

Creating Slides

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Read instructions in left panel

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1. Introduction
2. Variety of Content Types to Display
3. Plotting and DataFrame
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9. Code to Generate Slides

>Show Code

Introduction

To see how commands work, use `Slides.docs()` to see the documentation. Here we will focus on using all that functionality to create slides.



Note

This is inline markdown parsed by magic

Version: 3.5.4 as executed from below code in markdown.

Python

```
1 # get the slides instance under a python block in Markdown file, we will use it later
2 myslides = get_slides_instance()
3 import ipyslides as isd
4 version = myslides.version
5 %xmd ##### This is inline markdown parsed by magic {.note .warning}
```

I was added at end by a given proxy, see the how it was done at the end of the slides

IPySlides Online Running Sources



Note

- Edit on Kaggle
- Launch example Notebook [launch binder](#)
- Watch a Youtube Video

1. Add references like this per slide. Use `slides.cite()` or in markdown `citekey` to add citations generally. ↵

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IPython Display Objects

Any object with following methods could be in write command:

`_repr_pretty_, _repr_html_, _repr_markdown_, _repr_svg_, _repr_png_, _repr_jpeg_,
_repr_latex_, _repr_json_, _repr_javascript_, _repr_pdf_ Such as IPython.display.
[HTML,SVG,Markdown,Code] etc. or third party such as plotly.graph_objects.Figure.`

Plots and Other Data Types

These objects are implemented to be writable in `write` command:

`matplotlib.pyplot.Figure`, `altair.Chart`, `pygal.Graph`, `pydeck.Deck`, `pandas.DataFrame`,
`bokeh.plotting.Figure`, `IPython.display.Image` Many will be extentended in future. If an
object is not implemented, use `display(obj)` to show inline or use library's specific command to
show in Notebook outside `write`.

Interactive Widgets

Any object in `ipywidgets` Link to ipywidgtes right here using textbox command or libraries based on ipywidgtes such as `bqplot`, `ipyvolume`, `plotly`'s `FigureWidget`¹ (reference at end) can be included as well.

Commands which do all Magic!

Slides.write(*objs, widths=None)

Write `objs` to slides in columns. To create rows in a column, wrap objects in a list or tuple. You can optionally specify `widths` as a list of percentages for each column.

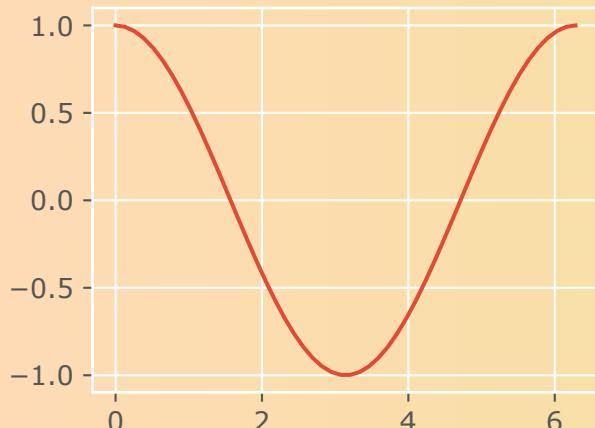
Write any object that can be displayed in a cell with some additional features:

- Strings will be parsed as extended markdown that can have citations/python code blocks/Javascript etc.
- Display another function in order by passing it to a lambda function like `lambda: func()`. Only body of the function will be displayed/printed. Return value will be ignored.
- Display IPython widgets such as `ipywidgets` or `ipyvolume` by passing them directly.
- Display Axes/Figure form libraries such as `matplotlib`, `plotly` `altair`, `bokeh`, `ipyvolume` ect. by passing them directly.
- Display source code of functions/classes/modules or other languages by passing them directly or using `Slides.code` API.
- Use `Slides.alt(widget, func)` function to display widget on slides and alternative content in exported slides/report, function should return possible HTML representation of widget

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Plotting with Matplotlib



Python

```
1 sl.set_css({'background':'linear-gradient
```



```
2
```



```
3 import numpy as np, matplotlib.pyplot as
```



```
4 plt.rcParams['svg.fonttype'] = 'none' #
```



```
5 x = np.linspace(0,2*np.pi)
```



```
6 with plt.style.context('ggplot'):
```



```
7     fig, ax = plt.subplots(figsize=(3.5,
```



```
8         _ = ax.plot(x,np.cos(x))
```



```
9 write(ax, s.focus_lines([0,3,4]))
```

