

Excursion Day Report

Krka national park and Šibenik



Yesterday was the day off for the competitors, Committees and organizers. Usually, on such days, common people stay in bed until they get enough of sleep. But we obviously aren't that kind. At least, yesterday we weren't. Excursions to Krka national park and to Šibenik were scheduled! We all had to get up around 7:00 AM and be ready to go at 7:45 in front of the Hotel. One look to the sky was sufficient to make me uncomfortable about taking those trips. "I still have time to cancel ... No! I said I would go, and the weather isn't going to be an excuse. Nor any of lies that immediately started to develop in my mind."

We started to gather, and by the time that was set for "taking off", 72 of us were there. Two buses were waiting, and rain started to fall. At the beginning hesitantly, but when we arrived to the destination it was pouring heavily, like the end of the world was just about to happen. What now? It would be pointless to go for a one-hour walk because everybody would be soaking wet. Not that many of us weren't already in that condition, and we were on the open only for a couple of minutes so far. The weather forecast was promising blue sky at noon and we agreed to wait in a small restaurant for some time to see if the rain would stop ... or at least went easier on us.

Couple of teas later, it did, so we stubbornly proceeded with our plan and went sightseeing. Few drops here and there, but at noon the Sun finally found its way through the clouds. We did the whole tour through the forest, walking on a wooden path around the lakes and waterfalls, taking pictures and buying



souvenirs at the old mill. The nature was amazing, and by the time we came back to the restaurant, the Sun was shining and everybody was dry. After lunch we had just enough time to play "Berek" with the Polish team and "Hide and Seek" with the Swiss team. By the way, did you know that the Swiss rules of playing "Hide and Seek" slightly differ from the rest of the world? And I must admit, I like the Swiss ones better. :-)

In no time, we were heading to Šibenik. One hour with our tour guides, Mia and Branka, wasn't nearly enough to see everything and to hear all those stories and facts about Šibenik's long history and breathtaking architecture, but we will come back one day to find out the rest of The King Krešimir City.

We came back to the Hotel with the smiles on, and enriched by some new experiences and a lot of new knowledge.

Scientific Committee

Interview with doc. dr. sc. **Ante Đerek** - chair of Scientific Committee

- *What is the job of the scientific committee?*

Our main job is to come up with tasks for the contest and all the related materials needed for the evaluation. Additionally, we work very closely with the Evaluation Committee and the Technical Committee to make sure that everything goes smoothly.

- *Can you introduce your team?*

Sure. We have a large and diverse team this year and it is organized into a complete binary tree of depth 3. At the soggy bottom layer we have 4 students from Faculty of electrical engineering and computing in Zagreb, Adrian Satja Kurdija, Gustav Matula, Goran Žužić and Anton Grbin. They are all experienced competitors and IOI gold and/or silver medal winners, except for one who plays the guitar really well. At the murky middle-management layer we have Luka Kalinović and Lovro Pužar - a pair grizzled veterans and multiple IOI gold medal winners. Luka in particular is famous for leaving his fellow competitors in tears at the 2004 CEOI when he became a champion by a large margin. The root of the tree is yours truly - my job mainly consists of periodically sending motivational emails to the levels below and acting as a friendly face of the SC here in Primošten, proudly taking all the credit when things go well and generously redistributing all the blame when they don't.

- *Really!? I don't remember seeing other members of the Scientific Committee here? Are you sure you didn't make them up?*

I'm serious. There are 7 members of the SC, however only myself, Gustav and Adrian are here in Primošten. You don't see them much since they are chained in our underground office. This way, they can finish their job in peace. Also, they are not pretty to look at and they were scaring some of the gentler guides when they were allowed to roam freely. Anton avoided the same fate by fleeing to London for an internship, Goran supposedly injured his middle finger while preparing the test data for the task 'Board' - he finished it with nine fingers but they validate just fine. Luka and Lovro sold out and are currently labouring long hours for low wages as engineers at Google, Zurich and Facebook, California respectively. They sent their regards but they have used all 4 of their vacation days this year.

- *How do you come up with task for a contest?*

It usually starts with an idea and everyone has a different method for this first step. Adrian and Luka were responsible for most ideas this time so you should ask them. Next we try to solve the various variants of the idea



until we converge to something that seems interesting, challenging and original enough. For each problem at this contest, three or four promising ideas were killed at different levels of maturity. When the problem seems acceptable the fun starts, various solutions, test data, test data validators and generators, output checkers etc. have to be developed and checked. In particular, generating

good test data is an art, Luka is usually in charge of this aspect. This technical part is similar to what competitors do with one minor difference, when their solutions solve 95% of the inputs they get a gold medal, when our test data is 95% correct, we get an irregular contest and rotten vegetables thrown at us. And even when you do everything well... there's the Swiss.

- *The Swiss?*

Don't mention them.

- *Why are you mad at the Swiss delegation?*

They stole the basic idea for our task 'Tram', travelled back in time and posed a similar problem (<http://www.soi.ch/node/601>) at their olympiad. I expected more from a country responsible for such delicious chocolates.

