

Technical Working Group Report

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First of all, sorry for not coming to this IOI.

Health problems — nothing particularly serious, but enough to keep me at home.

I miss the discussions I always had with many of you.
If you have anything to talk about, you are welcome to write to **mj@ucw.cz**.

The IOI Infrastructure

No major changes since the previous IOI, only maintenance.

Mailing lists:

- **ioi-announce** – low-volume, moderated, **please subscribe**
- **ioi-discuss** – general discussion
- **ioi-ic, ioi-sc, ioi-twg** – members of the committees
- **ioi-training** – a new list for connecting organizers of regional training camps with people interested in teaching
- *<http://lists.ioinformatics.org/>*

Other:

- Secure drop-box for task submissions
- Internal ISC systems
- Archives of past contests

People often request addition of new programming languages to the IOI. The most frequently wanted language is Java.

Issues with adding Java:

- Another set of model solutions required
- Another implementation of the grader interface required
- More interface descriptions to translate
- Java is less efficient – would it be possible to solve the tasks within the time limit?
- Java is hard to sandbox (it requires threads)

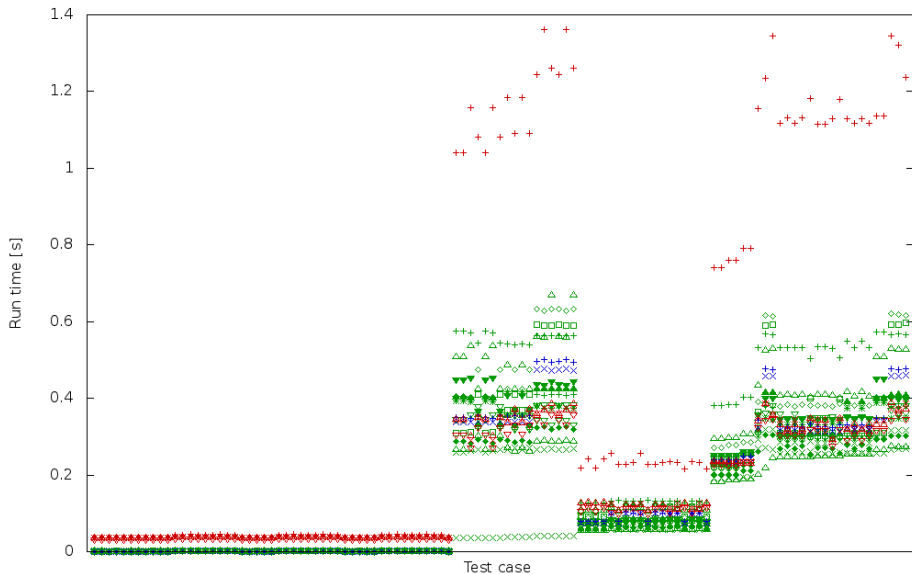
We decided to run an experiment on IOI 2013 tasks.

Java solutions provided by Pavel Mavrin and Egor Kulikov, compared with model solutions and selected 100-point solutions from the real contest. Tested on official test data.

Used the *isolate* sandbox developed by Martin Mareš and Bernard Blackham (presented at IOI 2012 conference), which can handle multi-threaded programs.

Tried different versions of the Java Development Kit and different settings of the virtual machine.

