



The Future Is Write Here

Rich Text Editing In Notebooks

[jupytercalpoly/jupyterlab-richtext-mode](https://github.com/jupytercalpoly/jupyterlab-richtext-mode)

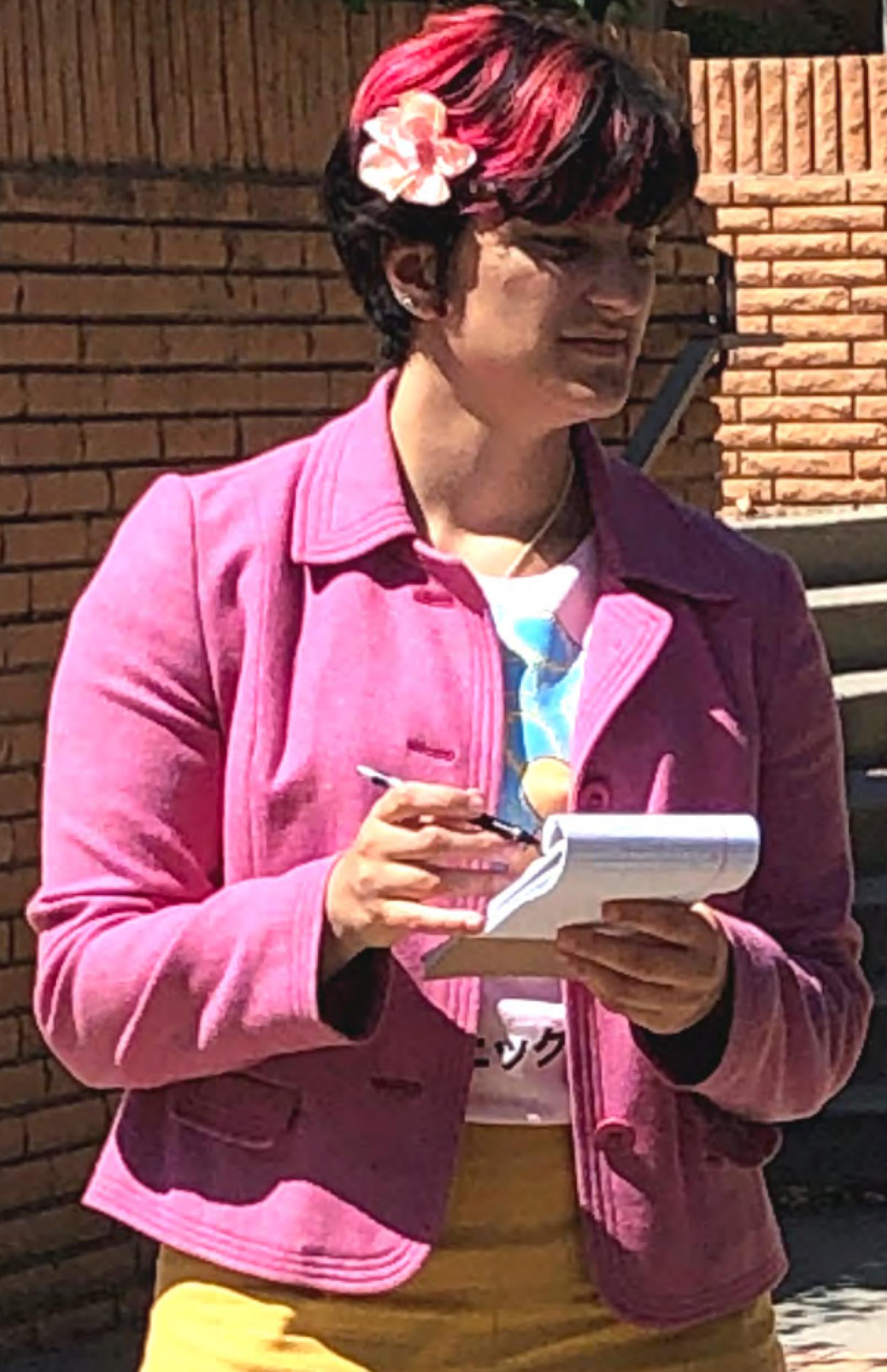
Or try it on Binder: bit.ly/2UhnPVQ

Derek Lam
Software Engineer Intern

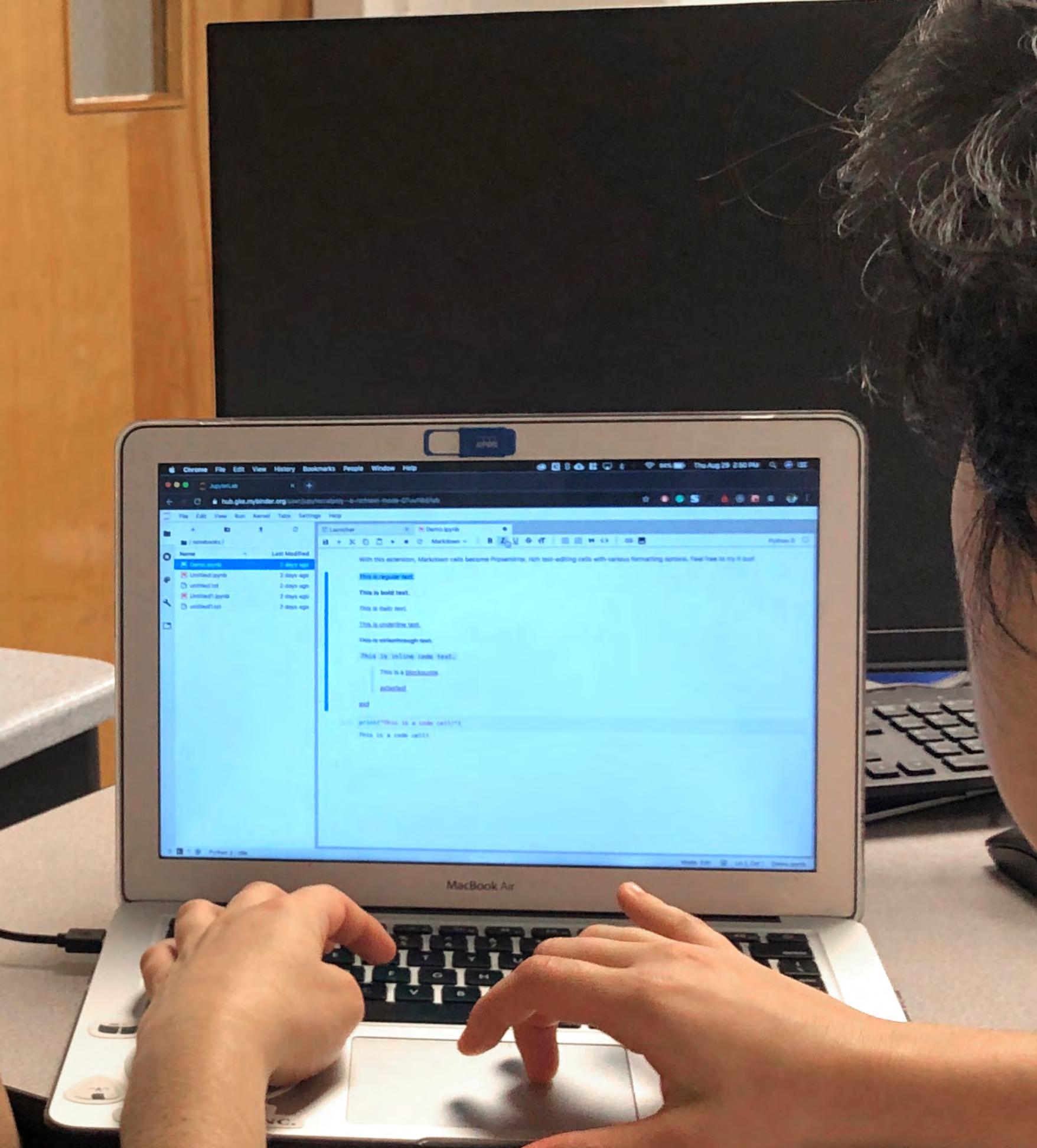
Isabela Presedo-Floyd
UX/UI Intern

**Notebooks aren't
only about code.**





100



```
File Edit View Insert Kernel Help
```

hub.gatewayside.org:8888/notebooks/Untitled.ipynb?token=0f945d8b

Name Last Modified

- Untitled.ipynb 2 min ago
- Untitled_2.ipynb 2 min ago
- Untitled_3.ipynb 2 min ago
- Untitled_4.ipynb 2 min ago
- Untitled_5.ipynb 2 min ago

Launcher

Demo.ipynb

With this extension, Markdown cells become ProseMirror, rich text editing cells with various formatting systems. Feel free to try it out!

REGULAR TEXT

This is bold text.

This is italic text.

This is underline text.

This is strikethrough text.

This is inline code text.

This is a blockquote

and

print("This is a code cell")

This is a code cell



Specifications:	
Material:	ABS
Functions:	Essential oil diffuser / Humidifier / Aroma Diffuser / Aroma Lamp / Night Light
Time:	1H/3H/6H
Continuous	On/Off
Humidifying	20ml/h
Room size:	Diffusing 30ml/h
Power supply:	Input AC 100~240V/Output DC 5V/1A
Power consumption:	1W
Capacity of Water Tank:	280ml (max.)
Humidification:	-30ml/h
Dimension:	215*140*35*20 F*40mm/ H32*140mm
Accessories:	Adapter, Measuring cup, User manual, wooden bottom
white bottom:	<input type="checkbox"/>
wooden bottom:	<input checked="" type="checkbox"/>
Made in China	<input type="checkbox"/>

Pain Points

Prior knowledge of Markdown required to format text.

