Faculty of Mathematics and Physics
Charles University in Prague
21st April 2016

C# Made Easy!

Programming II

Workshop 08 – Dynamic Programming

Workshop 08
Outline

1. Test
2. Dynamic Programming

Test 08

Almost no-test

Find the test here (no-ads):

https://goo.gl/mWgurp

`O vs. 0, i vs. l vs. 1`

Permanent link:

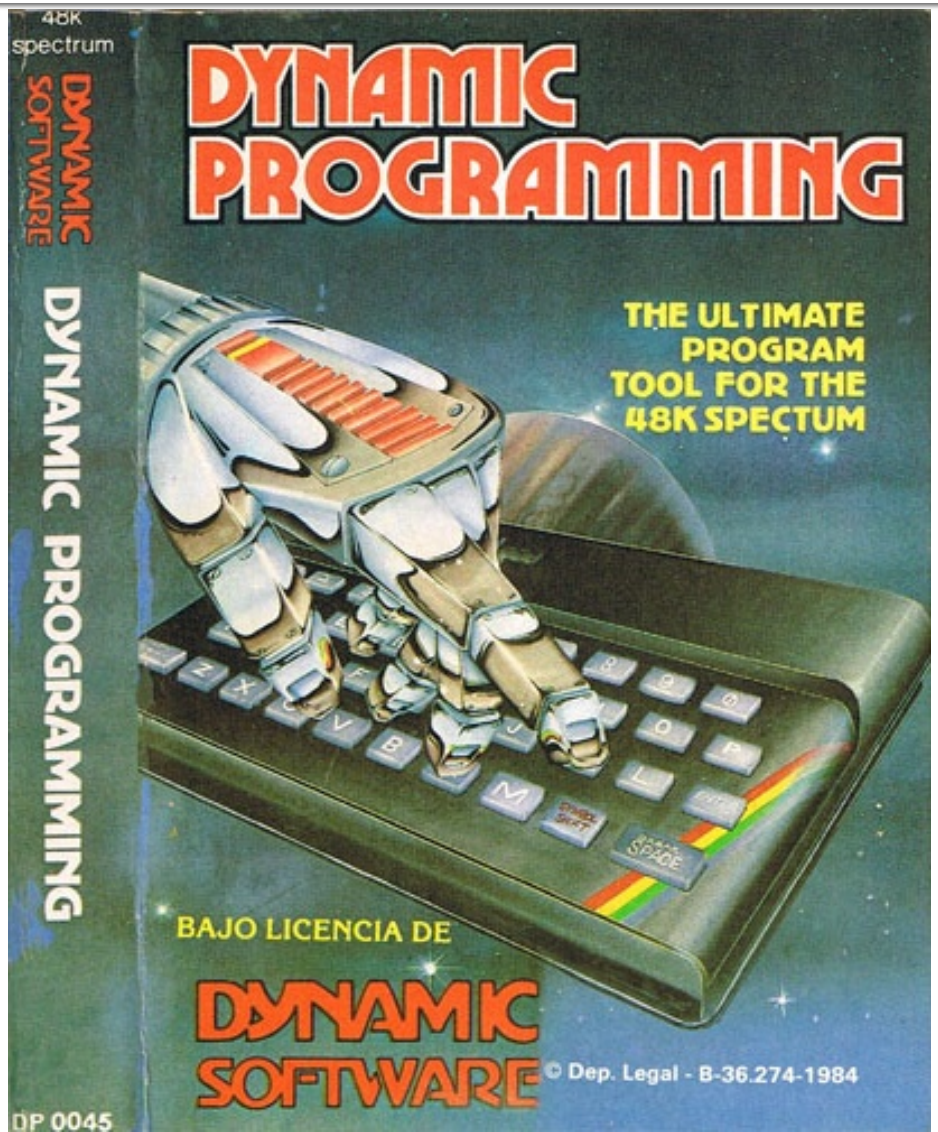
https://docs.google.com/forms/d/1SOojPooBf3xkU3iM_d76oggOn2EqVo1cJrhFQcNdgUo/viewform

Time for the test:

10 min

Topic

Dynamic Programming



Task 01
Keys

- We have a key that is determined by 5 “teeth”
- Every tooth can be in 5 positions
- Difference in positions between 2 teeth can be -1, 0, 1

- **How many types of such key you can have?**

Task 02
Tank Rental

- You run a successful TANK RENTAL bussiness
  - Literally, you have only 1 TANK
- You have a lot of bookings.
- But you cannot fulfill all of them …
  … you have to maximize your profit

You have list of (future) bookings

- Rent: Start day + time
- Back: End day + time
- Money

- **How to determine which set of bookings to accept?**

Task 03
From the life of MFF boy/girl

- You're really lucky MFF boy/girl …
  … as you have a boy/girlfriend!
- The problem is that, lately, you have to walk around the city a lot.
- And not every street is really interesting…
- What's worse, your partner's street-taste is opposite of yours!
  - But you have boy/girlfriend still, so that's not a problem!
- To make it bearable both of you have decided to take turns in choosing streets …

Task 03
From the life of MFF boy/girl

- Fortunately enough, the city you live in has NY-style streets (perpendicular) and blocks (squares), so the choices are really limited.
- And you are always walking between [A;B] -> [C;D] via 'shortest path'.

- **Is there a way for you to maximize your or his/her payoff (according where do you want to get…) during the walk?**

Task 04
The problem of the Egg and the Skyscraper

- WOW! Gene industry has outperform itself! They pull of hens that produce really eggs with really hard shells!
- Now its up to you to determine “how much hard” is the hard…
- You have “N” eggs and a really tall skyscraper … how many attempts do you need to determine the number of the floor, the egg breaks when thrown from?

No Assignment

Still time to finish the Hospital!

- Email: jakub.gemrot@gmail.com
- Subject: **Programming II – 2016 – Assignment 07**
- Zip up the whole project and send it
- You WILL NOT find the assignment in CoDex!
- Deadline: **30.9.2016 23:59**

Questions?

I sense a soul in search of answers…

- In case of doubts about the assignment or some other problems don't hesitate to contact me!
  - Jakub Gemrot
    - gemrot@gamedev.cuni.cz