📖 PROJECT_REPORT.md

litEditor

Simple Markdown Editor made with Python Tkinter

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Aim

To Develop a Markdown Editor guided by the following Principles :

1. Minimal Traditional Functionality
2. Non-Native UX Patterns
3. KISS (Keep it simple and stupid)

Abstract

Almost every text editor presents the user with vast number of styling choices and fancy features. It lets user to lose balance between productivity and decent styling. Markdown language mitigates the problem of decent styling, but most of the markdown editors are feature rich or heavy and distracts the user. This project is motivated to address this issue by providing a markdown editor with minimal functionality and non-distracting environment. it implements auto save functionality, so the user focuses only on creating content. The user is presented with recently edited files making it quicker to switch between files. it also avoids native menu bar in favour of tabs so that the user is presented with minimum number of options.

Markdown Language

What is Markdown?

Markdown is a way to style text on the web. You control the display of the document; formatting words as bold or italic, adding images, and creating lists are just a few of the things we can do with Markdown.Mostly, Markdown is just regular text with a few non-alphabetic characters thrown in, like `#` or `*`.

Why Markdown?

- **Easy On The Eyes:** The overriding design goal for Markdown's formatting syntax is to make it as readable as possible.
- **Fewer Errors:** Markdown's simplicity and flexibility helps you make fewer mistakes, and errors are much easier to find.
- **Kill Your CMS(Content management system):** Markdown can be written anywhere there's a blinking cursor and shared in any format. It's just plain text. You don't need any WYSIWYG controls, because the Markdown characters actually look like the formatted results you'll get.

UI Spec

1. Tab Layout

📁	
✍️	
🔥	Selected Tab's Page
👀	

   i. 📁 - Select Folder
   ii. ✍️ - Edit Markdown
   iii. 🔥 - Edit Markdown and Markdown Preview side by side
   iv. 👀 - Markdown Preview

Basic Features

1. Cut, Copy, Paste between `clipboard` and the `Editable Text Area`
2. Undo, Redo
3. Keyboard shortcuts for the above two
4. Preview Markdown

Additional Features

1. Auto save
2. Recent Files
3. Edit and Preview side by side
4. Default dark theme

Typical User Flow

1. on opening litEditor, the user is presented with a Window with tabs (📂, ✍️, 🔥, 👀)
2. ✍️,🔥 & 👀 will be disabled
3. 📂 will be selected
4. after user selects a file in 📂.The disabled tabs(✍️,🔥 & 👀) will become active
5. user edits the markdown in either ✍️ or in one of the sides of 🔥
6. the edit is reflected in the preview(🔥 or 👀) live
7. changes are saved as the user is editing
8. if the user were to switch to 📂, then continue from step 4.

State Management

Why ?

Changes in state and effects of those changes are separated into different places for maintainability, and these are stream of changes. (ex - editing text in `✍ or 🔥 - Markdown Editor` must be reflected in `🔥, 👀 - Markdown View` and `auto saving system`). We need a mechanism to effectively communicate and handle these changes.

How ?

We are going to follow the `Observer Pattern ⚡`. Tkinter provides `StringVar` that can be used to implement this pattern.

Architecture Overview

Initializing

- `main.py` is the entry point of the application
- `lit_editor` function declares the initial state of the application
- `lit_editor` instantiates `StringVar`'s
  - `logic` functions are called which reacts to the changes of the `StringVar`'s
  - `other UIs` are built passing their required `StringVar`'s
  - `other UIs` are placed according to layout

Working

- the `StringVar`'s passed from `lit_editor` help in communication
- `UI` updates those observables
- `UI` & `Logic` observes those updates and acts accordingly

3rd Party Libraries

Markdown to Html (`markdown2`)

- A fast and complete Python implementation of Markdown.
- we use it to convert Markdown texts into HTML string.