Writing Pandas DataFrame

	sepal_length	sepal_width	petal_length	petal_width
count	150.000000	150.000000	150.000000	150.000000
mean	5.843333	3.057333	3.758000	1.199333
std	0.828066	0.435866	1.765298	0.762238
min	4.300000	2.000000	1.000000	0.100000
25%	5.100000	2.800000	1.600000	0.300000
50%	5.800000	3.000000	4.350000	1.300000
75%	6.400000	3.300000	5.100000	1.800000
max	7.900000	4.400000	6.900000	2.500000

Python

```
1 try:  
2     import pandas as pd  
3     df = pd.read_csv('https://raw.githubusercontent.com/mwaskom/seaborn-data/master/  
4     df = df.describe() #Small for display  
5 except:  
6     df = '### Install `pandas` to view output'
```

Writing Plotly Figure

Install [plotly](#) to view output

Python

```
1 try:  
2     import plotly.graph_objects as go  
3     fig = go.Figure()  
4     fig.add_trace(go.Bar(y=[1,5,8,9]))  
5 except:  
6     fig = '## Install `plotly` to view output'
```

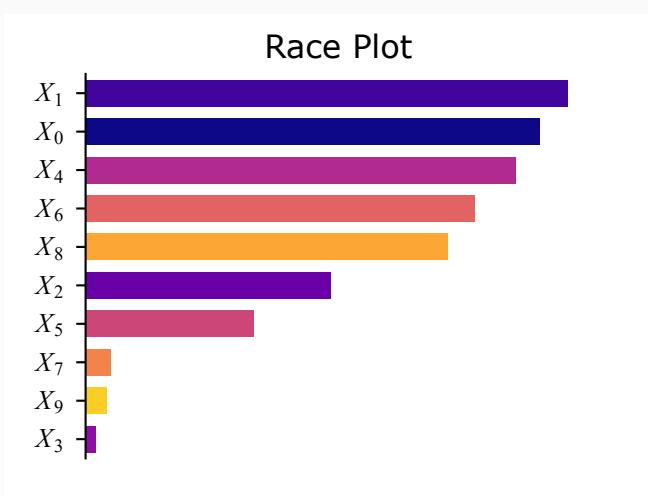
Interactive Apps with Widgets

Use ipywidgets, bqplot,ipyvolume, plotly Figurewidget etc. to show live apps like this!



Tip

Export to Slides/Report to see what happens to this slide and next slide!



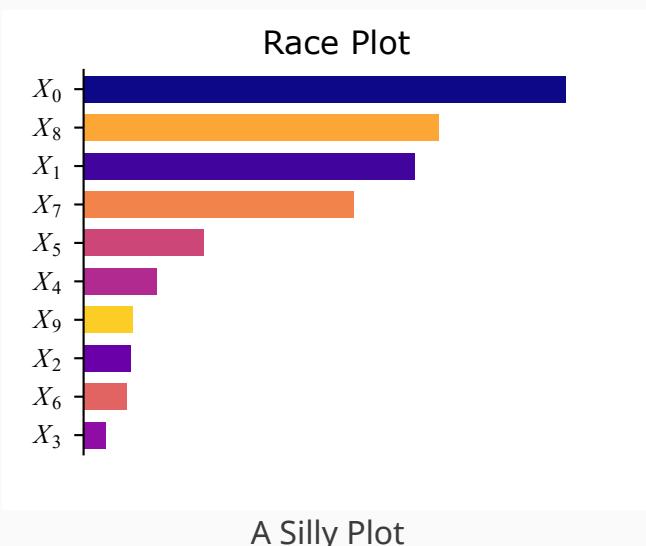
A Silly Plot

Python

```
1 import ipywidgets as ipw
2
3 write('''
4     ## Interactive Apps with Widgets see
5     Use `ipywidgets`, `bqplot`, `ipyvolume`
6     ::: note-tip
7         Export to Slides/Report to see
8     ''')
9 plot_html = ipw.HTML('Plot will be here')
10 button = ipw.Button(description='Click')
11
```

Dynamic Content without Widgets

Use refresh button below to update plot! Compare with previous slide!