Markdown is less readable than previewed rich text.

No spell check means no quick way to find spelling errors.

Markdown does not have indenting options needed to create a proper bibliography.

There is not a way to preview, edit, or convert word processor file types, like .docx, without leaving JupyterLab.

Pain Points

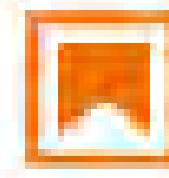
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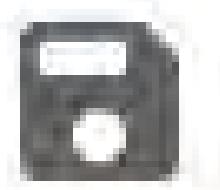
No spell check means no quick way to find spelling errors.

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create a proper bibliography.

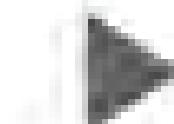
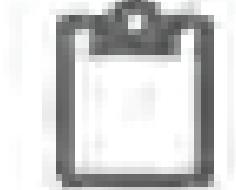
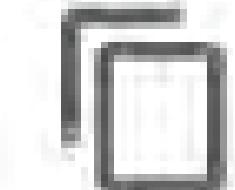
There is not a way to preview, edit, or convert word processor
file types, like .docx, without leaving JupyterLab.



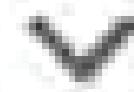
notebook.ipynb



+



Markdown



****Raw Markdown** isn't enough.**

Bold, Italic, Strikethrough, Underline, and Text Styles

jupytercalpoly/jupyterlab-richtext-mode

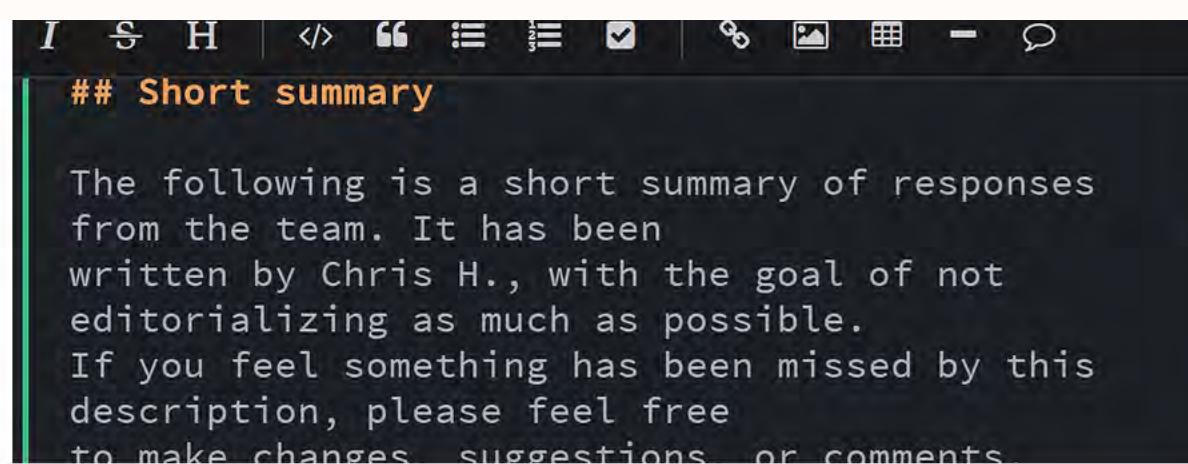
WYSIWYG markdown editor in JupyterLab?

JupyterLab

choldgraf Regular

May 13

What The Community Is Saying



Short summary

The following is a short summary of responses from the team. It has been written by Chris H., with the goal of not editorializing as much as possible. If you feel something has been missed free to make changes, suggestions, or comments.

I'm thinking that if one wants a preview option know you want to edit even realized that she will be afraid of the file. So, what do you think?

It would be really great if we could have a editor with buttons for bold, italic, etc for markdown - similar to how the github editor is

This would make things simpler for users who haven't used markdown before



blink1073 commented on Jun 5, 2017

As in, a per-cell toolbar that has these buttons?

blink1073 added the status:Needs Info label on Jun 5, 2017

ellisonbg commented on Jun 5, 2017

For this case, we may even want to have Cameron take pass at a toolbar that shows above the editor when in edit mode for MD cells.



betatim

Apr 7

We could even go one step further: only display a WYSIWYG editor for markdown files (and markdown cells 3).

With an option to switch back to the current "hacker mode" for writing formatted by writing markdown by hand 😊

Support for output figure captions in Notebook

jni opened this issue on Apr 11, 2017 · 13 comments



jni commented on Apr 13, 2017

Hi @mpacer! Yes we are definitely happy to be included. I suspect that anyone who's tried to write a book or paper with Notebook will have ideas to contribute here. Perhaps it's worth setting up a mailing list?

