

Science in a Competitive Format

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stepik.org

May 22, 2017



Motivation

- ▶ Most of the talented contestants later go to work in big companies.
- ▶ They are not aware of the science path.
- ▶ Science proposes an enormous number of algorithmic problems.

- ▶ On the intersection of biology and informatics.
- ▶ Helps to resolve a lot of health issues and to deeply understand the human body.
- ▶ Consequently, save lives.

Type of proposed problems

- ▶ ACM-style problems.
- ▶ Marathon-style problems. Closer to real problems.
- ▶ Without ACM problems would be harder to lure contestants.
- ▶ Topcoder statistics. For the last year 508 people on average participate in SRMs and 51 persons participate in Marathon matches.

ACM-style problems

- ▶ Problems with known algorithm solutions.
- ▶ You have to submit the code or the exact answer.
- ▶ Easy and hard versions.

Marathon-style problems

- ▶ For all our problems we know the exact answer.
- ▶ Challenge 24 has taken as a basis. Only 6-10 tests.
 - ▶ 1-2 tests could be done by hand.
 - ▶ 1-2 tests — by bruteforce.
 - ▶ Other tests sometimes could be solved by different approaches.
- ▶ Hard to create proper score function.
- ▶ Really hard to prepare.

Contest Platform

- ▶ MOOC platform. Stepik.
- ▶ Supports ACM-style problems with partial scoring.
- ▶ Checkers are on Python. Probably, more convenient for beginners.
- ▶ Very convenient to split the problem into different steps.

Qualification Round

- ▶ 1 week
- ▶ 2 ACM-style problems and 1 marathon problem
- ▶ 3001 registrants, 819 have non-zero number of points, 379 advanced.
- ▶ Advertised on Codeforces, Rosalind and Stepik.

Qualification Round. Conclusions.

- ▶ Problems with code submission are very hard for beginners. CodeJam style is more appropriate.
- ▶ The same problem with the programming languages, like R.

Final Round

- ▶ 24 hours.
- ▶ 2 ACM-style problems and 3 marathon problems.
- ▶ 282 submitted something, 177 have non-zero number of points.

New interactive problem

- ▶ New type of interactive problem was proposed on the Final Round.
- ▶ You ask the questions to the system and get the answer.
- ▶ For example, you are given the list of reactions and you should deduce which proteins catalyse each reaction. You could ask about the set of chemicals provided the initial set of reactants and proteins in the environment.

Contest statistics

- ▶ Participants are from 86 countries. 684 from US, 477 from Russia, 126 from UK.
- ▶ 20 first participants are from olympiad programming and bioinformatics.
- ▶ First 5 places are taken by olympiad programmers. (Which is the problem)
- ▶ Winner is Gennady Korotkevich.

Next contest

- ▶ We invite you to participate in our second contest.
- ▶ It is preliminary scheduled on February 2018.

Visit us!

- ▶ Information. <http://contest.bioinf.me>
- ▶ Contest. <https://stepik.org/945>

Thank you

- ▶ Thank you for your attention!
- ▶ Any questions?