Python

```
1 write(''  
2     ## Dynamic Content without Widgets  
3     Use refresh button below to update  
4     '')  
5  
6 def display_plot(): return race_plot().  
7  
8 write(lambda: slides.on_refresh(display  
9 slides.code.cast(race_plot).display())
```

Python

```
1 def race_plot():  
2     import numpy as np  
3     import matplotlib.pyplot as plt  
4
```

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Skip All Next Frames

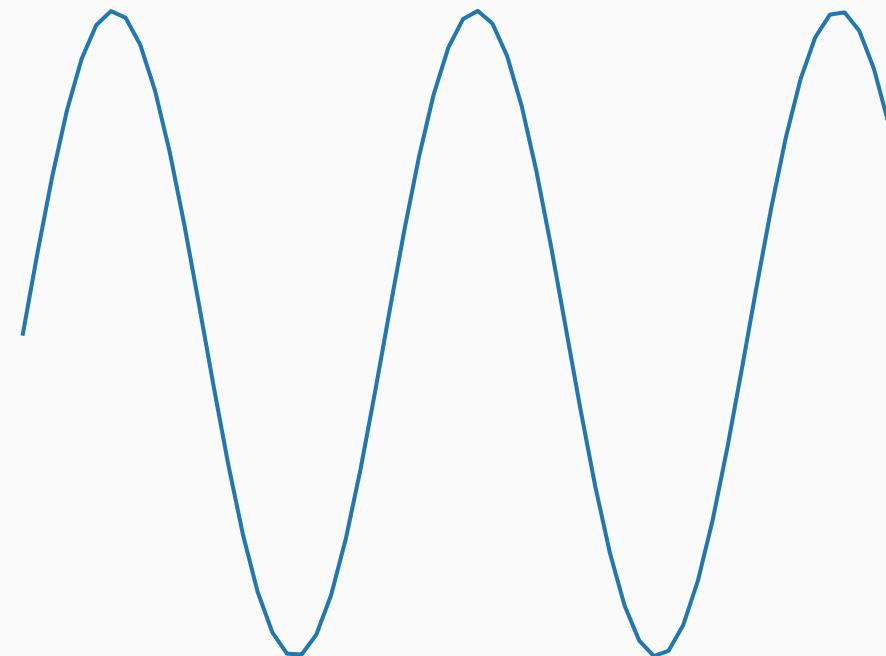
This is Slide 16.0

and we are animating matplotlib

Python

```
1 fig, ax = plt.subplots()  