HTML Support (`tkhtmlview`)

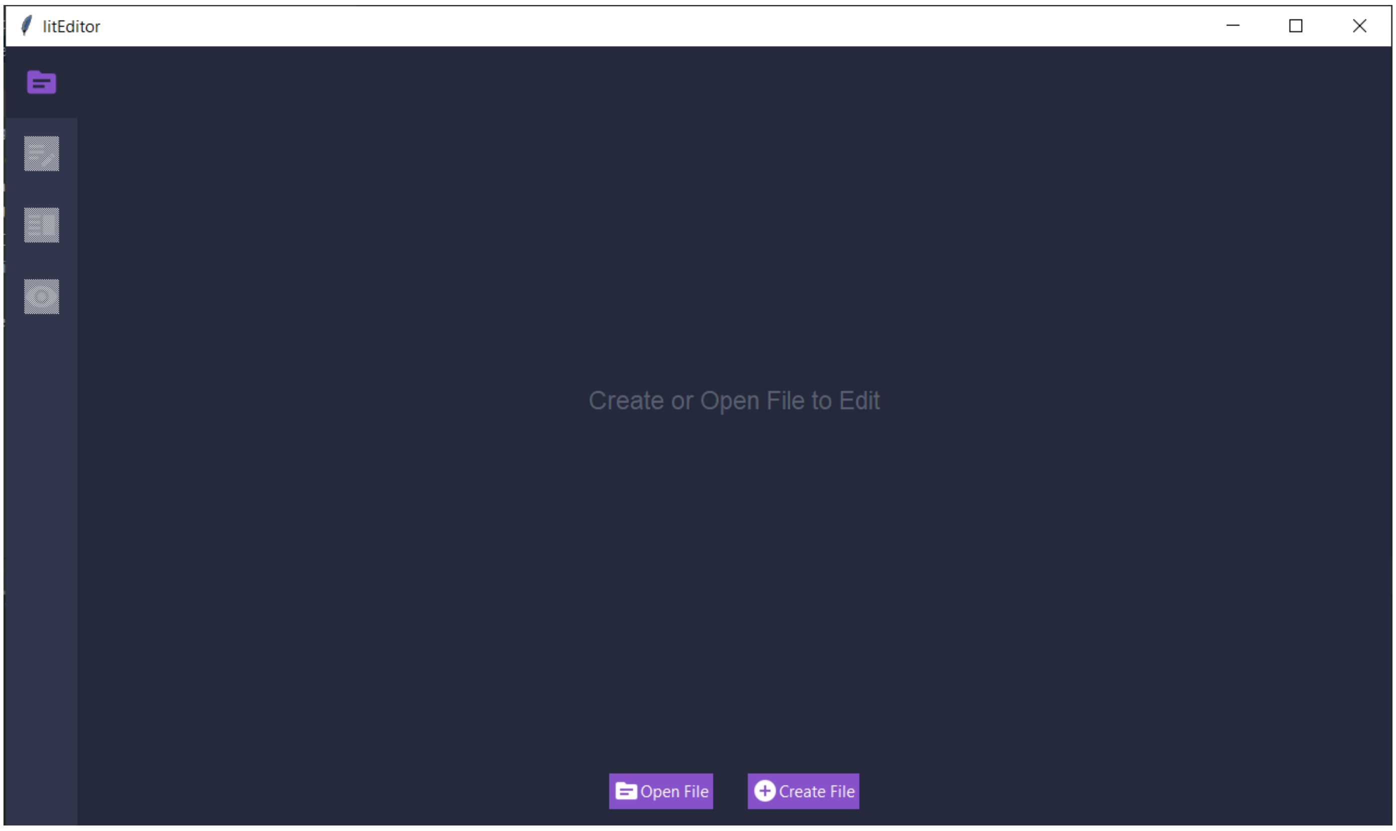
- This module is a collection of tkinter widgets whose text can be set in HTML format. A HTML widget isn't a web browser frame, it's only a simple and lightweight HTML parser that formats the tags used by the tkinter Text base class.
- we use this module to display the html generated by `markdown2`

Icon Support (`pillow`)

