

Introduction to ACM/ICPC

HKU ACM Team

What is it?

ACM International Collegiate Programming Contest. Official site:
cm.baylor.edu

ACM

The Association for Computing Machinery (ACM) is an international learned society for computing. It is the world's largest scientific and educational computing society.

You will get free membership for each year you participate in ACM/ICPC.

Basic Rules

- Solve about 10 programming tasks in 5 hours.
- 3 members per team.
- 1 computer.

How Are Teams Ranked

Teams are firstly ranked according to number of problems solved, then the total time used. Team can check ranks in *real time*.

Example

<http://acmgnyr.org/year2015/standings.shtml>

A Picture



So far, all accepted solutions for problem E use the easier but slower implementation that runs in $n \cdot \log n$ time, said Michal Forisek.

Follo

Question Style

Problems are mathematically well defined, with data range and input / output specifications.

Example

```
http://acm.timus.ru/problem.aspx?space=1&num=1013.
```

No GUI, network etc. are needed. They are also not allowed. For C++, all you need is iostream and STL.

How is it Judged?

Only source code is submitted and judged.

Data Based Judging

Your source code is compiled and run by the judge. The judge uses a preset dataset as input, and compare your output against the referenced answer.

Your solution is judged as correct (AC - Accepted) only if

- It outputs all the correct answers. Otherwise WA - Wrong Answer.
- It outputs answers in the time limit. Otherwise TLE - Time Limit Exceeded.
- It does not crash. Otherwise RE - Runtime Error.
- It uses limited amount of memory. Otherwise MLE - Memory Limit Exceeded.

An Example

Example

<http://acm.timus.ru/problem.aspx?space=1&num=1000>

- 1 CE - Compilation Error
- 2 RE - Runtime Error
- 3 TLE - Time Limit Exceeded
- 4 MLE - Memory Limit Exceeded
- 5 WA - Wrong Answer
- 6 AC - Accepted

Contest Structure

- 1 University selection. We will select 3 teams this year.
- 2 Regional contests. Our main battle field.
- 3 World finals. Top 3 in regional contests will advance to world finals.
100 teams in total around the world.

Skills Required

- Coding. Implement whatever algorithm you have in mind.
- Algorithm design. Knowledge of classical algorithms and algorithm design technique. For example, Dijkstra algorithm and dynamic programming.
- Programming and debugging onsite under pressure.

Self-motivated

- You join team because you are interested in ACM/ICPC, and you can leave at any point if you are not any more.
- We assist you to participate in ACM/ICPC, including organizing training sessions.
- However, we do not and cannot force you to do anything. You have to be **self-motivated**.

Your Benefits

- Opportunity to participate in ACM/ICPC.
- The department appoints a TA (Shaofeng Jiang) for you to consult, regarding the competition and solving programming problems.
- Good prize helps in finding a good job in industry.
- Meet new friends that have the same interest with you.

Contest Plan

We plan to select 3 teams.

- All 3 can go to Hong Kong site hosted in CUHK.
- Two teams will go to mainland (Beijing or Qingdao, depending on contest time).
- One or two teams (depending on our budget) will go to regionals hosted in Taiwan, Korea or Thailand.

Selection Contest

Planned on September 21 (Wed), 6:30 pm - 9:30 pm.

- Individual contest.
- Rank by ICPC rules.

Contestants rank top 9 will be qualified to participate in regional contests.
We form teams for you.

Training Plan

This Semester

We organize practice contests regularly, aiming for this year's regional contests.

- Team contest. Follow ICPC rules.
- Problems selected from past regional contests.

If you are new, you can start by Part 1 in

<http://i.cs.hku.hk/~provinci/training.html>.

Next Semester

Mainly for beginners. We organize training sessions to talk about algorithmic techniques. For the past training materials:

<http://i.cs.hku.hk/~provinci/training.html>

Consultation

Send me an email if you have any questions about the contest, both technical and non-technical.

Contact Information

Shaofeng Jiang, sfjiang@cs.hku.hk.

Appoint with me if you need face to face consultation.

Any Questions?