

Faculty of Mathematics and Physics
Charles University in Prague
13th April 2015



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):

<http://goo.gl/PNdTKc>

Permanent link:

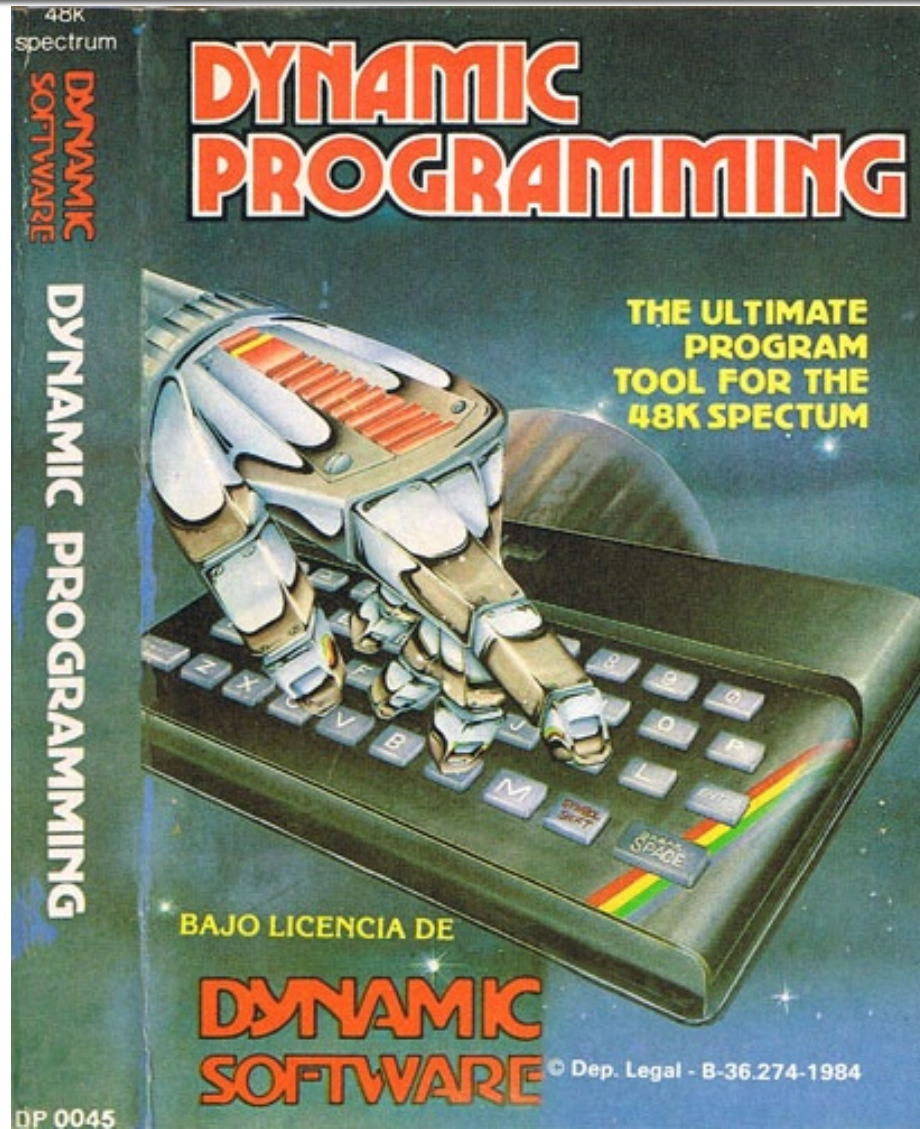
<https://docs.google.com/forms/d/1ly7Baq03gYj-Lhm1NBADHAVDQohs2yiCbaQvbiJyuMo/viewform>

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 business
 - 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 $[A;B] \rightarrow [C;D]$ 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 – 2015 – Assignment 07**
- Zip up the whole project and send it
- You WILL NOT find the assignment in CoDex!
- Deadline: **19.4.2015 23:59**

Questions?

I sense a soul in search of answers...

- Sadly, I do not own the patent for perfection (and will never do)
- In case of doubts about the assignment or some other problems don't hesitate to contact me!
 - Jakub Gemrot
 - gemrot@gamedev.cuni.cz