ICPC North America Regionals 2019

icpc international collegiate programming contest

icpc.foundation

icpc global programming tools sponsor

TWO SIGMA

icpc north america sponsor

ICPC Southeast USA Regional Contest

2019

Southeast USA regional

Agenda

► Welcome and Introductions
► Thanks to hosts, volunteers, sponsors, and others
► Schedule and instructions
► Local questions

Key People

Two key people have supported this regional contest for over the last ten years. We are lucky to have have experts with experience well-beyond our region.

1. David van Brackle, Chief Judge
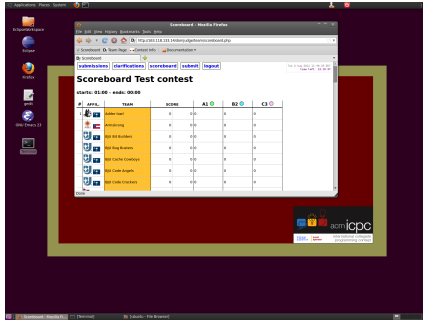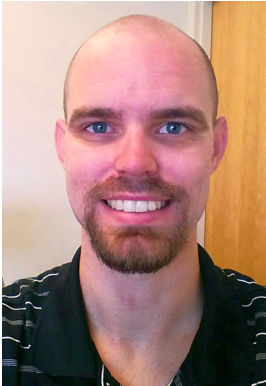2. Keith Johnson, Chief of Operations

Judging

David van Brackle, Chief Judge
http://serjudging.vanb.org/

Contest Operations

Keith Johnson, Chief of Operations
DOM Judge developer
creator of the contest environment

Thanks

- Hosts
- Judging committee
- Sponsors
- Team managers, coaches, mentors
- Student volunteers
- Contestants

► Jim Bowring, College of Charleston and Marilee Smith, College of Charleston

► Sarah North, Kennesaw State University

► Amitabh Mishra, Ezhil Kalaimannan,
Bernd Owsnicki-Klewe, U. of West Florida

► Kip Irvine and Giri Narasimha, Florida International U.

Sponsors

The Southeast USA Regional programming competition is primarily funded by participation fees.

JetBrains the creator of InteliJ and the programming language Kotlin is the ICPC global tools sponsor.

Two Sigma, a data science company founded in 2001, is the North American Contest Sponsor.

New North American Sponsor

Thank you!

Team Managers

Teams managers and coaches are the essential infrastructure and continuity of ICPC competition.

We would like to acknowledge their contribution.

Volunteers

To all that have made this event possible

Thanks!

Information

http://ser.cs.fit.edu/

http://ser.cs.fit.edu/ser2019

icpc.foundation

JET BRAINS

ICPC Southeast USA Regional Contest

The ACM Intercollegiate Programming Contest contest goes back to 1970's and is headquartered at Baylor University.

It is the longest running and most well-known collegiate programming contest.

This past year over 50 thousand contestants from over 3,000 universities in over 100 countries competed in regional competitions

ICPC Student Participation
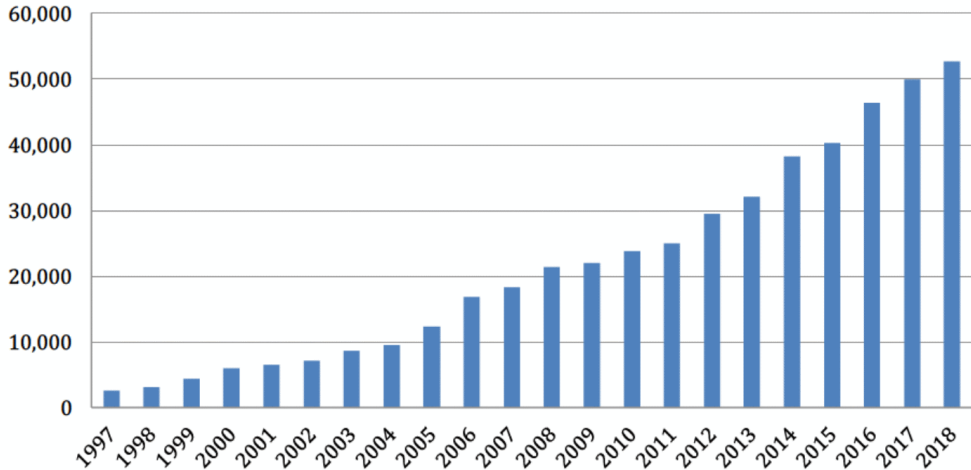
SER Participation

