

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 | 5. TIMELIMIT |
| 2. COMPILER-ERROR | 6. NO-OUTPUT |
| 3. OUTPUT-LIMIT | 7. WRONG-ANSWER |
| 4. RUN-ERROR | 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

- 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

DOMjudge [Home](#) [Problemset](#) [Print](#) [Scoreboard](#) [Submit](#) [Logout](#) [contest over](#)

RANK	TEAM	SCORE	A	B	C	D	E	F	G	H	I	J	K
5	 TUMbling Technische Universität München	9 835	188 1 try	49 1 try	74 2 tries		161 1 try	125 5 tries	125 1 try	23 1 try	12 1 try	147 2 tries	16 1 try

Submissions

time	problem	lang	result
14:59	F	CPP	WRONG-ANSWER
14:38	F	CPP	WRONG-ANSWER
14:25	F	CPP	WRONG-ANSWER
14:11	F	CPP	WRONG-ANSWER
13:43	F	CPP	WRONG-ANSWER
13:08	A	CPP	CORRECT
12:41	E	CPP	CORRECT
12:27	J	CPP	CORRECT
12:11	J	CPP	WRONG-ANSWER
12:05	G	CPP	CORRECT
11:14	C	CPP	CORRECT
11:06	C	CPP	WRONG-ANSWER
10:49	B	CPP	CORRECT
10:23	H	CPP	CORRECT
10:16	K	CPP	CORRECT
10:12	I	CPP	CORRECT

Clarifications

time	from	to	subject	text
14:55	Jury	All	General issue	When the contest ends at 15:00, please take everything with you: keyboard, tcr's...
13:23	Jury	All	General issue	If you want some more food, go downstairs and take it. First come, first serve. ...
13:21	Jury	All	problem J	Yes. In every round, every bettor will place a bet.
11:50	Jury	All	General issue	Dear teams, Lunch is being served starting 12:00, it is located where the din...
11:28	Jury	All	General issue	Whenever you want to eat the food on your tables, please take it just outside th...
10:45	Jury	All	problem F	You can have multiple items in your inventory at the same time. You can equip ...

Clarification Requests

No clarification request.

[request clarification](#)