What The Community Is Building

[genepattern/jupyter-wysiwyg](#)

A WYSIWYG markdown/HTML editor for *Jupyter Notebook*

[nbextension](#) [jupyter](#) [python](#) [wysiwyg-editor](#)

BSD-3-Clause license Updated 5 days ago

[bollwyvl/jupyterlab-outsource](#)

Edit (code, prose) with things other than code

BSD-3-Clause license Updated on Aug 28, 2018

[uclixnjupyternbaccessibility/accessibility_toolbar_tests](#)

Automated selenium tests for Jupyter Notebook *accessibility toolbar* extension

Updated 6 days ago

Lists, Block Quotes, Links, and Images

jupytercalpoly/jupyterlab-richtext-mode

Expectations: Rich Text Editing

The screenshot shows a Microsoft Word document titled "Document1". It contains two main sections: "Lorem Ipsum" and "Dolor Sit Amet". The "Lorem Ipsum" section includes a short paragraph and a numbered list. The "Dolor Sit Amet" section includes a short paragraph and a numbered list. The Word ribbon is visible at the top, and the status bar at the bottom indicates "Page 1 of 1" and "203 Words".

The screenshot shows a Google Docs document titled "Lorem Ipsum". It contains two main sections: "Lorem Ipsum" and "Dolor Sit Amet". The "Lorem Ipsum" section includes a short paragraph and a numbered list. The "Dolor Sit Amet" section includes a short paragraph and a numbered list. The Google Docs interface is visible, including the toolbar and sidebar.

The screenshot shows a LibreOffice Writer document titled "Untitled - Edited". It contains two main sections: "Lorem Ipsum" and "Dolor Sit Amet". The "Lorem Ipsum" section includes a short paragraph and a numbered list. The "Dolor Sit Amet" section includes a short paragraph and a numbered list. The LibreOffice Writer interface is visible, including the toolbar and sidebar.

The screenshot shows a Microsoft Word document titled "Untitled 1 - OpenOffice Writer". It contains two main sections: "Lorem Ipsum" and "Dolor Sit Amet". The "Lorem Ipsum" section includes a short paragraph and a numbered list. The "Dolor Sit Amet" section includes a short paragraph and a numbered list. A sidebar on the right side of the screen displays various file and document-related options.

Reality: Raw Markdown

The screenshot shows a Microsoft Word document titled "Document1". The content is as follows:

Lorem Ipsum
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

1. At vero eos et accusamus et iusto odio dignissimos ducimus
 - a. Ut enim ad minim veniam
2. Et harum quidem rerum facilis est et expedita distinctio.
3. Nam libero tempore

Dolor Sit Amet
Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo.

1. Ut enim ad minima veniam, quis nostrum exercitationem ullam corporis suscipit laboriosam, nisi ut aliquid ex ea commodi consequatur?
2. Quis autem vel eum iure reprehenderit qui in ea voluptate velit esse quam nihil molestiae consequatur, vel illum qui dolorem eum fugiat quo voluptas nulla pariatur?

Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem sequi nesciunt. Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit, sed quia non numquam eius modi tempora incident ut labore et dolore magnam aliquam quaerat voluptatem.

Page 1 of 1 203 Words English (US)