year	schools	teams
2013	34	99
2014	34	112
2015	33	109
2016	38	116
2017	42	120
2018	31	115
2019	34	121

Two Divisions

The SE USA Regional pioneered the use of two divisions.

Division One has harder problems and Division Two has easier problems.

We award medals in each division at each site, a school can only compete in one division or the other.

Other Regions

The contest problems are shared with other regions.

So, we are not able to offer copies of the problem set to non-contestants, nor are we able to offer an Internet version of the contest to non-contestants.

UWF — CofC — Kennesaw State — FIU
1st
SER2018
DIV ONE

UWF — CofC — Kennesaw State — FIU
2nd
SER2018
DIV ONE

UWF — CofC — Kennesaw State — FIU
3rd
SER2018
DIV ONE

UWF — CofC — Kennesaw State — FIU
1st
SER2018
DIV TWO

UWF — CofC — Kennesaw State — FIU
2nd
SER2018
DIV TWO

UWF — CofC — Kennesaw State — FIU
3rd
SER2018
DIV TWO

2020 ICPC North America Championship will be hold February 19–23, 2020 in Atlanta, Georgia hosted by Georgia Tech, College of Computing.

```
http://pwp.gatech.edu/icpc-nac2020
```

The five highest ranking schools in the SE USA compeition today will will be invited to the NAC.

The highest ranking team today will be invited to the world finals. In addition several more high ranking in the NAC will be invided to the world finals.

The 2020 ICPC World Finals will be held in Moscow, Russia, June 21–26, 2020, hosted by Moscow Institute of Physics and Technology.

Instructions and Information

- ▶ Schedule – five hour contest starts at 1:30pm EST / 12:30pm EST
- ▶ Reference material – limited to 12" by 12" by 2" per team
- ▶ DOMJudge – submission and judging
- ▶ Scoreboard are available at: `http://ser2019.cloudcontest.org`
- ▶ Printing with the script `printfile`
- ▶ Read/write to standard input/output
- ▶ Sample data available from DOMJudge
- ▶ Teams may keep the flash drives after the contest

Schedule

▶ Practice contest from
11am EST / 10am CST to noon EST/11am CST

▶ Division I and II: simultaneously at all sites
from 1:30pm EST / 12:30 CST to 6:30pm EST / 5:30pm CST

The computers are all set to go. We must all be ready on time.

Reference Material

Only a limited amount of reference material is permitted — and no electronic devices or media. Leave your phone with your team manager, or coach.

