CSE2011 Problem Solving, 2016 Spring

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Project 2 (200 points): 2016/5/10

Due date: 2016/5/31 Tuesday 23:59 (submission to icampus)

This project is an individual project, not a group project.

Project 2: Points for soccer teams

A soccer league has 20 teams, and each team plays 19 games—once with all other teams. Each team gets A points when it wins, B points when it ties, and C points when it is defeated. For given A, B and C, we want to know all the game results that yield the maximum/minimum points of a team with the D^{th} largest scores.

<Input>

There are four integer values: A, B, C, and D.

A: the amount of points when a team wins (0 <= A, B, C <=5)

B: the amount of points when a team ties (0 <= A, B, C <=5)

C: the amount of points when a team loses (0 <= A, B, C <= 5)

(Note that there is no relationship among A, B and C. For example, it is possible that A < B and B < C).

D: target ranking (1~20)

E: 0 (minimum) or 1 (maximum).

For example, if the input is 3 1 0 5 0,

- Each team gets 3 points when it wins;
- Each team gets 1 point when it draws; and
- Each team gest 0 point when it loses;
- The output shows all the game results that yield the minimum points of a team with the 5th highest points.

<Output>

There should be 20 lines; each line show results of each team. For example, if the 3rd line is "WLXTTTTTTTTTTTTTTTT",

- Team 3 defeats Team 1 (W); Team 3 is defeated by Team 2 (L); and Team 3 ties with Teams 4~20 (T).

<Sample input>

3 1 0 5 0

<Sample output> (Note that the below output does not yield the minimum.)

XWTTTTTTTTTTTTTTTTT

LXTTTTTTTTTTTTTTTTT

TTXTTTTTTTTTTTTTTTT

TTTXTTTTTTTTTTTTTTT

TTTTXTTTTTTTTTTTTTT

TTTTTXTTTTTTTTTTTTT

TTTTTTXTTTTTTTTTTTT

TTTTTTTXTTTTTTTTTTT

TTTTTTTTXTTTTTTTTTT

TTTTTTTTTXTTTTTTTTT

TTTTTTTTTTXTTTTTTTTT

TTTTTTTTTTTXTTTTTTTT

TTTTTTTTTTTTXTTTTTTT

TTTTTTTTTTTTTXTTTTTT

TTTTTTTTTTTTTTXTTTTT

TTTTTTTTTTTTTTTXTTTT

TTTTTTTTTTTTTTTTXTTT

TTTTTTTTTTTTTTTTTXTT

TTTTTTTTTTTTTTTTTTXT

TTTTTTTTTTTTTTTTTTTX

In your code:

- Insert comments to your code.
- TA will test your program in http://ideone.com/
- There is no template, but you may use the attached program for validity check.
- 160 points; 10 test cases * 15 points (1 points for validity, 14 points for min/max points), 10 points for comments
- You program should show output within 10 seconds in ideone.com.

In your report:

- Explain how you solve and implement the problem.
- 40 points