The screenshot shows a Jupyter Notebook cell titled "Untitled1.ipynb" in "Markdown" mode. The content is as follows:

```
# Lorem Ipsum
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

1. At vero eos et accusamus et iusto odio dignissimos ducimus
   a. Ut enim ad minim veniam
2. Et harum quidem rerum facilis est et expedita distinctio.
3. Nam libero tempore

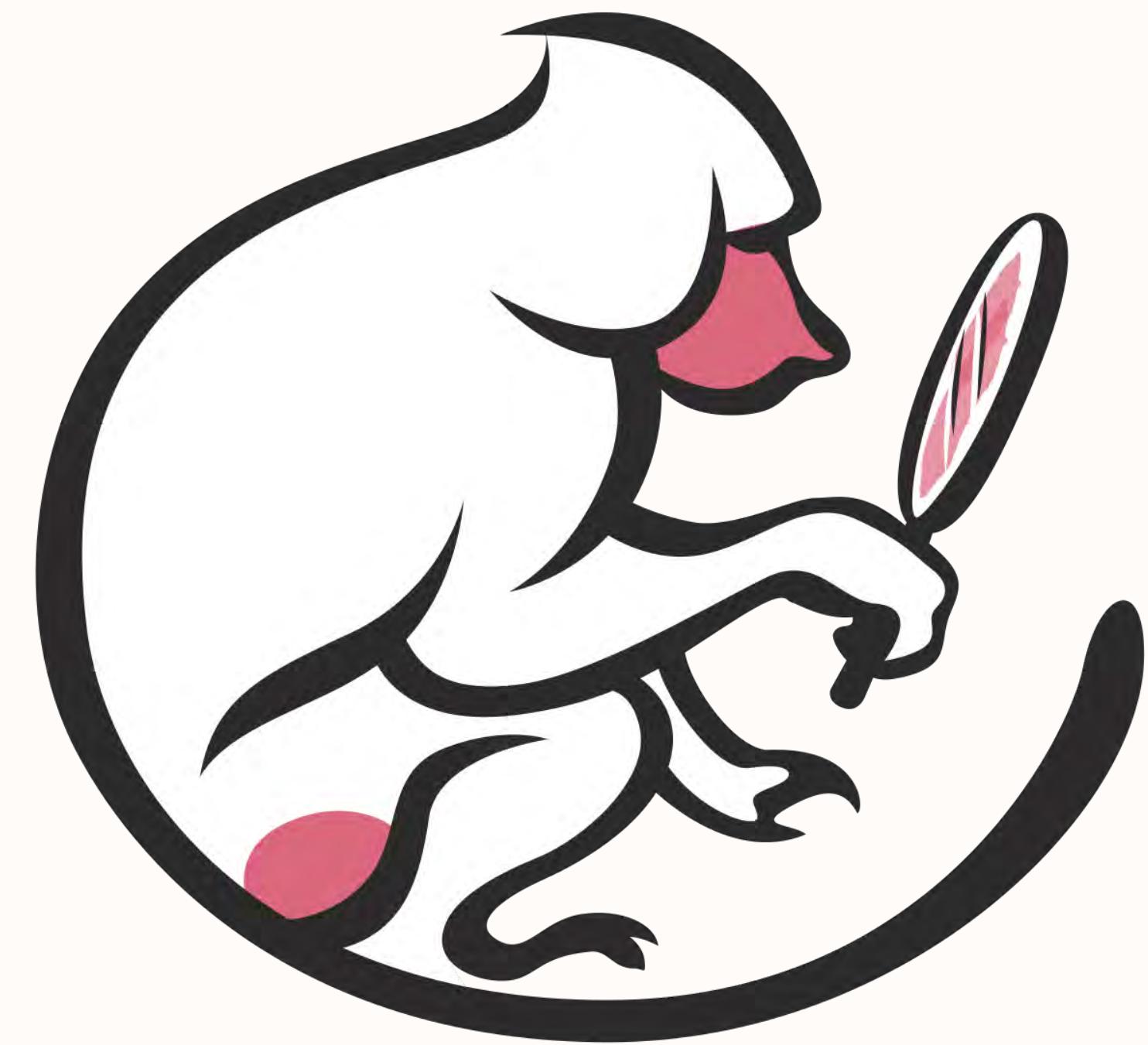
## Dolor Sit Amet
Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo.

1. Ut enim ad minima veniam, quis nostrum exercitationem ullam corporis suscipit laboriosam, nisi ut aliquid ex ea commodi consequatur?
2. Quis autem vel eum iure reprehenderit qui in ea voluptate velit esse quam nihil molestiae consequatur, vel illum qui dolorem eum fugiat quo voluptas nulla pariatur?

Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem sequi nesciunt. Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit, sed quia non numquam eius modi tempora incident ut labore et dolore magnam aliquam quaerat voluptatem.
```

Live Rendering, Spell Check, Code, and Math

jupytercalpoly/jupyterlab-richtext-mode



Right now, JupyterLab uses CodeMirror

Possible Editor Frameworks



Draft.js

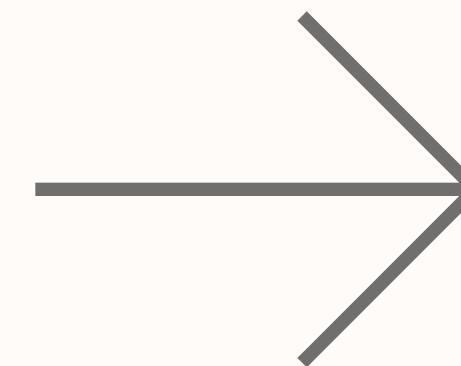
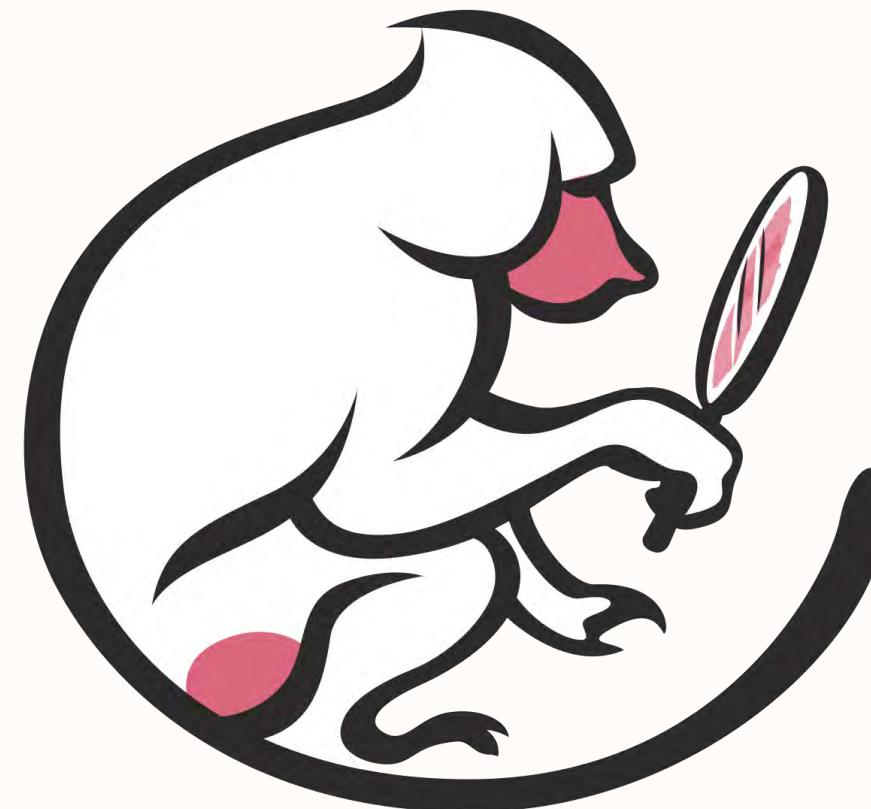