Each team (not each person) may bring written material (books, notebooks, etc) up to a total volume of 12x12x2 inches.
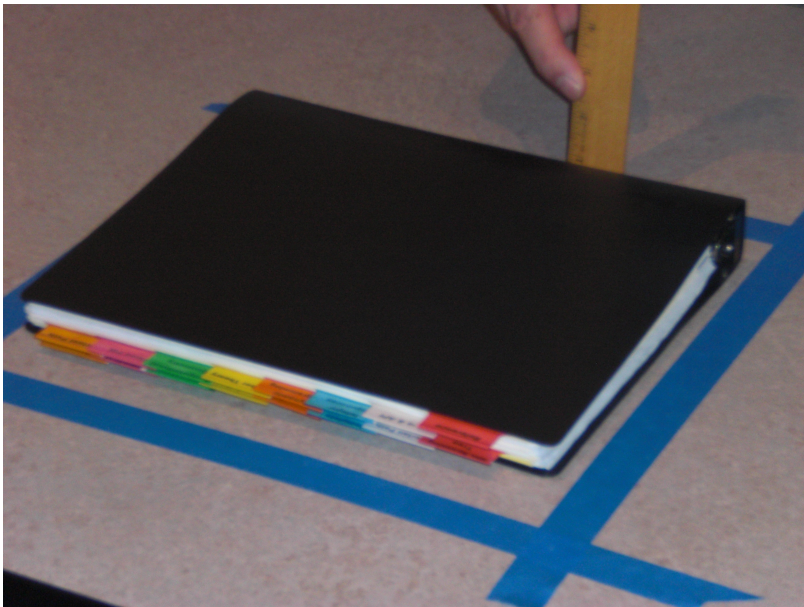
12 inches by 12 inches by 2 inches

Contest Start

1. Take everything with you from your workstation at the end of the practice contest, bring back only allowed items.
2. Just before the contest begins, teams should find their assigned work stations and must not disturb the problem sets or the computers.
3. All teams should already be logged into DOMJudge.
4. When the time comes, the contest starts automatically and silently.
5. Open the problem sets and begin.

DOMJudge

- ▶ All programs are submitted over the WWW via DOMJudge.
- ▶ Twenty penalty minutes are assessed for each incorrect submission that is eventually solved.
- ▶ The scoreboard is available the public on the WWW; there will be no updates to the scoreboard in the last hour of the contest. http://ser2019.cloudcontest.org
- ▶ The scoreboard is available via the browser to contestants.
- ▶ Bookmarks on the browser leads to Java, C++ STL, Haskell and other language documentation.

It is possible to submit solutions to the problems in many different programming languages.

The ICPC World Finals have recently included Python and Kotlin.

Some Accepted Programming Languages
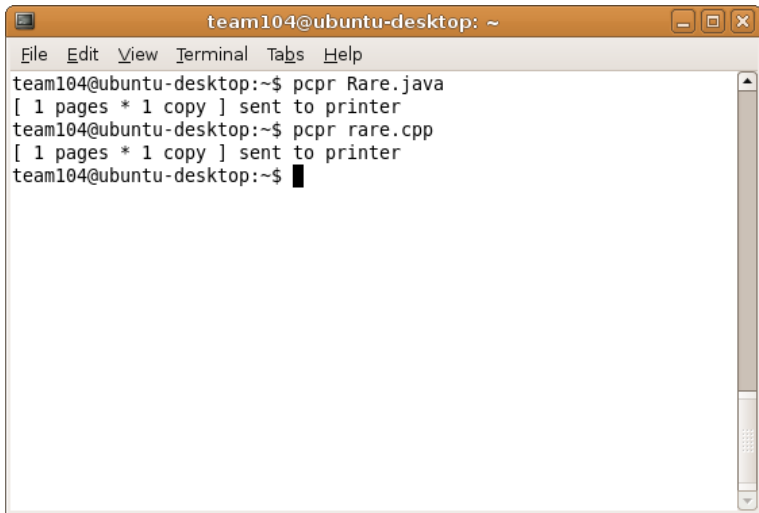
- ▷ Ada   GNAT 7.4
- ▷ C   gcc 7.4
- ▷ C++   g++ 7.4
- ▷ C#   Mono C# 6.4.0.198
- ▷ F#   10.2.3
- ▷ Go   1.10.4
- ▷ Haskell GHC 8.0.
- ▷ Java   11.04+11
- ▷ Kotlin   1.3.50
- ▷ Lua   5.3.3
- ▷ Python 2 2.7.15
- ▷ Python 3 3.6.6
- ▷ Scala   2.11.12
- ▷ Rust   1.36.0

A Note About Python

Python: do not use `#! /usr/bin/env` (shebang). For reasons of security such Python scripts will not be run.

