

50% rule should be changed

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Introduction

♣ 50% rule

- ♣ 50% of test cases will have low restrictions
- ♣ 50% of test cases will have big restrictions to check the efficiency of participant's solution.

♣ Score distribution (should be)

- ♣ 50% for correct-but-inefficient solutions
- ♣ 100% for correct-and-optimal solutions
- ♣ From 50% to 100% for other correct solutions

Before and after

♣ Before 2004

- ♣ 20% of test cases were designed for inefficient-and-correct solutions
- ♣ Lots of participants got low score

♣ After 2004

- ♣ Every participant can get 50% coding simple solution
- ♣ Some participants think that their efficient solutions get not enough score

Problem #1

- ♣ Writing ineffective solution is much simpler than effective one.
- ♣ Time for finding ineffective solution is small, but for effective one it's unpredictable.
- ♣ Time for coding effective solution is TREE times greater than the one for ineffective one.

Problem #2

- ♣ If participant adds optimizations he/she gets more than 50%
- ♣ Participants who write ineffective solutions have time to think about optimizations and implement them.
- ♣ While implementing ineffective solutions some evident optimizations come in mind.
- ♣ Usually participants who write ineffective solutions get more than 50% of score

Problem #3

- ♣ Coming up with previous two problems we can see unfair score distribution
- ♣ Score difference between effective and ineffective solutions is too small.

Problem #4

- ♣ 50% rule encourages participants to write ineffective solutions
 - ♣ Bugs probability decreases
 - ♣ 1 optimal solution is worse than 2 ineffective ones. (i.e. $100 < 60+60$)
 - ♣ 2 optimal solutions could be worse than 3 ineffective ones. (i.e. $100+100 < 70+70+70$)

Problem #5

- ♣ 50% rule can confuse participants
 - ♣ It's only clear that participant who writes ineffective solutions gets at least 50% and at most 100%.
 - ♣ Two independent test case systems can award to one program significantly different score.

New rule proposal

- ♣ Score for inefficient programs should be reduced to 30-35%
- ♣ 30-35% of test cases should be designed for optimal solutions only

Why 30-35%?

- ♣ Before was 20%, now is 50%. Let's use average value.
- ♣ Let's divide test cases into tree parts: one that tests inefficient solutions, another that tests optimal ones, and the third that tests intermediate solutions.

Advantages

- ♣ Score distribution will be more fair.
- ♣ Participants encourage to write efficient programs
- ♣ Participants can determine their score more precisely

Summary

- ♣ Two participant's purposes
 - ♣ To solve more problems
 - ♣ To get more points
- ♣ We have a good contest when these purposes are equivalent.