ProseMirror



Slate.js

The Framework We Chose



CodeMirror

ProseMirror

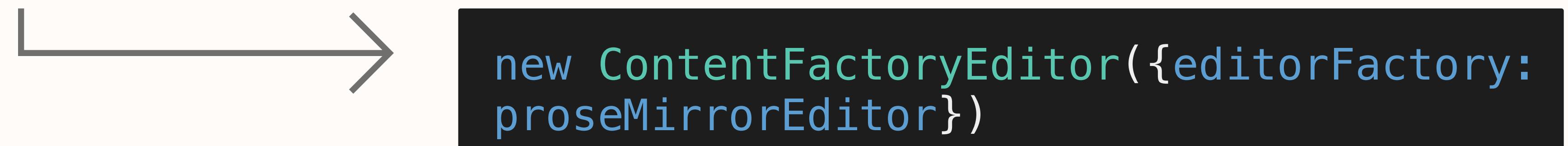
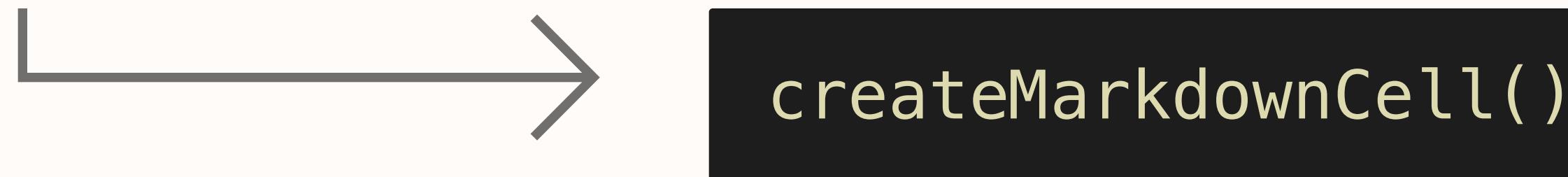
[bollwyvl/jupyterlab-outsource](#)

Edit (code, prose) with things other than code

BSD-3-Clause license Updated on Aug 28, 2018

How We Swapped Editors

```
class ContentFactoryEditor extends  
NotebookPanel.ContentFactory
```



How Live Rendering Works

Nodes

```
nodes: {  
  doc: {  
    content: "paragraph+"  
  },  
  paragraph: {  
    content: "text*",  
    parseDOM: [{tag: "p"}],  
    toDOM() { return ["p", 0] }  
  },  
  text: {  
    group: "inline",  
    toDOM(node) { return node.text }  
  }  
}
```

