Introduction to the practice session

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About the contest

The contest in a nutshell

- Teams of 3 students.
- One computer per team.
- 12 problems to solve.
- Languages: C, C++, Java, Kotlin, OCaml, Python.
- Goal: solve many problems quickly and correctly.

Ranking function

Teams are ranked, in lexicographic order, by:

1. their total number of solved problems;
2. a tie-breaking time: the sum over the solved problems of:
   - the time it took to solve the problem (rounded down to the nearest minute);
   - 20 minutes for every incorrect submission.

A typical problem

- Short description in English of a problem to solve.
- Description of the input and output format.
- Example of an input and its output (also provided for download through the judging system).
- The program should read the input and write the output on the standard streams (`stdin` and `stdout`).

Evaluation

- Submission is done through a Web interface
  - Also: command-line submission client
- Automatic evaluation on secret test cases
- Verdicts may be manually overturned by judges
- Limited execution time: 0.3 to 3 seconds (as indicated)
- Limited memory (2 GB), source size (256 kB)
- Stack limits: no limit for C/C++/OCaml, 64 MB for Java/Kotlin, default (very low) recursion limit for Python (but can be changed in program)

Verdicts (stops at first failed test)

1. TOO-LATE
2. COMPILER-ERROR
3. OUTPUT-LIMIT
4. RUN-ERROR
5. TIMELIMIT
6. NO-OUTPUT
7. WRONG-ANSWER
8. CORRECT

Caveats

- Only one source file can be submitted

- The specified input format is guaranteed

- Respect exactly the specified output format

- The time limit often requires an efficient algorithm

Language versions

Languages available:

- C/C++ with gcc 7.4.0 (C 2011, C++ 2014, with GNU extensions)
- Java 11 with OpenJDK 11.0.4
- Kotlin 1.3.6, with compilation to Java bytecode (`kotlinc`, `kotlin`)
- OCaml 4.05.0, with compilation to native code (`ocamlopt`)
- Python 3.6.1 with PyPy 7.1.1

A note on languages

- All problems can be solved with all languages. (All problems have been solved by the judges in C/C++, Java, Python, and OCaml and almost all have been solved in Kotlin as well.)

- Some problems are more difficult to solve in some languages.

- Due to inherent performance differences, the time limit is multiplied by a factor of 1.5 for Java, a factor of 2 for Kotlin, and a factor of 3 for Python.

Language features

Some language features are not allowed:

- inline assembly code
- threads
- file I/O, networking
- dynamic loading of external libraries
- file management
- device management
- interprocess communication
- forking and execution of external commands

Do not try these! Malicious uses of these features will lead to disqualification.

Behavior

- Talking is only allowed between members of the same team while seated at their desk

- No talking away from your desk or across teams

- Don't do anything that jeopardizes the contest: Trying to access the Internet, distract others, etc.

Other rules

- No electronic devices permitted in the contest area! Leave them with your coach or don't bring them.
  - → Teams with electronic devices will be disqualified!

- Access to the bathroom one at a time

- Stay in the room until the end of the contest

- Again: absolutely no talking in the corridor!

Before contest begins

- Don't touch the computer before the contest starts
  - No time is provided to set up your computer

- Don't open the envelope with the problems before contest starts

- Contest starts when the countdown goes to zero

Questions and problems

- Questions about the problems or environment (compiler versions, etc.)
  - → Send a clarification request on the judging system

- Problem with your workstation: crash, hardware failure, etc.
  - → Ask a volunteer

- Requests for more draft paper, other practical issues
  - → Ask a volunteer

- Technical support, help with your source code
  - → You can send a clarification request, but we will probably not answer

Coaches

- Coaches may use Amphithéâtre Rose Dieng-Kuntz
- Coaches can participate on the public instance:

    `https://domjudge.di.ens.fr/`
- Coaches may watch the online broadcast of the contest:

    `https://swerc.eu/`
- Practice: coaches may visit their teams
  between 15:30 and 16:30

About the environment

Where is your working space?

- Computer labs are either in Building A – Floor 1 or Building B – Floors 3+4+5.

- There are 2 unique accesses indicated by signs
  Don't try to enter from a different path.

- Your position is written on your badge, e.g., 1A222-Z9
  - 1A222 is the room (floor 1, building A, room 222)
  - Z9 is the position in the room (column Z/row 9)

Material

You are only allowed to bring:

- Writing instruments (pens, . . .): they are not provided
- Stickers to customize your keyboard

Your notebooks are installed by us

Process

- Install your desk today (stickers, etc.)
- After the practice contest:
  - Throw away or take away all problem statements, drafts, printouts
  - Leave the notebooks, pens, stickers, mascots, etc.
- No additional material may be brought in on Sunday

Computer

- Volunteers will have logged you on the workstation
  Don't close your session or exit the environment

- You are automatically logged into the judging system

- Don't switch the keyboard

Resources

There is no Internet access, except to the following:

- Automatic judging system
- PDF documentation of the judging system
- Offline documentation of the programming languages
- Copy of swerc.eu (including regulations and environment details)

You can also use your team reference document

Language documentation

Programming language documentation is accessible through browser bookmarks

Keyboards

- You can change the keyboard layout configuration if needed using:

  ```
  setxkbmap us
  setxkbmap fr
  setxkbmap es
  setxkbmap ch
      ...
  ```

About the judging system

Judging interface

Scoreboard

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Printing

- You can request printouts of your code

- Use the judging system or the `printout` command

- A volunteer will deliver the printout when ready

Clarification requests

- You can ask a clarification request to the judges using the online judging system.

- Possible categories:
    - Specific problem statement (e.g., Problem A)
    - Technical issue
    - Other general issue

- "No comment" when the judges decline to answer (e.g., already explained in the problem statement).

- Judges can send clarifications to all teams.
  Check the judging system regularly for this (and especially at the beginning of the contest).

Good luck!

- The practice is the time to test everything:
  Please request printouts, ask for clarifications, etc.

- Try to solve at least one problem during the practice

- Good luck, and have fun!

Regarding lunch

The canteen serves food from 12:30 to 14:00.

- Please pick 1 starter + 1 dessert + 1 main dish (meat or vegetarian option)
- Choices are available on first come, first served basis
- Leave space for the next eaters when done eating
  Not everyone can seat at the same time
- You need to bring your tray to the exit and to sort your dishes.

Lunch break is the perfect time to chat with our sponsors.

- You can enter the computer rooms from 14:20

- The practice contest will start at 14:30

Questions, comments, feedback. . .

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