2 + 5 more lines ...
```

$$f(x) = \sin(x), 0 < x < 1$$



Python

```
1 fig, ax = plt.subplots()  
2 + 5 more lines ...
```

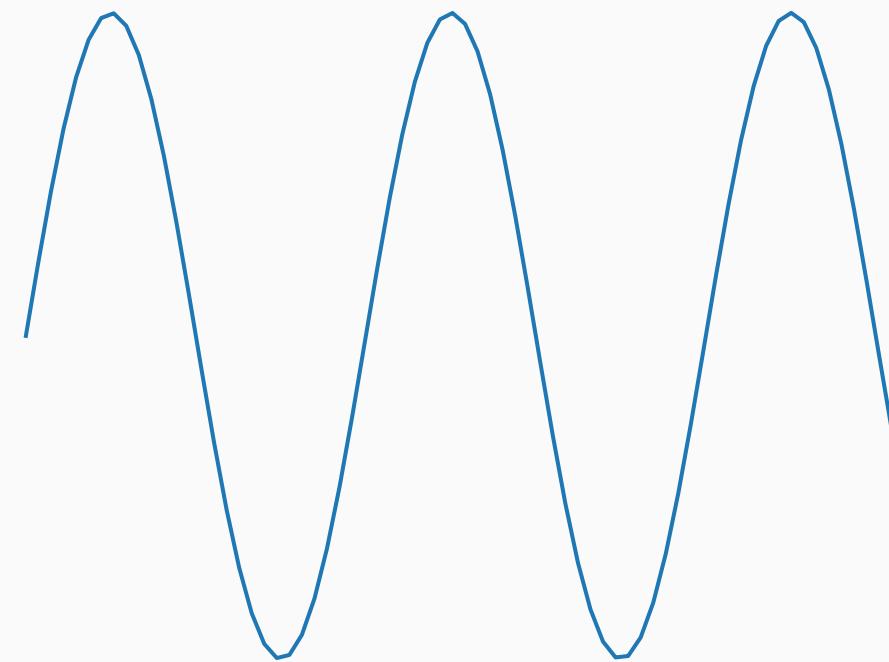
This is Slide 16.1

$$f(x) = \sin(x), 0 < x < 2$$

and we are animating matplotlib

Python

```
1 + 1 more lines ...
2 x = np.linspace(0,obj+1,50+10*
3 + 4 more lines ...
```



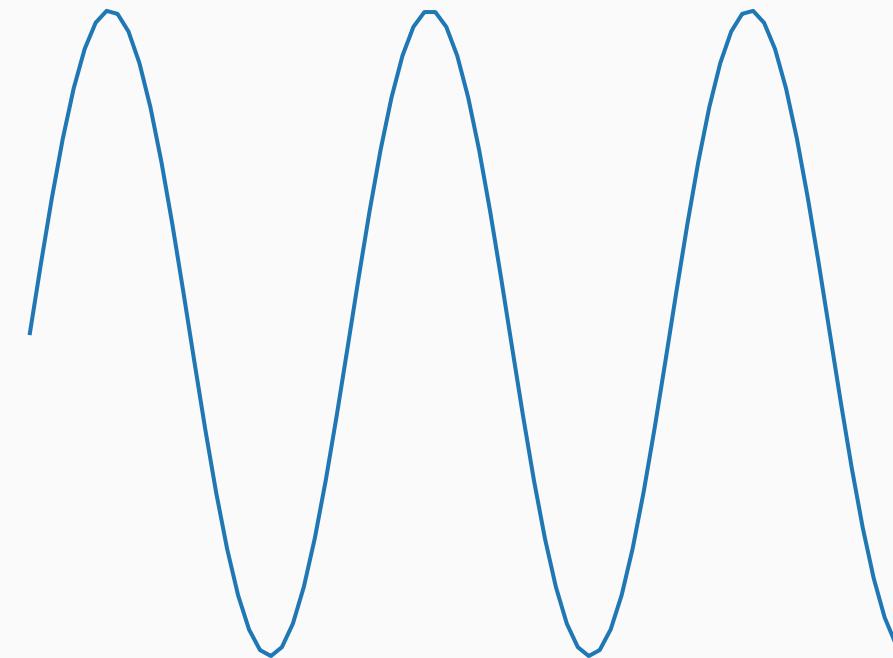
This is Slide 16.2

$$f(x) = \sin(x), 0 < x < 3$$

and we are animating matplotlib

Python

```
1 + 2 more lines ...
2 ax.plot(x, np.sin(x));
3 + 3 more lines ...
```