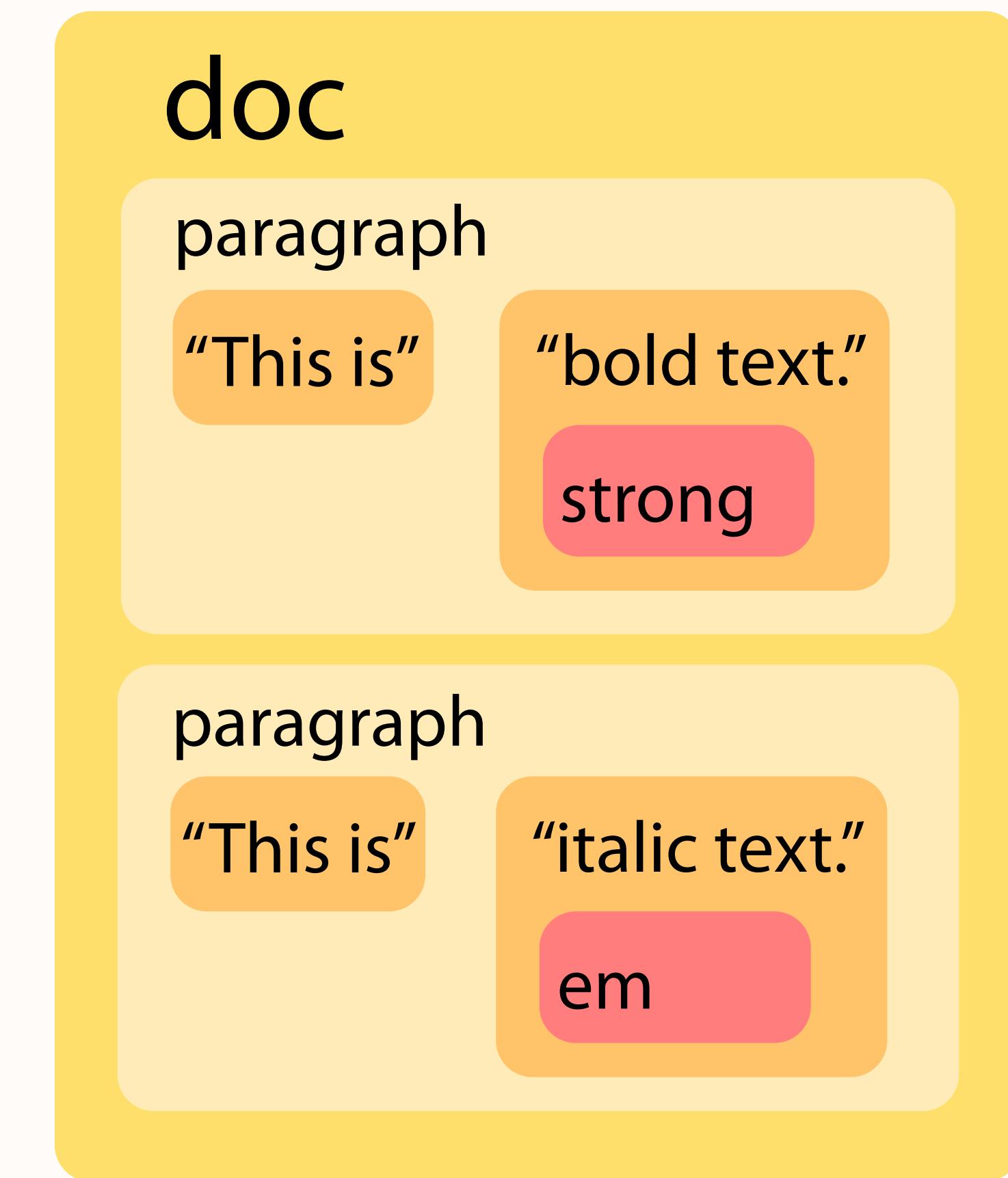
Marks

```
marks: {  
  em: {  
    parseDOM: [{tag: "i"}, {tag: "em"}],  
    toDOM() { return ["em"] }  
  },  
  strong: {  
    parseDOM: [{tag: "b"}, {tag: "strong"}],  
    toDOM() { return ["strong"] }  
  }  
}
```

ProseMirror's Document Model

This is **bold text.**

This is *italic text.*



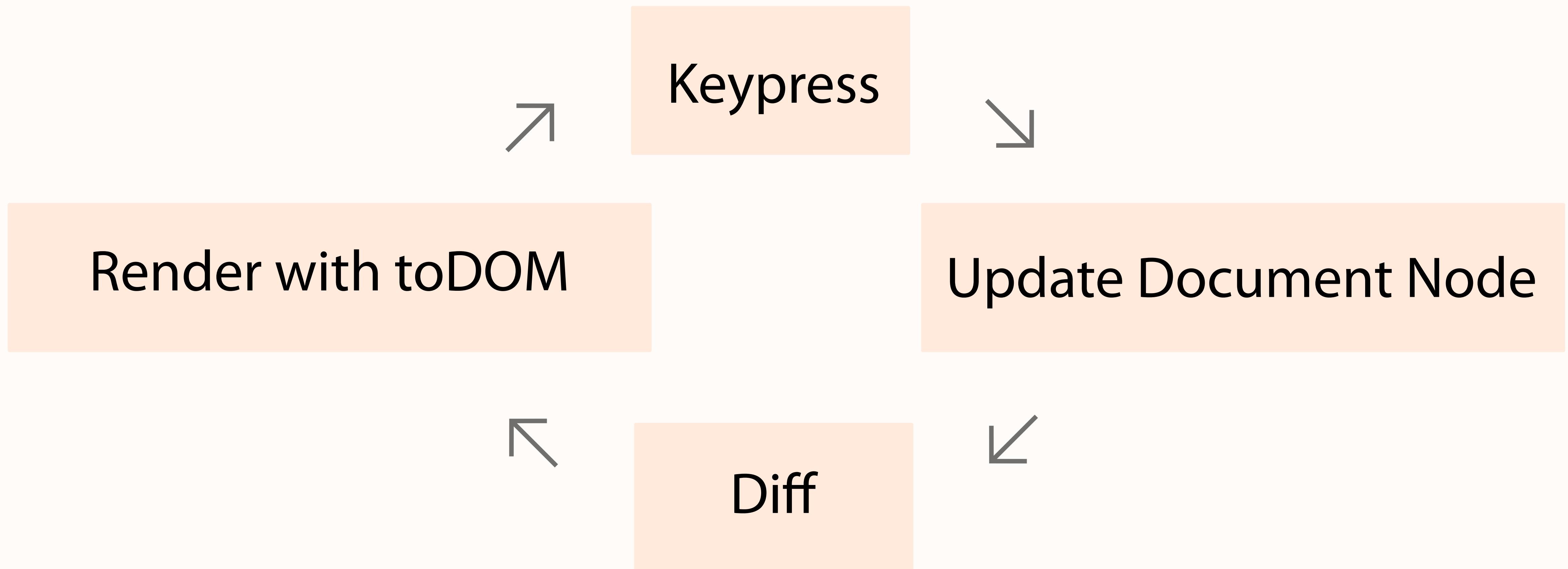
Nodes

```
nodes: {  
  doc: {  
    content: "paragraph+"  
  },  
  paragraph: {  
    content: "text*",  
    parseDOM: [{tag: "p"}],  
    toDOM() { return ["p", 0] }  
  },  
  text: {  
    group: "inline",  
    toDOM(node) { return node.text }  
  }  
}
```