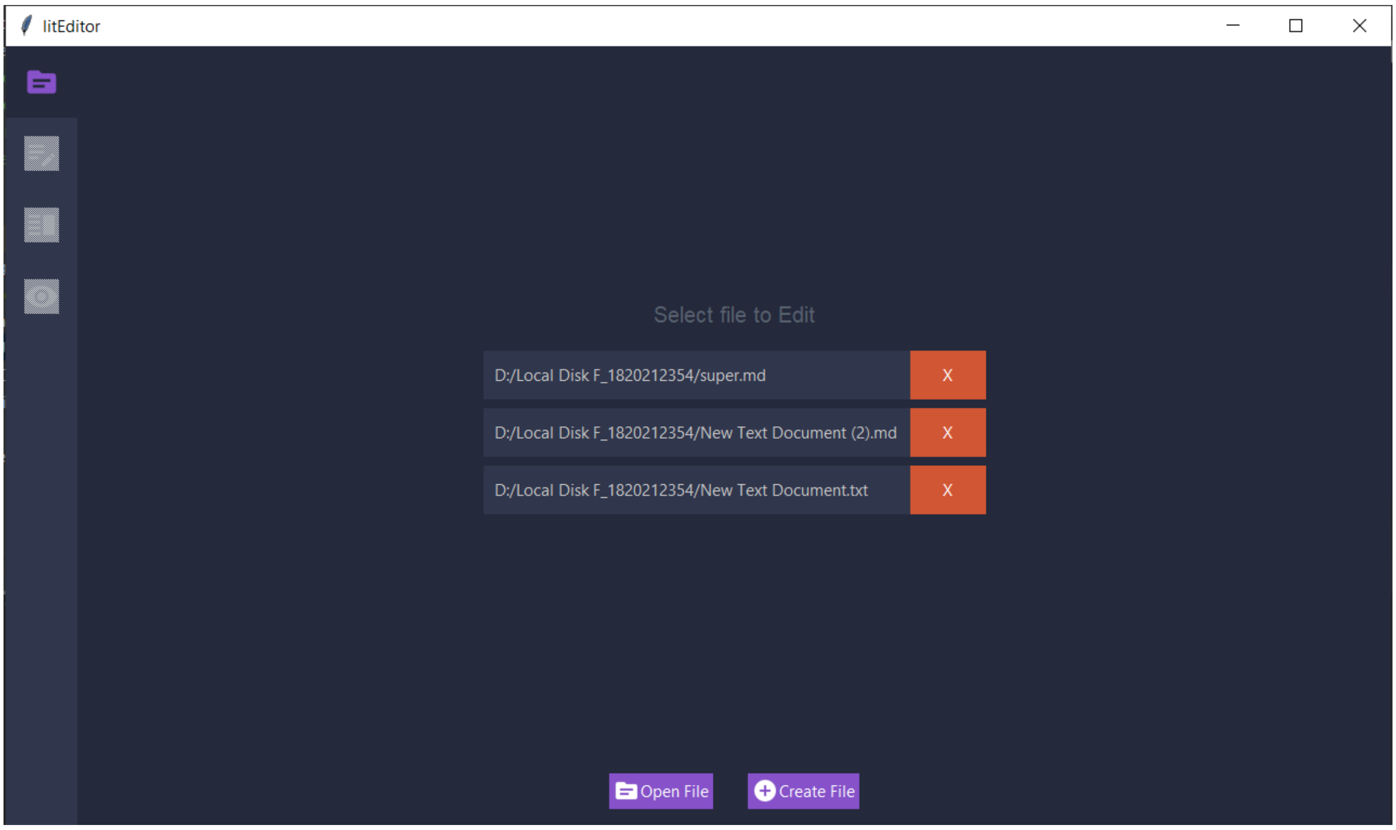
- The Python Imaging Library adds image processing capabilities to your Python interpreter.
- This library provides extensive file format support, an efficient internal representation, and fairly powerful image processing capabilities.
- The core image library is designed for fast access to data stored in a few basic pixel formats. It should provide a solid foundation for a general image processing tool.
- we use this module for displaying icon

