Open Source Textbooks: Design Spec

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1 Summary

With this project we will develop macros to simplify the drawing of diagrams for CS textbooks, and possibly other disciplines. These professional looking diagrams will improve on existing open source textbooks.

2 Goals

2.1 Learn

We will be tasked with learning Plain TeX, LaTeX, DraTeX, AlDraTex, TeX4ht and Prof. Bergmann's macros for object diagrams and compilers.

2.2 Explore

We will be tasked with looking into the need for diagrams in other disciplines. We will also be exploring existing facilities for colors and/or links in LaTex.

2.3 Implement

We will be tasked with implementing macros to facilitate the drawing of diagrams. The diagrams which need to be drawn, as well as interchangeable colors and ability to apply content links will be implemented.

3 Minimum Expectations

3.1 Diagrams for CS textbooks

- Arrays
- Object diagrams
- Linked Lists
- HashTables
- Stacks, Queues

3.2 Improvements to existing open source textbooks

- Python textbooks are in need of diagrams

- Imbed colored text/figures in existing textbooks?

- Imbed links in existing textbooks?

4 Product Features

4.1 Scalability

The ability for the diagrams to scale to either the page or to other objects around the diagram.

4.2 Color Scheme

The diagrams will have the ability to have the color changed.

4.3 Links

The support of links within a document to ease transition to certain content.

5 Limitations

5.1 Diagrams for other subjects

Working on diagrams for other subjects may be out of the scope of this project. We may not have enough time to get to other diagrams such as ones that may assist with open source books for biology, chemistry, etc. We will be focusing solely on computer science oriented diagram creation.

5.2 Scalability Issues

Some diagrams can be too large to scale.

6 Deliverables

6.1 Demo (mid April)

6.2 STEM poster (mid April)

6.3 Class Presentation (early May)

6.4 Software Macros

6.5 Edited Textbook(s)