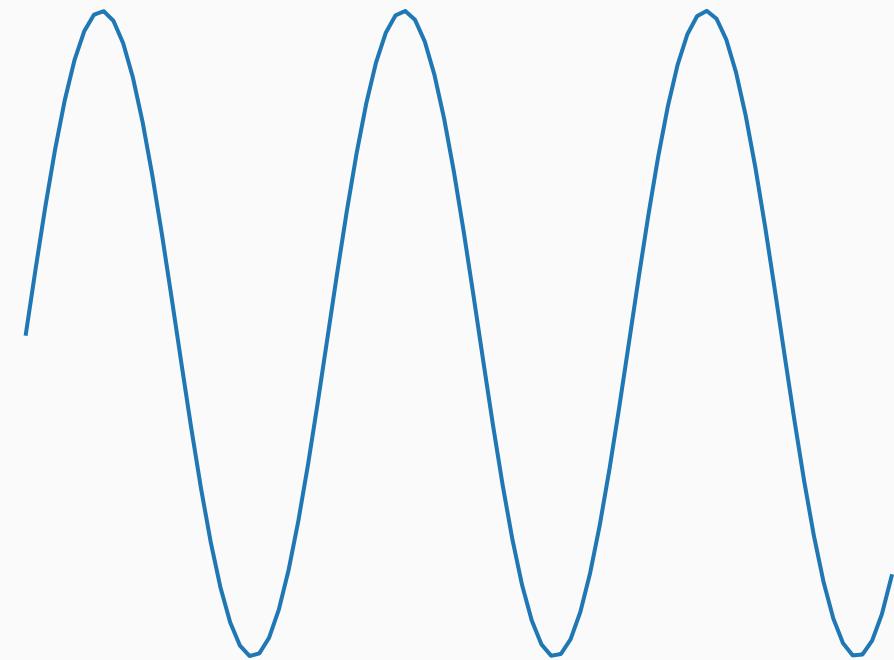
This is Slide 16.3

$$f(x) = \sin(x), 0 < x < 4$$

and we are animating matplotlib

Python

```
1 + 3 more lines ...
2 ax.set_title(f'$f(x)=\sin(x)$',
3 + 2 more lines ...
```



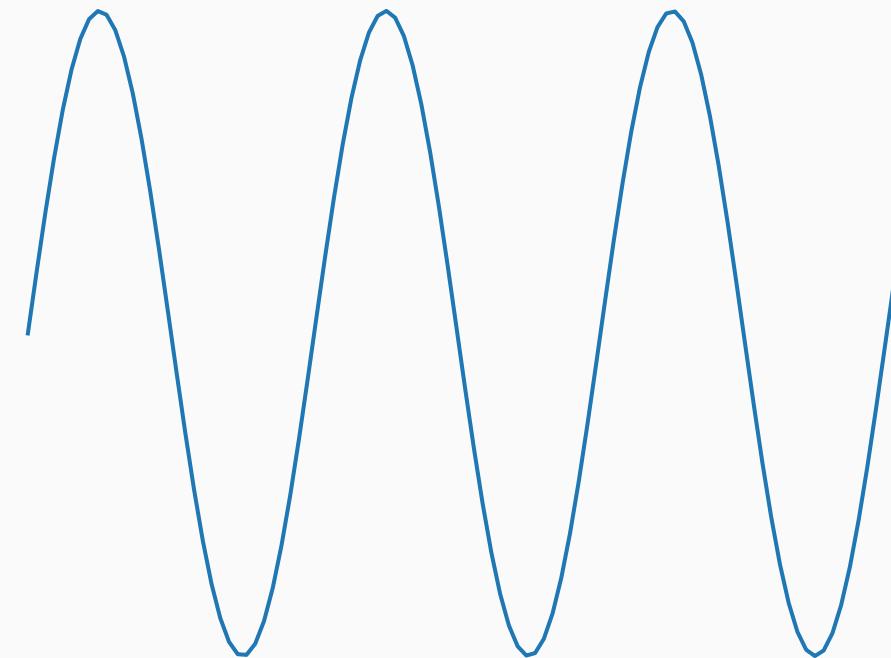
This is Slide 16.4

$$f(x) = \sin(x), 0 < x < 5$$

and we are animating matplotlib

Python

```
1 + 4 more lines ...
2 ax.set_axis_off()
3 + 1 more lines ...
```



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Frames with

repeat = False

1

Frames with

repeat = False

2

Frames with

repeat = False

3

Frames with

repeat = False

4

Frames with

repeat = True and Fancy Bullet List

1



Frames with

repeat = True and Fancy Bullet List



1



2

Frames with

repeat = True and Fancy Bullet List



1



2



3

Frames with

repeat = True and Fancy Bullet List



1



2



3



4

Frames with

```
repeat = [(0,1),(2,3)]
```

1

2

Python

```
1 slides.write('# Frames with \n#### `repeat = [(0,1),(2,3)]``)\n2 slides.write(*obj)
```

Frames with

```
repeat = [(0,1),(2,3)]
```

3

4

Python

```
1 slides.write('# Frames with \n#### `repeat = [(0,1),(2,3)]`')
2 slides.write(*obj)
```

Skip Previous Frames

Displaying image from url from somewhere in Kashmir

(کشمیر)



Watching Youtube Video?

Want to do some drawing instead? Click on pencil icon and draw something on tldraw!

