

Exercise 9: It's Christmas time!

Task 1: Self-stabilization survey

- a) Check out the algorithms from the lecture and the exercises. Make a table, marking each¹ of them as one of the following: (i) trivially self-stabilizing (this includes trivial modifications), (ii) well-suited for the transformation from the lecture, (iii) self-stabilizing with straightforward modifications, (iv) solving a problem unsuitable for a self-stabilizing algorithm, (v) you believe it can be made self-stabilizing, but it's not that simple, (vi) you believe it can't be made self-stabilizing, but it's not easy to show, and (vii) you haven't the foggiest idea.
- b) Add a bit of explanation where you think it's helpful or needed.
- c) Discuss unclear cases in the exercise session!

Task 2: Mandatory merriment

- a) Meet everyone at the Christmas market on Sunday at 6 pm.
- b) Prepare three slips of paper:² (i) something that's great about the lecture, (ii) something that should or could be improved, and (iii) something you found hilarious. Put them into the hat Cosmina will bring.
- c) Take turns in drawing a slip and reading it out to the others.
- d) Enjoy yourselves!

Task 3*: Christmas MST

Color Tree	RGB
1	(255, 255, 0)
2	(34, 139, 34)
3	(165, 42, 42)
5	(255, 0, 0)
20	(193, 255, 244)

- a) Determine the MST of the graph given in Figure 1! The edge weights are given in the table above, i.e., an edge labeled 1 has weight (255, 255, 0) (lexicographical order).
- b) Color each MST edge according to its weight, reading it as an rgb code!
- c) Look for other Christmas trees in the computer science literature! (Hint: xkcd.)
- d) Have a Merry Christmas and a Happy New Year!

¹There's no need to make separate entries for algorithms that are essentially the same, e.g., the various variants of Cole-Vishkin we encountered. (Unless this changes their category, of course.)

²Print for extra anonymity. I don't know your handwritings, though, and Cosmina won't tell anything.

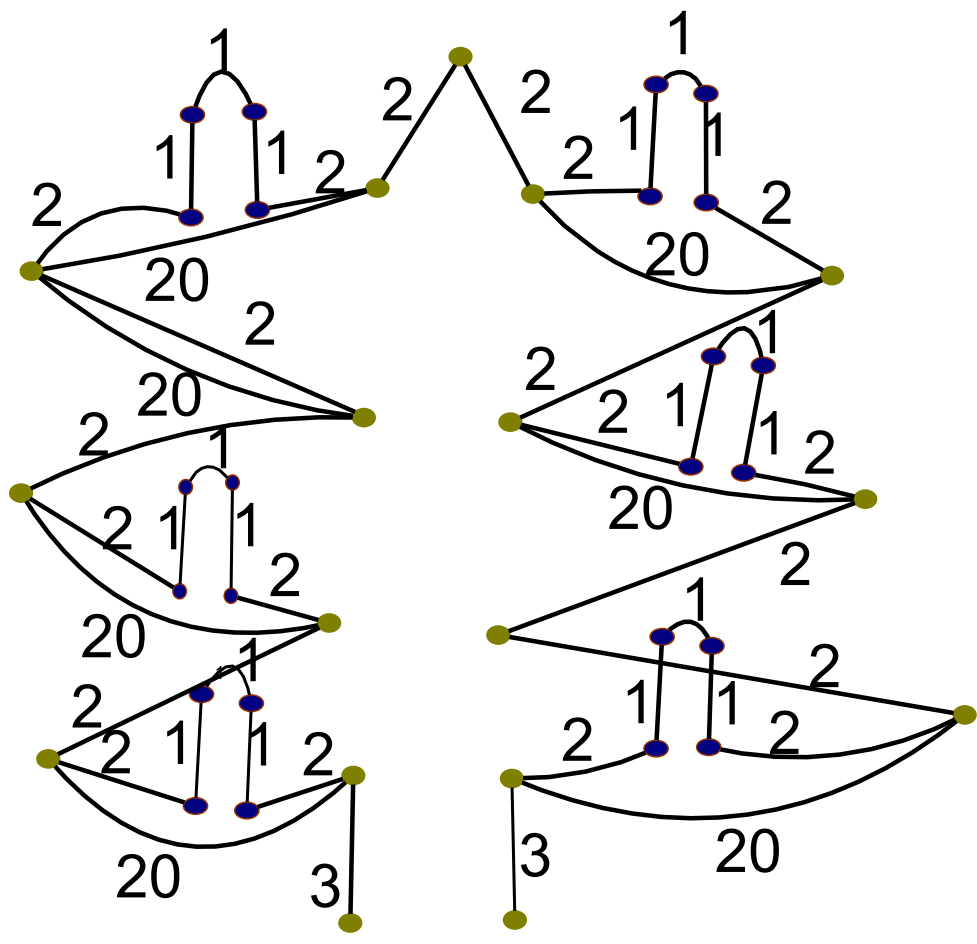


Figure 1: Thinly disguised Christmas Tree.