Scoreboard

DOMJudge												Home	Problemset	Print	Scoreboard	Submit	Login	contest over
NWERC 2018												final standings						
<div>Filter</div>																		
RANK	TEAM		SOURCE	SCORE	A ●	B ●	C ●	D ●	E ●	F ●	G ●	H ●	I ●	J ●	K ●			
1		Treemity University of Cambridge	11	1323	170 <small>1 try</small>	103 <small>1 try</small>	56 <small>2 tries</small>	289 <small>2 tries</small>	146 <small>1 try</small>	215 <small>2 tries</small>	77 <small>2 tries</small>	40 <small>1 try</small>	12 <small>1 try</small>	91 <small>1 try</small>	24 <small>1 try</small>			
2		Los Patrons University of Oxford	10	1145	217 <small>2 tries</small>	38 <small>1 try</small>	85 <small>2 tries</small>	176 <small>1 try</small>	268 <small>2 tries</small>	157 <small>2 tries</small>	12 <small>1 try</small>	18 <small>1 try</small>	72 <small>1 try</small>	22 <small>1 try</small>				
3		Double Cycle Cover University of Tartu	10	1470	267 <small>1 try</small>	63 <small>1 try</small>	214 <small>1 try</small>	104 <small>1 try</small>	193 <small>1 try</small>	134 <small>2 tries</small>	35 <small>1 try</small>	12 <small>1 try</small>	280 <small>8 tries</small>	8 <small>1 try</small>				
4		Triniceratops University of Cambridge	9	788	177 <small>1 try</small>	59 <small>1 try</small>	31 <small>1 try</small>	159 <small>1 try</small>	197 <small>2 tries</small>	6 <small>1 try</small>	10 <small>2 tries</small>	93 <small>1 try</small>	16 <small>1 try</small>					
5		TUMbling Technische Universität München	9	835	188 <small>1 try</small>	49 <small>1 try</small>	74 <small>2 tries</small>	161 <small>1 try</small>	125 <small>2 tries</small>	23 <small>1 try</small>	12 <small>1 try</small>	147 <small>1 try</small>	16 <small>1 try</small>					
6		2 Brits and a Dutchman University of Oxford	9	1021	297 <small>2 tries</small>	147 <small>2 tries</small>	83 <small>1 try</small>	229 <small>1 try</small>	112 <small>1 try</small>	18 <small>1 try</small>	10 <small>1 try</small>	60 <small>1 try</small>	25 <small>1 try</small>					
7		Q++ Leiden University	9	1185	267 <small>1 try</small>	123 <small>1 try</small>	77 <small>1 try</small>	205 <small>1 try</small>	135 <small>2 tries</small>	39 <small>2 tries</small>	13 <small>1 try</small>	236 <small>1 try</small>	30 <small>1 try</small>					
8		<(OvO)> Saarland University	9	1226	293 <small>4 tries</small>	50 <small>1 try</small>	166 <small>1 try</small>	101 <small>3 tries</small>	152 <small>1 try</small>	25 <small>2 tries</small>	8 <small>1 try</small>	209 <small>5 tries</small>	22 <small>1 try</small>					
9		Oxford Ji-geiko University of Oxford	9	1498	295 <small>1 try</small>	74 <small>2 tries</small>	135 <small>1 try</small>	281 <small>1 try</small>	210 <small>1 try</small>	26 <small>3 tries</small>	16 <small>1 try</small>	180 <small>2 tries</small>	41 <small>8 tries</small>					
10		„_„_„_<<_(-)0>[]+{+}[]+[]+-[]-[]" Technische Universität München	8	915	138 <small>1 try</small>	60 <small>1 try</small>	263 <small>2 tries</small>	154 <small>2 tries</small>	26 <small>1 try</small>	23 <small>2 tries</small>	117 <small>1 try</small>	34 <small>1 try</small>						
11		Let's party! Karlsruhe Institute of Technology (KIT)	8	953	235 <small>1 try</small>	72 <small>1 try</small>	173 <small>5 tries</small>	263 <small>4 tries</small>	110 <small>2 tries</small>	24 <small>1 try</small>	12 <small>1 try</small>	179 <small>2 tries</small>	28 <small>1 try</small>					
12		The Thorycodera Universiteit Utrecht	8	961	62 <small>2 tries</small>	179 <small>2 tries</small>	150 <small>1 try</small>	209 <small>1 try</small>	33 <small>2 tries</small>	22 <small>1 try</small>	211 <small>2 tries</small>	15 <small>1 try</small>						
13		incogniTUM Technische Universität München	8	997	298 <small>3 tries</small>	58 <small>1 try</small>	107 <small>1 try</small>	165 <small>3 tries</small>	207 <small>1 try</small>	32 <small>1 try</small>	15 <small>1 try</small>	35 <small>3 tries</small>						
14		Mej●Italci University of Cambridge	8	1056	148 <small>2 tries</small>	56 <small>1 try</small>	176 <small>2 tries</small>	212 <small>3 tries</small>	36 <small>2 tries</small>	5 <small>1 try</small>	262 <small>2 tries</small>	21 <small>1 try</small>						
15		Keukentafelwiskundigen Utrecht University	8	1135	253 <small>2 tries</small>	274 <small>4 tries</small>	103 <small>1 try</small>	137 <small>2 tries</small>	13 <small>1 try</small>	8 <small>1 try</small>	198 <small>1 try</small>	29 <small>2 tries</small>						
16		Ukkonen Fan Club University of Helsinki	8	1399	53 <small>2 tries</small>	218 <small>7 tries</small>	288 <small>8 tries</small>	152 <small>5 tries</small>	22 <small>1 try</small>	49 <small>1 try</small>	59 <small>1 try</small>							
17		from...future... Import solution Lund University	7	612	50 <small>1 try</small>	142 <small>1 try</small>	93 <small>5 tries</small>	24 <small>1 try</small>	13 <small>1 try</small>	252 <small>1 try</small>	18 <small>2 tries</small>							
18		Smart Crypto-Alio Tech Norwegian University of Science and Technology	7	754	117 <small>3 try</small>	258 <small>1 try</</small>												

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.

Practice session

- You can enter the computer rooms from 14:20
- The practice contest will start at 14:30

Questions, comments, feedback. . .

SWERC 2019–2020