IPySlides-Demo

Python

```
1 write(f"### Watching Youtube Video?")
2 write('**Want to do some drawing instead?**\nClick on pencil icon and draw somethin
3
4 import cv2
5 import numpy as np
6
7 # Create a blank image
8 img = np.zeros((1000, 1000, 3), np.uint8)
9
10 # Draw a red circle
11 cv2.circle(img, (500, 500), 100, (0, 0, 255), -1)
12
13 # Show the image
14 cv2.imshow("Youtube Video", img)
15 cv2.waitKey(0)
16 cv2.destroyAllWindows()
```

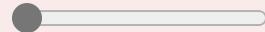
Block API

New block API is as robust as write command. On top of it, it makes single unit of related content.

Table

```
h1 h2 h3  
d1 d2 d3  
r1 r2 r3
```

Widgets



Click to do nothing

Python

```
1 write('## Block API\nNew `block` API is as robust as `write` command. On top of it,  
2 slides.block_red()  
3 [  
4     '### Table',  
5     ''',  
6     '|h1|h2|h3|'  
7     '|-----|-----|-----|'
```

*L*A*T*E*X* in Slides

⚠ Alert

Use `$ $` or `$$ $$` to display latex in Markdown, or embed images of equations *L*A*T*E*X* needs time to load, so keeping it in view until it loads would help.

$$\int_0^1 \frac{1}{1-x^2} dx$$

```
1 slides.write('## Built-in CSS styles')
2 slides.css_styles.display()
```

Built-in CSS styles

Use any or combinations of these styles in className argument of writing functions:

className	Formatting Style
'align-center'	Text
'align-left'	Text
'align-right'	Text
'rtl'	اردو عربی
'info'	Blue text. Icon  for note-info class.
'tip'	Blue Text. Icon  for note-tip class.
'warning'	Orange Text. Icon  for note-warning class.
'success'	Green text. Icon  for note-success class.
'error'	Red Text. Icon  for note-error class.
'note'	 Text with note icon.
'slides-only'	Text will not appear in exported html report.
'report-only'	Text will not appear on slides. Use to fill content in report.
'export-only'	Hidden on main slides, but will appear in exported slides/report
'import-only'	Hidden on exported slides/report, but will appear on main slides

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Serialize Custom Objects to HTML

This is useful for displaying user defined/third party objects in slides

0 1 2 3 4 5 6 7 8 9

Python

```
1 slides.write('## Serialize Custom Objects to HTML\nThis is useful for displaying us
2 with slides.suppress_stdout(): # suppress stdout from register fuction below
3     @slides.serializer.register(int)
4     def colorize(obj):
5         color = 'red' if obj % 2 == 0 else 'green'
6         return f'<span style="color:{color};">{obj}</span>'
7     slides.write(*range(10))
8
9 some_slide.get_source().display()
```

This is all code to generate slides

Python

```
1 def demo(self):
2     "Demo slides with a variety of content."
3     self.close_view() # Close any previous view to speed up loading 10x faster on a
4     self.clear() # Clear previous content
5
6     with self.set_dir(os.path.split(__file__)[0]):
7         file = '../_demo.py'
8         raw_source = self.code.cast(file).raw
9         N = raw_source.count('auto.') + raw_source.count('\n---') + 1 # Count number
10        self.create(*range(N)) # Create slides first, this is faster
11        self.shell.run_line_magic('run', file) # Run demo in same namespace
12
13    return self #_demo.demo(self) # Run demo
```

e:\development\ipyslides\ipyslides_demo.py

```
1 # Author: Abdul Saboor
2 # This demonstrates that you can generate slides from a .py file too, which you can
```



Note

Slides keep their full code if they are not made by @frames decorator!

Source Code

Markdown: Slide 0

```
1 # Creating Slides
2 :::: align-center
3     alert`Abdul Saboor`sup`1`, Unknown Authorsup`2`
4     center`today```
5     :::: text-box
6         sup`1`My University is somewhere in the middle of nowhere
7         sup`2`Their University is somewhere in the middle of nowhere
8 <h4 style=""color:green;">  Read instructions in left panel</h4>
```

Markdown: Slide 1

```
1 section`Introduction` toc`### Contents`
```

Markdown: Slide 2

```
1 proxy`something will be here in start`
2 # Introduction
```

Reference via Markdown

1. This is reference to FigureWidget using slides.cite command
2. I was cited for no reason

Python

```
1 slides.write('citations`## Reference via Markdown\n---\n')  
2 bib_slide.get_source().display()
```