HW5 Social Network Analysis

http://acm.cs.nthu.edu.tw/problem/11468

Social Network

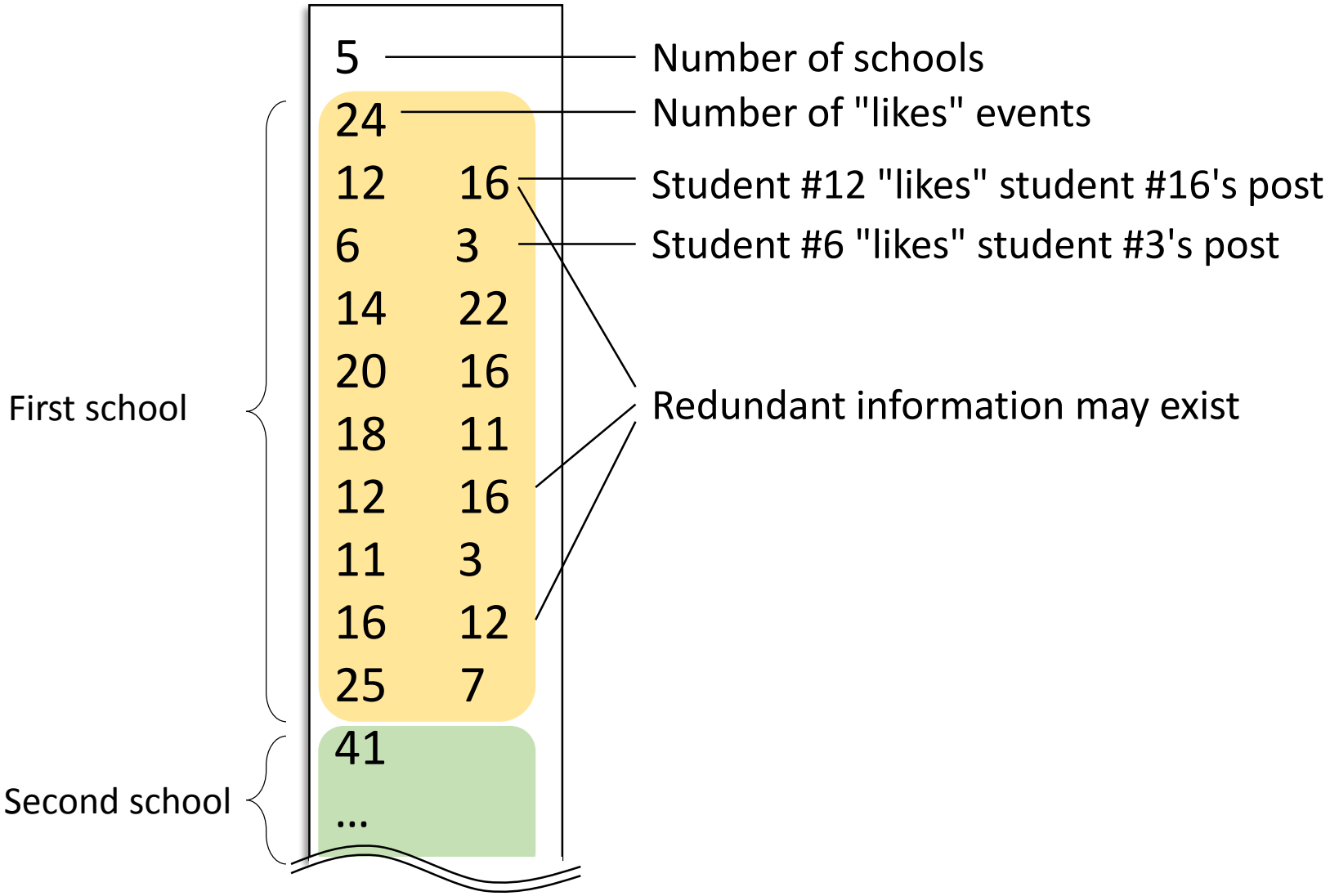
- Valuable information among people that advertising companies want to analyze

Social Network

- Advertising companies can observe 

("likes") among students
- If one student "likes" another student's post, the company can assume that there is a friendship connection in between

Input


5
24
12 16
6 3
14 22
20 16
18 11
12 16
11 3
16 12
25 7
41
...
Number of schools
Number of "likes" events
Student #12 "likes" student #16's post
Student #6 "likes" student #3's post
Redundant information may exist
First school
Second school

Output

School index (0-based)