cave



AUS7:CPP

+

GBR4:CPP

◇

MEX4:CPP

◆

tester:Pas

+

egor

+

NLD2:CPP

x

RUS4:CPP

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BGR4:CPP

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tester:CPP

x

java

x

JPN2:CPP

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SGP1:CPP

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BRA3:CPP

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POL4:CPP

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java-acm

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IRN1:CPP

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SVK2:CPP

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DEU1:CPP

x

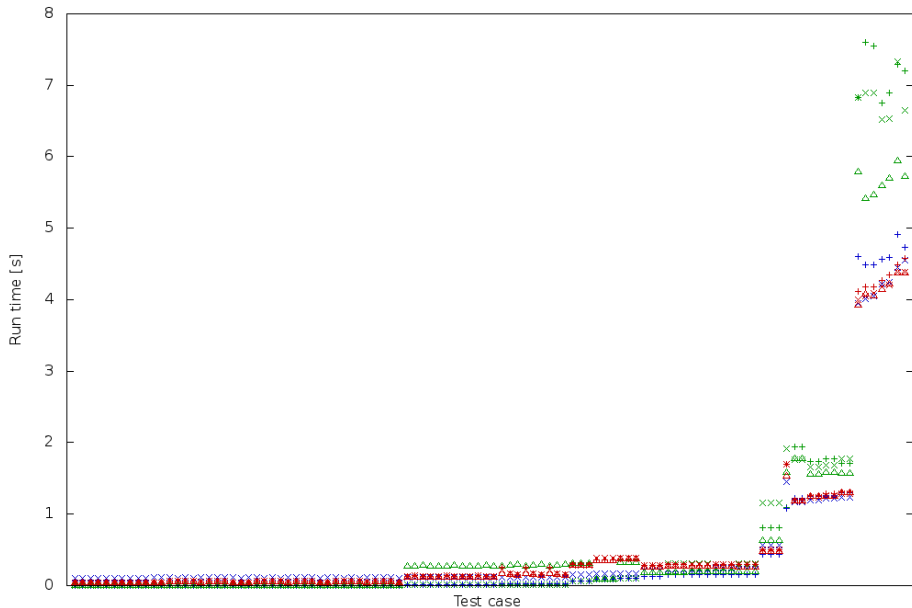
KAZ3:CPP

▽

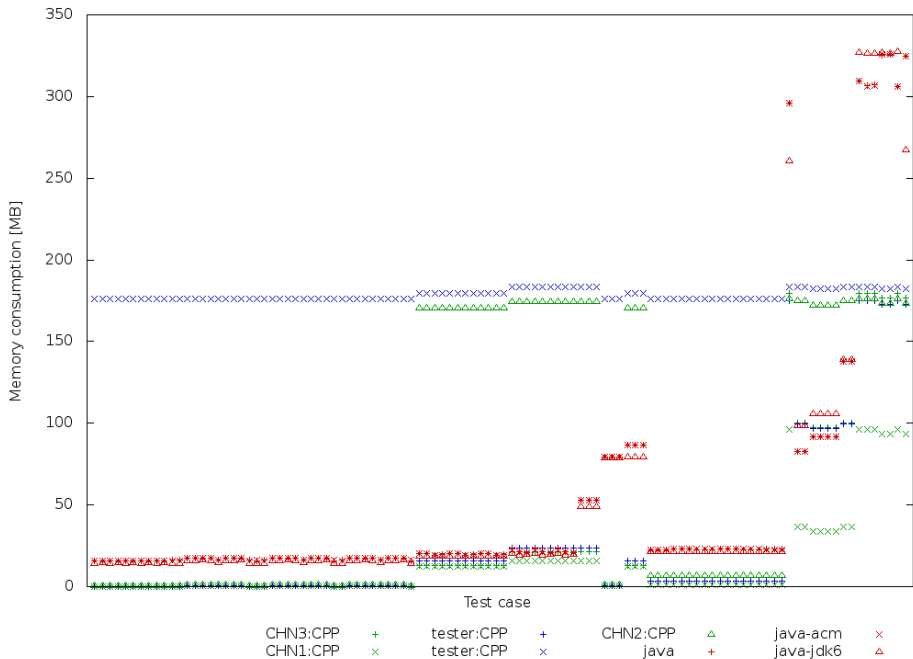
java-jdk6

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wombats



wombats



We can conclude:

- Java solutions mostly performed as the slower, but still accepted C/C++/Pascal solutions.
- They consumed more memory, but still a reasonable amount. (Recently, we used very generous memory limits anyway.)
- Java sandboxed in *isolate* runs smoothly.
- Java is usable as a first-class IOI language.
- We do not need per-language time limits or other “cheats” of questionable fairness.