University of Glasgow | School of Computing Science

Algorithm Animator

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Abstract

For teaching purposes it is useful to be able to animate algorithms and produce a visual representation of how they work. The basic idea is to use a diagrammatic representation of a data structure, for example an array or a tree, and illustrate the algorithm step by step, showing how the data structure is accessed and changed. The aim of this project is to design and implement a system for animating algorithms. There are at least two possible approaches. One is to design and implement a simple programming language in such a way that all programs are animated while being executed. Another is to design and implement an API for animations, so that an existing program (in Java, for example) can be animated by inserting calls to your library. The system should be as general as possible in the sense of supporting a range of styles of algorithm, and should be demonstrated by producing a range of animations of standard algorithms. It would also be useful to be able to capture the animation in a form that can be viewed independently of your system, for example as a sequence of HTML pages or a Flash animation.

Education Use Consent

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Chapter 1

Introduction

Alice [1] was beginning to get very tired of sitting by her sister on the bank and of having nothing to do: once or twice she had peeped into the book her sister was reading, but it had no pictures or conversations in it.

Alice opened the door and found that it led into a small passage, not much larger than a rat-hole: she knelt down and looked along the passage into the loveliest garden you ever saw.

Figure 1.1: Behind it was a little door

Chapter 2

Design

The following diagrams (especially figure 1.1) illustrate the process...

Chapter 3

Implementation

In this chapter, we describe how the implemented the system.

3.1 User Interface

Blah blah blah Blah blah blah Blah blah blah Blah blah blah

3.2 Problems Encountered

3.2.1 Arthur Bigeard

3.2.2 Alexander Ferguson

3.2.3 Andrew Gibson

3.2.4 Gediminas Leikus

3.2.5 Liam Bell

Chapter 4

Evaluation

We evaluated the project by...

Chapter 5

Conclusion

ASD

5.1 Contributions

5.1.1 Arthur Bigeard

5.1.2 Alexander Ferguson

5.1.3 Andrew Gibson

5.1.4 Gediminas Leikus

5.1.5 Liam Bell

Bibliography

[1] L. Carroll. *Alice's Adventures in Wonderland*. Macmillan, 1865.