Opening Ceremony!

Today, we all gathered for the Opening Ceremony of the 20th annual CEOI in Primošten. During the ceremony, which was held in the Conference Hall of Hotel "Zora", we were entertained by the dance group "Balance" from "Primošten" elementary school and honoured by welcome speeches of Alen Spiegl - president of Croatian Computer Science Association, Zoran Smolić - assistant of the Prefect of Šibenik-Knin County, prof. dr. sc. Ante Markotić - president of Croatian Association of Technical Culture and Mrs Sabina Gotovac - assistant of the Minister of Science, Education and Sports. Their speeches pointed out the importance of achieving success and great results, but making new friendships, getting to know foreign cultures and habits, as well as collecting new experiences are also valuable for every competitor.

Zoran Smolić

Sabina Gotovac

prof. dr. sc. Ante Markotić

Alen Spiegl

The magnificent four

Slovakian team was the last one to arrive yesterday evening. Barbora, Eduard, Mario and Michal, enthusiastic as they can be, told me everything about Slovakian trials, schooling, competitions and their plans for the future, which are all about programming or mathematics.

Ok, one thing at a time.

The first thing I was interested in was how does Slovakia choose their national team for CEOI.

Eduard: *"We have three rounds of trial competitions during the year, after which we get the final standings. The first four on the list make it to the team for IOI, and second four for CEOI."*

Barbora: *"... and sometimes you get in as the ninth :)"*

Mario: *"Yes, Barbora was invited to join us only two days before we were scheduled to come here because Vladimir got ill and couldn't come."*

Did your team leader have any restrictions for you while you are here, such as going to sleep early or no swimming after sunset?

Eduard: *"No, he didn't, but there was no need for that, I go to sleep early on my own :)"*

How experienced are you when it comes to the competitions outside of Slovakia?

Michal: *"Three of us are competing for the first time in informatics, but Eduard has been on IMO in Argentina this year. That is mathematical olympiad for high school students. Does that count? :)"*

Eduard: *"I was also on IOI last year in Tata, Hungary"*

Mario: *"He was 6th out of cca 80 competitors!"*

When are you going to enrol in University, do you have any plans for it?

Barbora: *"We have one more year to decide what and where, but as time goes by I'm more likely to try to study informatics in London. We will see, everyone here is certain to enrol in University in Bratislava because we all earned the right for direct enrolment, for being a member of national team."*

Eduard: *"I'm sure that I'm going to study in Bratislava University, I really like their programme for mathematic studies."*

Mario: *"Informatics engineering and information science in Bratislava. Definitely!"*

Michal: *"Not sure, but probably the same."*

How do young people in Slovakia get in touch with informatics, are there some associations or clubs for informatics amateurs?

Mario: *"No, not really. The first contact with information science is in the third grade of high school and even then, we are taught only the basic stuff. If we want to do informatics sooner or more of it, we have to learn on our own, hoping to get lucky and be "discovered" by some adult who is once again amateur and volunteer in this field."*

Michal: *"But if you are into mathematics, then it's a different story. Mathematics is well sponsored by the government, and it's much easier to accomplish some good results on European level because the approach for these competitions is more serious and much better organized."*

Ok, I have to finish this article now, although we talked about a lot of things including spaceships, Sun, stars, foreign languages, weather condition, trips to Krka's waterfalls and Split, family backgrounds and much more. Barbora, Mario, Michal and Eduard, thank you for your time and a very nice interview, and you know ... I wish you the best of luck on the upcoming competition :)

Today's activities
Don't miss

Tournament DAY

16:00 Beach volleyball tournament
17:00 Ping Pong Tournament
18:00 Tug of War

Practice competition

The queue got large. We increased the number of drones (workers) from two to six for the first contest day. We received reports of being able to call some system functions - that was due to faulty permissions on our server. You shouldn't be able to call them anymore - but don't try as that will get you disqualified. We also had some issues with memory measurement and most of them have been fixed (we still report average instead of peak memory). TL is correctly reported as expected. Thanks to everybody who helped us iron-out the issues.