- *How did you start working on programming contests?*

Traditionally, the best high-school competitors were chosen to the team that is in charge of the national contest. I was, of course, an exception to that rule and was recruited by Krešimir Malnar primarily due to my uncanny ability to sound really smart and look really stupid at the same time. Our first major contest was the 1998 CEOI in Zadar where Polish and Slovakian competitors destroyed our problems, we swore an oath never to allow to happen again. Today, Krešo is our chubby Executive Director who between his beauty naps, sessions at the hotel spa, and raging ergophobia, executes about as much as an ELF binary on win32 platform.

- *I've seen the results of the first day competition and it looks like the problems were hard.*

Yes, they were very challenging. We expected that more competitors would go for the easy subtasks – but it seems that many are fighters who refuse to settle for brute-force solutions. They fought tooth and nail until the last second to get the 100% solutions and we applaud them for that. If it's any consolation, it could have been worse, they should have seen the backup problems – oh wait, perhaps they will see the backup problems ... <evil laugh>

Photo Contest!!



The Most Important Committee has been established!
Its continuing mission, to explore strange new photographs. To seek out new ideas and artists.
To break through the boundaries and increases work productivity like no one has done before.

The Most Important Committee is the one that will decide whose photo will win
"The Day off - Krka National Park " contest.

Send us the photo you took yesterday at Krka National Park on the e-mail ceoi.photocontest@gmail.com during today
and the Committee will chose the best one and reward it on Friday after Closing Ceremony.

Members of Committee (1 competitor, 1 team leader, 1 guide, 2 organizers) will be held in secrecy up to tomorrow
afternoon, in order to prevent any alien influence.

Rules and regulations:

- 1.) All participants of CEOI are allowed to take part in the Contest - competitors, team leaders, organizers and guides - with the exception of the members of The Committee who are not allowed.
- 2.) Only one photo from the same person is allowed. In case of two or more photos of the same contestant, the last one sent will be taken under consideration.
- 3.) E-mail has to contain a photograph and the name of the sender-contestant.

The contest is open from this very moment and it ends tonight at midnight!

1, 2, 3 ... GO!

SOLUTION from October 16 Daily Challenge #3 – "QR-inth (small)"

Solution for this problem is "boooo123".

Here is a short Python script that can help you solve the problem:

```
from qrcode import QR
import base64
import urllib

def make_image(data):
    image = base64.decodestring(data)
    f = open( 'test.png', 'w' )
    f.write( image )
    f.close()
    myCode = QR(filename="test.png")
    myCode.decode()
    return myCode.data

def parse_html(data):
    a = []
    while 1:
        beg = data.find( '<img alt="' )
        if beg == -1 : break
        end = data.find( '"/></p', beg )
        if end == -1 : break

        direction = data[beg+10: data.find('"',beg+10 )]
        part = data[beg:end]
        a.append( [direction, make_image( part[part.find(
'base64,' )+7:] )] )
        data = data[end:]

    return a
```

```
def get_link(item):
    p = urllib.urlopen(item)
    return [p.geturl(), p.read()]

S = set()

def dfs(item):
    global S
    link = item[0]
    data = item[1]

    if link in S: return
    S.add( link )

    data = parse_html( data )

    if len( data ) == 0 :
        print link
        exit()

    for x in data:
        dfs( get_link( x[1] ) )

    return

dfs( get_link(
'http://vilma.hsin.hr/~agrbin/small/f35e2426f7f558d3c724
7bc306b75a2a.html' ) )
```

Daily Challenge #4 – "sms"

```

+++++
Welcome_to_city_of_Primosten_and_have_the_best_of_luck_
+++++
    
```

Sending these joyful words using the Short Message Service is painful 'cause one message is limited to 160 characters and this message has 176 bytes: 58 characters per line and two newline characters. Forget the last newline character. What I came up with is this: don't write the text; write a C program that will output it! Will that fit in a message?

Write a C program with source size no more than 160 bytes, without any single nor double quotes, that can be compiled using *gcc*, and we care not about the warnings of any kind. Execution of program should write 176 bytes of above text.

Note: this task can be solved without using computer.



Author: Anton Grbin

Today's Schedule

| | CONTESTANTS | LEADERS |
|----------------------------|---------------------|-----------------------|
| THURSDAY, OCTOBER 17, 2013 | | |
| 07:00-09:00 | Breakfast | |
| 08:00-10:00 | Competition – Day 2 | Translating questions |
| 10:00-13:00 | | |
| 13:00-14:00 | Lunch | |
| 14:00-15:00 | Analysis | |
| 17:00-19:00 | Activities on pool | |
| 17:30-18:30 | | GA meeting |
| 19:00-21:00 | Dinner | VIP dinner |
| 21:00-22:00 | Karaoke – Piano bar | |

| Basic English | Croatian Dictionary |
|--------------------|-------------------------|
| Day..... Dan | Winner Pobjednik |
| Wind Vjetar | Medal..... Medalja |
| Night..... Noć | The Best Najbolji |
| StarZvijezda | LooserGubitnik |



Yesterday was indeed a very special day. Besides witnessing the heavy rain and beautiful landscapes, we celebrated Filip's 16th birthday!