Screenshots of the Application

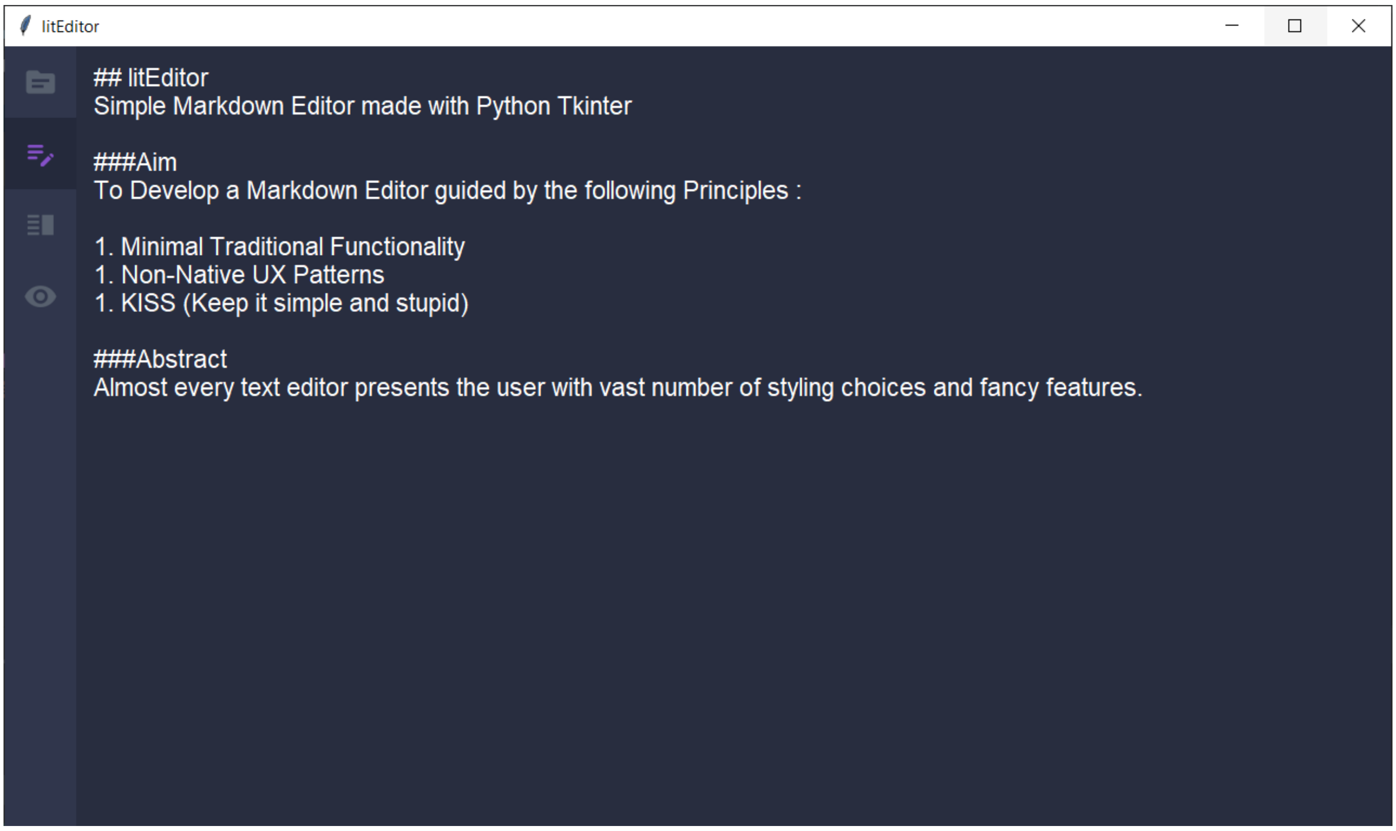
> First Experience



> Returning User Experience


litEditor
Select file to Edit
D:/Local Disk F_1820212354/super.md
X
D:/Local Disk F_1820212354/New Text Document (2).md
X
D:/Local Disk F_1820212354/New Text Document.txt
X
Open File
Create File