SOLUTION from October 14
Daily Challenge #1 – "random_sequence"

These numbers are randomly generated numbers. In order to find solution one has to find random seed. With that one can generate 6th random number - in this case number 477618301.

```c
/*
 * solution for random_sequence
 * it should be called like this
 * ./t NUM_CORES < input_file
 * where input_file is a file with 5 numbers
 * of the sequence
 */
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <sys/wait.h>

#define N 5
#define CORRECT_MSG "correct seed is %u and next number \
        in sequence is %d.\n"

typedef unsigned int uint;

int seq[N], it;

int check(uint seed) {
  srand(seed);
  for (it = 0; it < N && seq[it] == rand(); ++it);
  return (it == N) && printf(CORRECT_MSG, seed, rand());
}

int solve(uint lo, uint hi) {
  uint seed;
  for (seed = lo;;++seed) {
    if (check(seed))
      return 0;
    if (seed == hi)
      return 1;
  }
}
```

```c
int spawn(char *num) {
  size_t proc, it;
  if (sscanf(num, "%d", &proc) != 1) {
    exit(!!fprintf(stderr, "can't parse number of
      cores\n"));
  }
  uint max = ~0u, jump = max / proc, lo = 0, hi = jump - 1;
  for (it = 0; it < proc; it += 1, lo += jump, hi +=
      jump)
    if (!fork())
      _exit(solve(lo, it == proc - 1 ? max : hi));
  for (it = 0; it < proc; ++it)
    wait(NULL);
  return 0;
}

int main(int argc, char **argv) {
  // input the sequence
  for (it = 0; it < N; ++it)
    scanf("%d", seq + it);
  switch (argc) {
    // case 1, this process does everything alone.
    case 1:
      return solve(0, ~0u);
    // case 2, this process is master, spawn k children,
      k is argv[1]
    case 2:
      return spawn(argv[1]);
    default:
      exit(!!fprintf(stderr, "wrong number of args\n"));
  }
}
```

Daily Challenge #2 – "shuffled_chars"

What does this say?

```
abcdefgh ijkgblmno
abcdefgh ijkpbcqmno
rlbg jsdntp utv dntp uwx ydntp kAAB kAA C uwB uw C utB ut C kAABD
bck Eheelsx ydntp ujle C jkpgfAsFFGfcdFFxv ubkv ud C jkpgfAsjlexv G C HB
   Glp sbk C jleB ubkB usbkIIxJCKLxB dMHN JC LB jleMHN JC OB jsjleIPv jleILxB
   Glp sJJbkB ubkCCQRQB usbkJJx C sGSQTQUQVQxvIIGxB ApbckGsWXj XjYcWv dv jlexBD
bck AtbcsxyEheelsxBD
```

Note: this task can be solved without using computer.

Author: Anton Grbin

Today's Schedule

	CONTESTANTS	LEADERS
TUESDAY, OCTOBER 15, 2013		
07:00-09:00	Breakfast	
08:00-10:00	Competition – Day 1	Translating questions
10:00-13:00		
13:00-14:00	Lunch	
14:00-15:00	Analysis	
16:00-18:30	Activities – Tournament Day (see inside Newsletter for more...)	
18:30-19:30		GA meeting
19:00-21:00	Dinner	

Basic English

Ball.................Lopta

Pool...............Bazen

Island ....Otok

Rain.................. Kiša

Croatian Dictionary

Guide........ Gajdica :)

Beautiful.........Lijepa

Hungry ....Gladan

Task............ Zadatak

Hi **22°**

RealFeel® 23°
Precipitation 2%

Leisure time

The Hungarian team engaged Friedrich from German in the friendly game of pool and not so friendly game of darts. A member of the Polish team was also in the house. This was all taking place in a bar called Olive (go right from reception, than left after the entry ramp). In the end they all had a great time! :)