Programs in Python 2 *or* Python 3 be submitted — choose the correct language when submitting with DomJudge.

Programs in Python (and Lua for that matter) may be significantly slower the program written in some other language. All the problems have solutions that run in the order of seconds in some languages.

```
┌──────────────────────────────────────────────────────────────────┐
│ ▣              team104@ubuntu-desktop: ~              _ □ x        │
├──────────────────────────────────────────────────────────────────┤
│ File  Edit  View  Terminal  Tabs  Help                            │
│ team104@ubuntu-desktop:~$ pcpr Rare.java                          │
│ [ 1 pages * 1 copy ] sent to printer                              │
│ team104@ubuntu-desktop:~$ pcpr rare.cpp                           │
│ [ 1 pages * 1 copy ] sent to printer                              │
│ team104@ubuntu-desktop:~$ █                                       │
│                                                                    │
└──────────────────────────────────────────────────────────────────┘
```

Print command: `printfile`, or `pcpr`.
Do not collect the output yourself.

To print use the special script `printfile`, or `pcpr`. Only output printed with the script is allowed. Do not use the print facility of any application. Do not collect the output yourself. The volunteers will try to deliver the print outs as soon as possible, but it is not possible to guarantee fast delivery at all times.

Likewise be patient while waiting for judging responses. Delays are possible at anytime. The vast majority of responses last year were instantaneous. But it is not possible to guarantee fast response at all times.

```cpp
#include <iostream>
#include <stdio.h>
#include <ctype.h>
#include <strings.h>

using namespace std;  // Mak

#define MAX 1000
char line[MAX];

int indexC (char c) { return

short preceeds [26][26];
short present [26];
int countP[26];   // predece

void
init () {
   for (int i=0; i<26; i++)
      countP[i]=0; present[i
      for (int j=0; j<26; j+
   }
}

void
remove_node (int x) {
   for (int i=0; i<26;i++) {
      if (preceeds[x][i]) do
   }
   present[x]=0;
}

void
learn (char *s, char *t) {
   // printf ("%s %s\n", s,
   for (; *s>='A'; *s++, *t+
      if (*s==*t) continue;
```

```
} while (i!=26);
printf ("\n");  //
```

```java
import java.util.Arrays;
import java.util.Scanner;
import java.io.BufferedInputStream;

public class Rare {

    final static int index (char c) { return c-'A'; }

    private static boolean[][] preceeds = new boolean[26][26];
    private static boolean[] present = new boolean[26];
    private static int[] count = new int[26];   // number of predecessors

    final static void remove (int x) {
        for (int i=0; i<26;i++) {
            if (preceeds[x][i]) {
                assert count[i]>0;
                count[i]--;
            }
        }
        present[x]=false;
    }

    final static void learn (final String s, final String t) {
        for (int i=0; i<s.length(); i++) {
            assert i<t.length();   // ow t would have to preceed s
            if (s.charAt(i)==t.charAt(i)) continue;
            // char s must preceed char t
            final int j=index(s.charAt(i)), k=index(t.charAt(i));
            if (preceeds[j][k]) break;  // knew it already
            preceeds[j][k] = true;
            present[j]=true; present[k]=true;
            count[k]++;
            break;
        }
    }
```

A team may be disqualified by the site director for receiving unauthorized help, or for any disruptive, offensive, malicious, or deceptive activity.

Please be considerate and respectful of others.

The best advice is that given already by Douglas Adams:
"DON'T PANIC."

FUTURE SITES ?

Please consider being a contest site in 2020 or beyond. More sites mean less travel and less work for everyone. Let us have a site in every state: Alabama, Florida, Georgia, Mississippi, and South Carolina.

Please consider volunteering to help with registration or publicity.

For information e-mail: `ryan@fit.edu`

SER 2020

Saturday, 7 Nov 2020

Registration deadline: Saturday, 10 Oct 2020*

---

*Early registration is a great help to the organizers.