

Creating Slides

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Read instructions in left panel

Contents

1. Introduction
2. Variety of Content Types to Display
3. Plotting and DataFrame
4. Interactive Widgets
5. Simple Animations with Frames
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8. Custom Objects Serilaization
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: 3.4.3 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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IⁿPython Display Objects

Any object with following methods could be `inwrite` command:

`_repr_pretty_, _repr_html_, _repr_markdown_, _repr_svg_, _repr_png_, _repr_jpeg_,
_repr_latex_, _repr_json_, _repr_javascript_, _repr_pdf_` Such as `InPython.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.

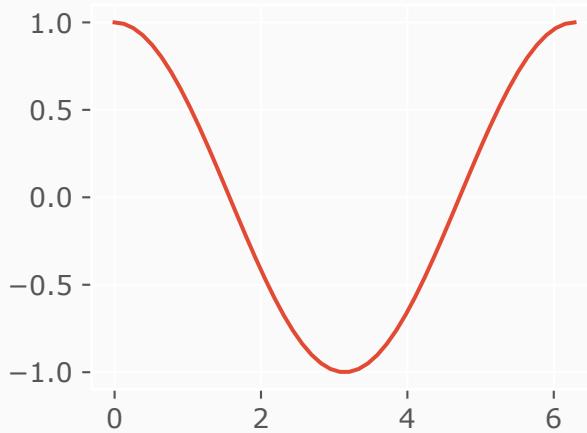
Write any object that can be displayed in a cell with some additional features:

- 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.source` 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 import numpy as np, matplotlib.pyplot as plt
2 plt.rcParams['svg.fonttype'] = 'none' # Global setting, enforce same fonts as presentation
3 x = np.linspace(0,2*np.pi)
4 with plt.style.context('ggplot'):
5     fig, ax = plt.subplots(figsize=(3.4,2.6))
6     _ = ax.plot(x,np.cos(x))
7 write([ax, s.focus_lines([1,3,4])])
```

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'
```

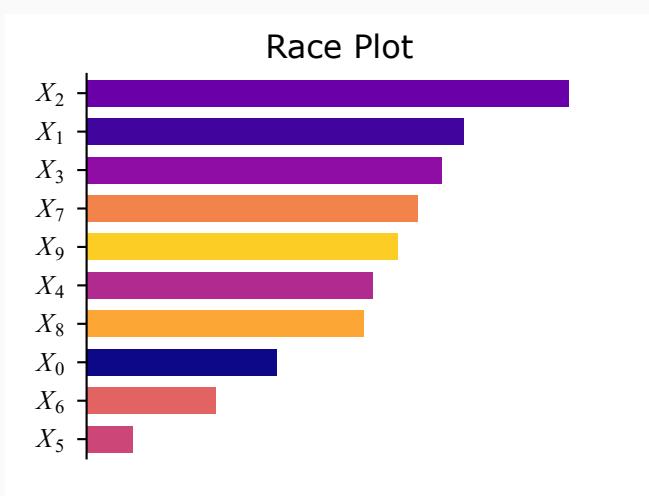
Interactive Apps with Widgets

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!