Editing Markdown



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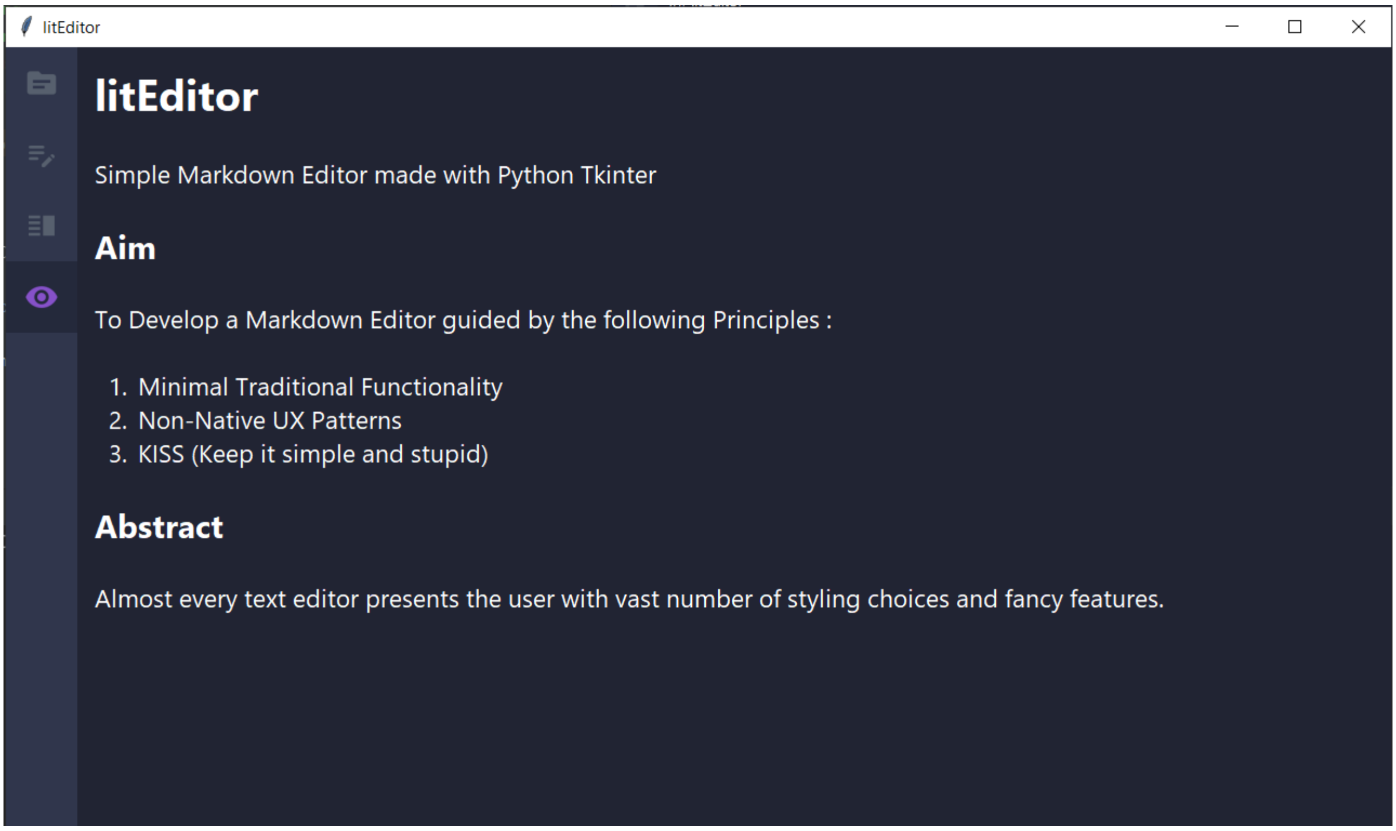
Previewing Markdown