Marks

```
marks: {  
  em: {  
    parseDOM: [{tag: "i"}, {tag: "em"}],  
    toDOM() { return ["em"] }  
  },  
  strong: {  
    parseDOM: [{tag: "b"}, {tag: "strong"}],  
    toDOM() { return ["strong"] }  
  }  
}
```

Live Rendering Process



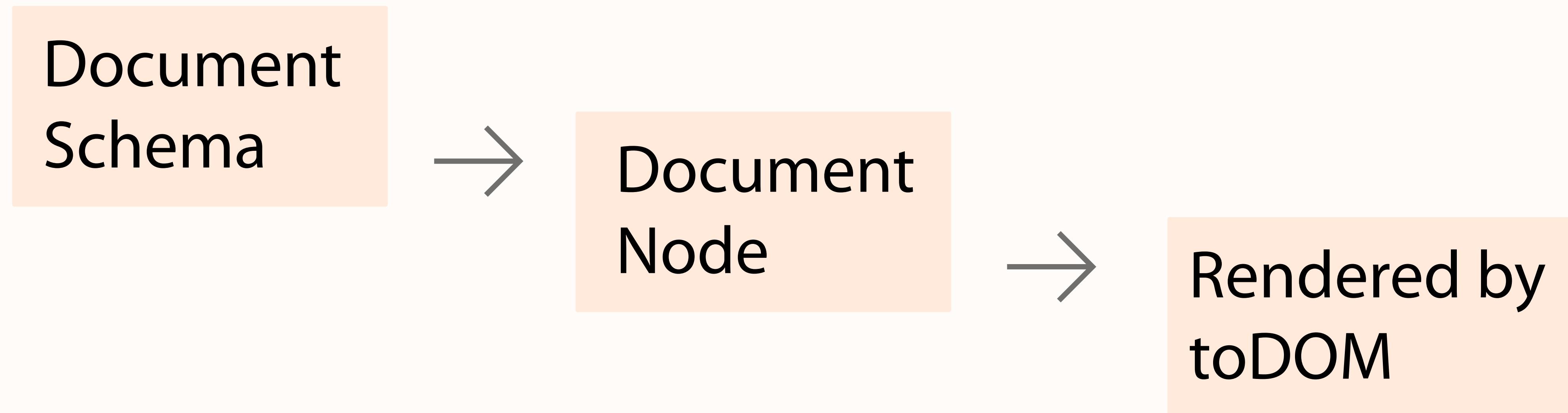
Rendered DOM

This is **bold text.**

```
<div class="ProseMirror" contenteditable="true">  
  <p> This is  
    <strong> bold text. </strong>  
  </p>  
  <p> This is  
    <em> italic text. </em>  
  </p>  
</div>
```

This is *italic text.*

How Live Rendering Works



Pain Points

- ✓ **Prior knowledge of Markdown required to format text.**
- ✓ **Markdown is less readable than previewed rich text.**
- ✓ **No spell check means no quick way to find spelling errors.**

Markdown does not have indenting options needed to create a proper bibliography.

There is not a way to preview, edit, or convert word processor file types, like .docx, without leaving JupyterLab.

So What?

What's Next?

For this extension:

Support tables

To improve UX:

Per-Cell UI

To solve other pain points:

Convert between .ipynb
and .docx

Convert between .ipynb
and .odt

Preview word processor files

Edit word processor files as .md



jupytercalpoly/jupyterlab-richtext-mode

Or try it on Binder:
bit.ly/2UhnPVQ