VisuAlgo – Visualising Data Structures and Algorithms Through Animation

Steven HALIM

School of Computing, National University of Singapore
Computing 1, 13 Computing Drive, 117417, Singapore
e-mail: dcssh@nus.edu.sg

VisuAlgo (Fig. 1, http://visualgo.net) is the continuation of the work that was presented in IOI conference 3 years ago[1] (Halim *et al.* 2012). VisuAlgo retains all the strong points of its predecessor:

- A web-based algorithm visualization tool without the need to install any additional software.
- It uses the latest web technology: HTML5, CSS3, JavaScript.
- It allows users to specify their own algorithm inputs and the visualization will work with that inputs.
- It is a collection of algorithm visualizations with unified interface.

VisuAlgo is a major improvement over its predecessor with ~2000 sessions daily from worldwide visitors:

- It has significantly many more algorithm visualizations in the collection – all with the same unified look and feel. Almost all visualize-able data structures and algorithms covered in the author's Competitive Programming book 3rd ed (Halim and Halim, 2013) have been included in VisuAlgo.
- It has an improved User Interface and more detailed algorithm animation steps.
- More importantly, we have added an important learning component: An *Online Quiz* tool (Fig. 2). It currently has hundreds of questions (and growing) with *randomized inputs and/or question parameters that can be graded instantly*. A Computer Science instructor can assess the *basic* data structure and algorithm knowledge of his/her students with much less effort. Computer Science students can also *self-assess* their proficiency of the basic material and they can always go back to corresponding visualization tool to restudy the concepts if they need to do so.

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[1] The old URL: http://www.comp.nus.edu.sg/~stevenha/visualization/ is now no longer used.

References

Halim, S., Koh, Z.C., Loh, B.H.V., Halim, F. (2012). Learning algorithms with unified and interactive web-based visualization. *Olympiads in Informatics*, 6, 53–68.

Halim, S., Halim, F. (2013). *Competitive Programming 3: The New Lower Bound of Programming Contests.*
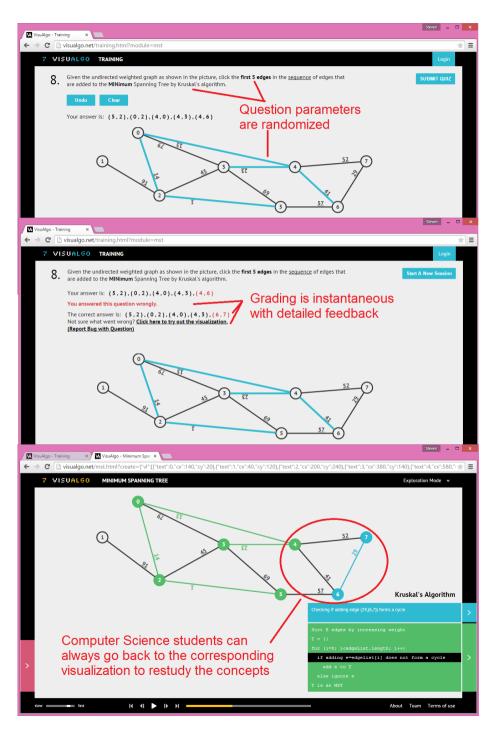`http://cpbook.net`

Fig. 1. VisuAlgo landing page.

Fig. 2. The newest Online Quiz feature of VisuAlgo.