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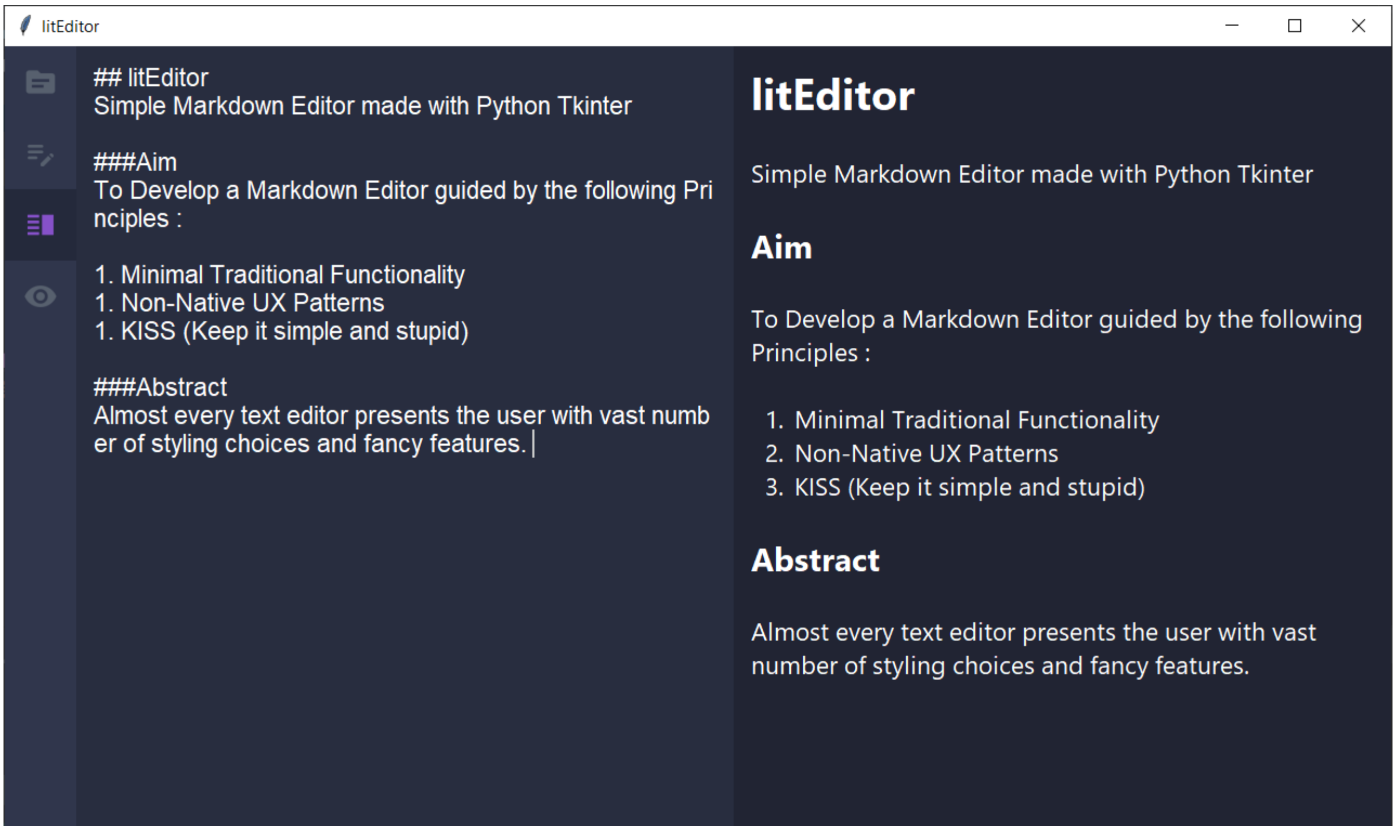
> Editing and Previewing side by side



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How to run ?

Prerequisites

- `>= python 3.7`
- dependencies in `requirements.txt` file
- `git`

Steps

- `git clone https://github.com/Pushpavel/litEditor.git`
- install required dependencies
- `python main.py`