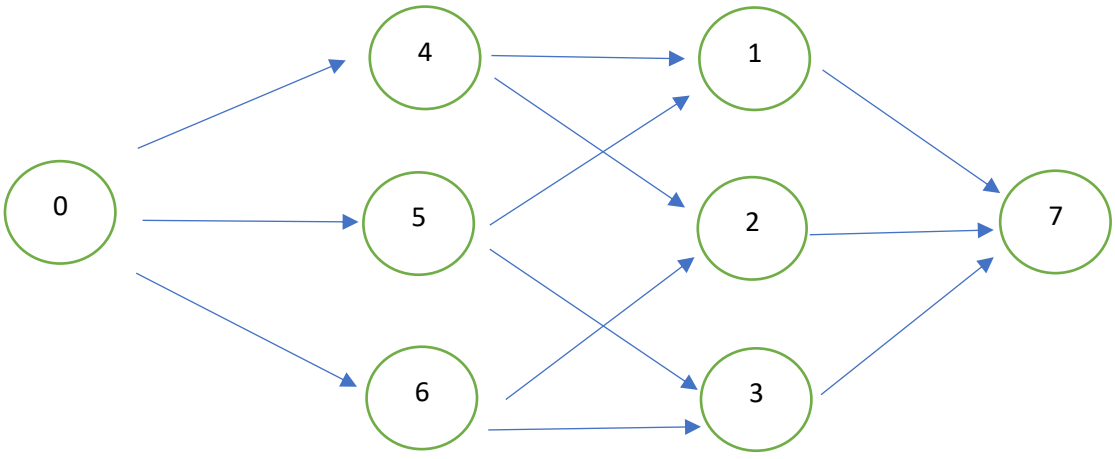
```
4
Atlanta         83 71 8 0 1 6 1
Philadelphia    80 79 3 1 0 0 2
New_York        78 78 6 6 0 0 0
Montreal        77 82 3 1 2 0 0
```

Flow Network

To solve this problem, which is to know if a team is to be eliminated from the race of winning the league, a flow network is built, and the max flow is computed. If all the edges from the source are saturated after getting the max flow, the team will not be eliminated.

To construct the flow network, there are vertices for each team except the team that we are checking, then there are vertices for each pair of these teams to specify a game to be played, finally there are the source and the target vertices.

So, the flow network constructed in my program for the previous input file has the following representation.



The vertices from 1 to 3 represent the teams in the table except the team that is checked. Those from 4 to 6 represent the games to be played. For example, vertex 4 represent the game between team 1 and team 2, vertex 5 represent the game between 2 and 3. Finally, vertex 0 is the source and vertex 7 is the target.

The edges from the source to each game vertices have a capacity equal the number of remaining games between these 2 teams, those from the team vertices to the target have a capacity equal to the number of game that this team can win and the team to be checked will still have more wins assuming that it won all its remaining games. Finally the edges from the game vertices are connected to both team that participate in that game and their capacity equals infinity.