E-Reader GUI
Project Abstract

Target Course

E-Reader GUI is designed for CSc 335 Object-Oriented Programming and Design, preferably assigned early in the semester, but only after the students have used some JComponents and event listeners in previous projects or sections. Also, the students should have at least been exposed to the other relevant JComponents, event listeners, and the Observer Design Pattern in lectures and code demos.

Description

E-Reader GUI is a program that mimics the basic functionality of an e-reader, which displays a page-by-page view of the book *Alice's Adventures in Wonderland*. The graphical user interface allows the user to turn pages, jump to a specified page, and toggle a 'Dark Mode' on and off.

Java Components Used

E-Reader GUI requires the use of `JFrame`, and various `JComponents`, such as `JButton`, `JTextField`, `JTextArea`, `JLabel`, `JMenuBar`, `JMenuItem`, and `JCheckBoxMenuItem`.

The project also requires the use of the class `Observable` and the interfaces `Observer`, `ActionListener`, and `KeyListener`.

Rationale

Professors often create projects based on popular games, platforms, or devices that are familiar to the students. An e-reader is a common device that is simple enough to simulate and is a great way to familiarize the students with Java's graphical capabilities. Additionally, the back-end (non-GUI component) of this program is relatively trivial for CSc 335 students, so the project allows the student to spend most of their time on the graphical elements and the event listeners.

Objective

The project incorporates many common JComponents, plus listeners for four common types of user-triggered events, setting the student up for success in future projects and front-end programming in general. The project also requires them to use the Observer Design Pattern, which is useful when working with several graphical components that need to be updated simultaneously.

All of these requirements are designed to be challenging, but not overwhelming for a student in CSc 335.