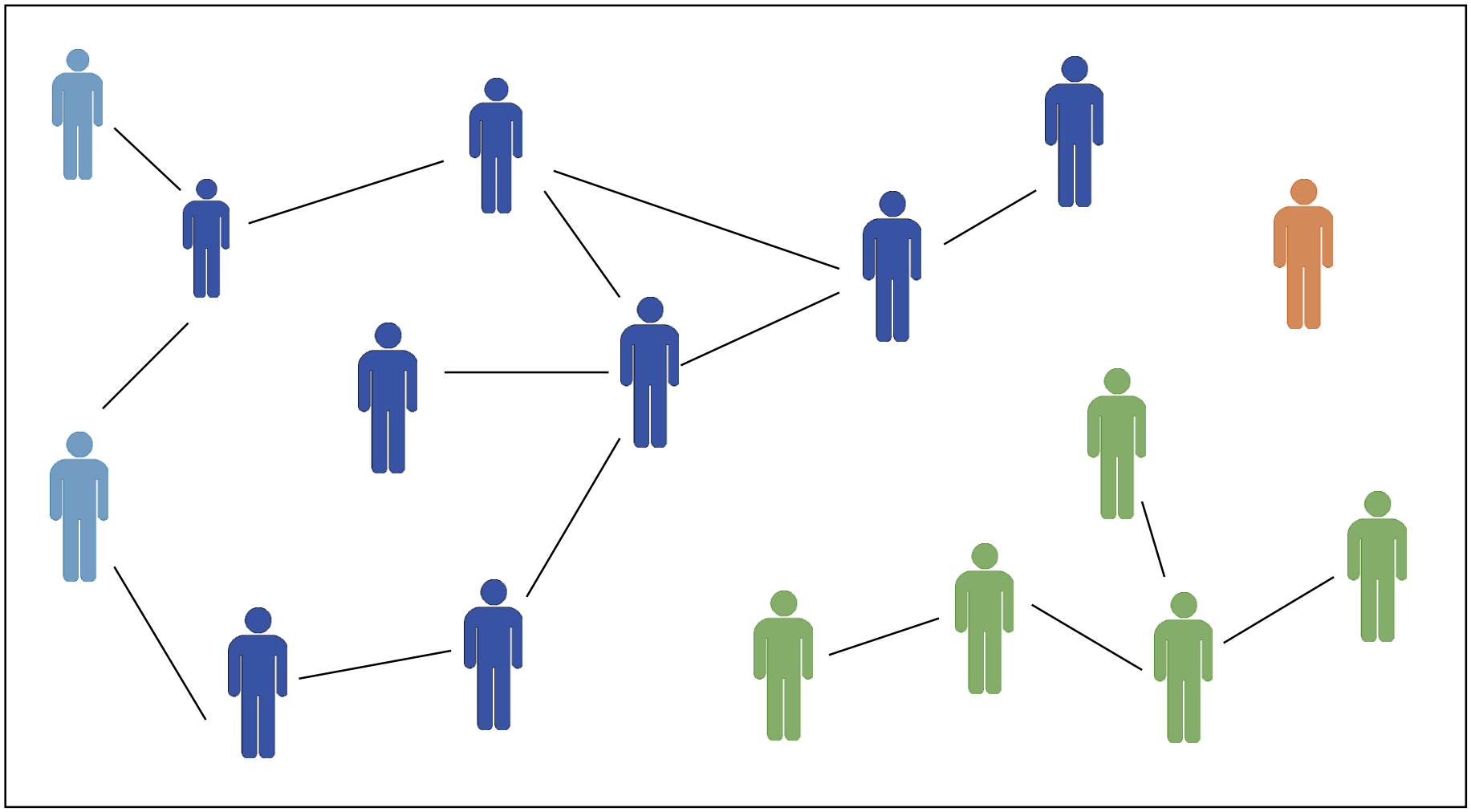
```
School 0
- Number of students                : 24
- Number of friendship connections  : 23
- Average friends per student       : 0.958
- Max. friends per student          : 6
- Max. depth-2 friendship group     : 11
- Number of separate groups         : 3
School 1
… …
```

Total number of observed different students in the school

Total number of non-redundant friendship connections

"Depth-2 friendship group" means a group of a student, his/her friends, and the friends of his/her friends.

Number of student groups without any direct or indirect friendship connections in between.



In the above example

- Max. depth-2 friendship group = 8 (the dark blue group)
- Number of separate groups = 3

Hint

- C++ STL is extremely handy tools
  - vector, map, set, queue, stack, etc.
  - 中文教學
    - http://larry850806.github.io/2016/06/06/STL1/
    - http://larry850806.github.io/2016/06/06/STL2/
  - Other references
    - http://www.cplusplus.com/reference/stl/
  - Please refer to main.cpp, which already finished a portion of this assignment using STL
    - 不規定使用STL，但非常鼓勵大家學。它會讓解題變簡單。

Grading

- By default 50 + 5 * the number of passed test cases
  - +10% bonus if you complete the homework by 6/4
  - Due 6/18
- 0 credit for all similar (i.e., plagiarized) codes (no matter which one is original)
  - Don't ask others for codes
  - Don't directly copy codes on the Internet
  - Don't submit others' codes to either iLMS or Online Judge
  - Don't publish your codes or give your codes to others