



QUALIFYING ROUND RULES

General information

1. Qualifying round will begin on Saturday, 17th March 2018, at 9:00 AM (CET).
2. Only teams who had registered before 15th March 2018 23:59 PM CET can participate in the round.
3. On 17th March 2018, at 7 AM (CET) or earlier, encrypted archives will be available for download from the contest website. It will contain problem statements and input files.
4. Qualifying round will last 5 to 6 hours. This may be extended by the organizers, in case of some unforeseen circumstances (technical or otherwise).
5. Right at the start of the qualifying round, a password protecting the archives will be published.
6. Any cooperation between the teams is not allowed.
7. At least 30 best teams from the final ranking will be invited to participate in main contest.
8. In case a team do not confirm their participation in the main contest, organizers will invite the next best team.
9. In case a contestant cannot participate in the main contest, team can request a substitution. Organizers can approve or deny the request as they please.
10. Only teams that have **at least two members** can participate in the main contest.

Technical information

1. Teams will have 4 or 5 tasks to solve.
2. To solve a problem, contestants have to send output files to the verification system. For every input given to the contestants in the archive, you have to send a matching output file in order to get points for that file.
3. Input filenames look as follows: abcXX.in, where "abc" is a 3-letter task code (which will be given to you for every task) and XX is the testcase number. You should name your outputs the same way, but with ".out" extension, for example: "abc05.out".
4. For every problem, a sample testcase is given to you, named "abc00.in", with a matching output also included. You don't get any points for solving it.
5. Verification system will also accept .zip archives containing output files.
6. Archive should only contain output files that match input files for the given task. It should not contain any subdirectories or other files.
7. There are two kinds of tasks: "correctness" tasks and optimization tasks. Number of points awarded for a solution to a "correctness" task depends on whether the answer is correct or not, and it also depends on the time of submission. Number of points for a solution to optimization task depends solely on its "quality", and it does NOT depend on the time of submission. You will find more detailed information in the problem statement.
8. For a "correctness" problem, number of points you can get for it decreases over time – it's 100 points at the very beginning, and 75 points right at the end. If N is the duration of qualifying round in seconds, and x is the number of seconds since the start of the contest till the submission time, you get the following number of points for a correct output:

$$100 - \frac{x}{N} \cdot 25$$

9. For an optimization problem, number of points you can get does not depend on the submission time at all – it only matters how well you did compared to the others. There are two kinds of optimization tasks: maximization tasks and minimization tasks.
10. For a maximization task (there more points you get, the better is your score), if x is the result you got (computed according to the rules in the problem statement), M is the best result anyone got on the testcase, q is the number of teams that have a better result than you, and n is the number of teams participating, then you get the following number of points for a testcase:

$$p \cdot \left(\frac{x}{M}\right)^k + (100 - p) \cdot \left(1 - \frac{\log(q + 1)}{\log(n)}\right)$$

where k and p are task-dependent constants. For a minimization task, you get the following number of points:

$$p \cdot \left(\frac{M}{x}\right)^k + (100 - p) \cdot \left(1 - \frac{\log(q + 1)}{\log(n)}\right)$$

11. Final score for a testcase is the best score among all submissions for this testcase.
12. For every problem, your final score is a weighted sum of testcase scores. All weight constants, as well as k and p will be given to you along with problem statements.
13. An hour before the round ends, contest ranking will be frozen (it won't update – it will reflect the state of the contest at the time of freezing).
14. You can't submit a solution if the previous submission for the same problem was less than a minute ago.
15. During the contest, you can ask organizers questions using an appropriate section on the contest website. Important information may appear there (problem statement clarifications, for example) so contestants should check it regularly.

On inputs and outputs

1. Problem statements will specify input format as follows: you will be given the type of data that will subsequently appear in the input, and what that data represents. It means that input will consists of lines (ending with LF – Unix-style end-of-line character), and in every line data will be separated by single spaces. For example, if the statements says that there will be two integers and a string in a given line, then the line will start with an integer, then a single space character (' ') will appear, followed by the second integer, a single space, a string, and end of line character.
2. Output format will be specified similarly, but in order for the verification system to recognize the output, it's enough to separate subsequent data with any positive number of whitespace characters (spaces, end of line characters, etc).
3. Any exceptions to these rules will be clearly stated in the problem statement.