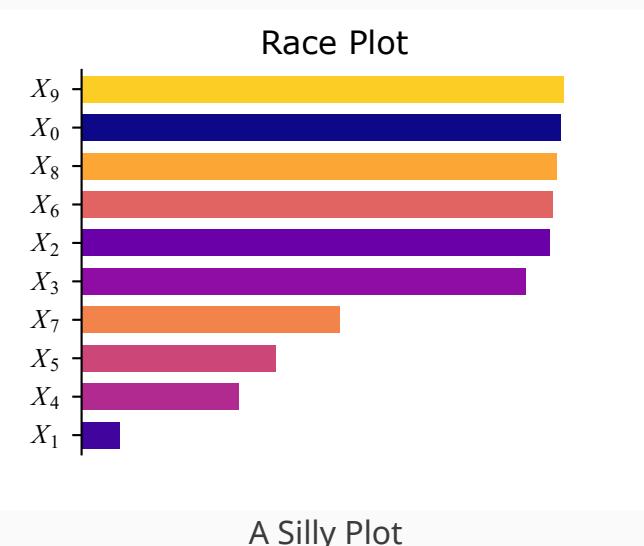
A Silly Plot

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.source.from_callable(race_plot)).
```

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

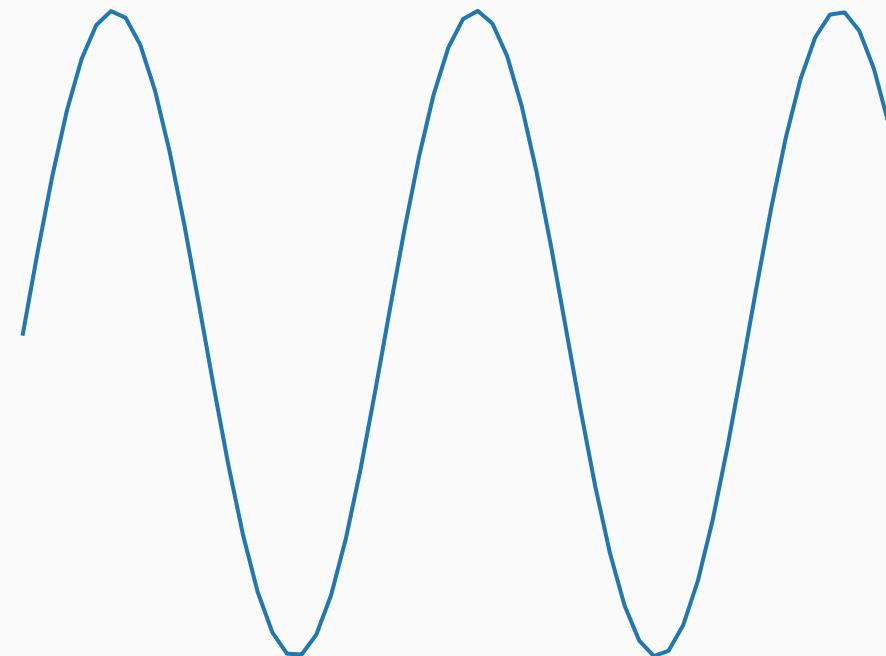
This is Slide 16.0

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

and we are animating matplotlib

Python

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



Python

```
1 + 5 more lines ...
```

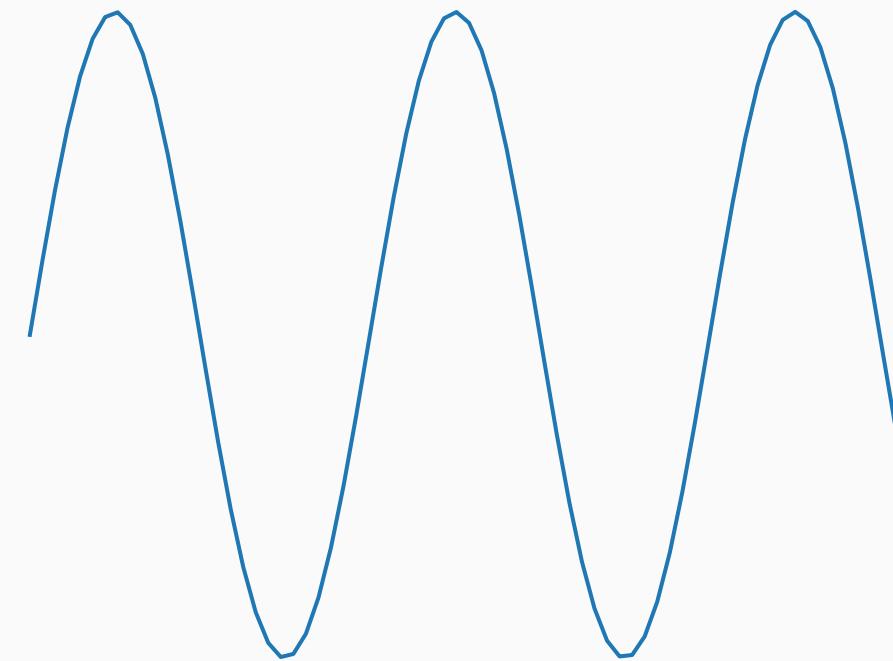
This is Slide 16.1

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

and we are animating matplotlib

Python

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



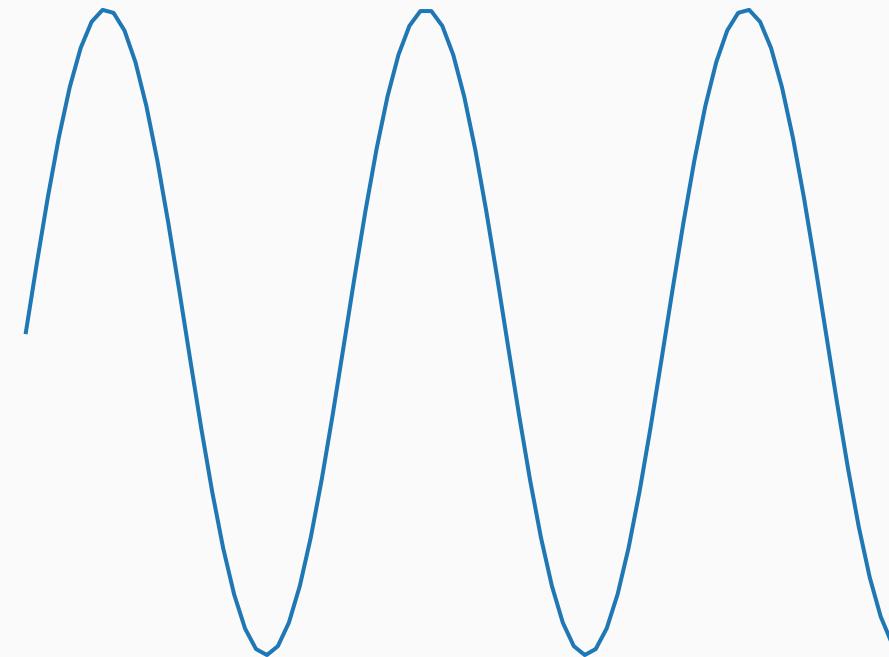
This is Slide 16.2

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

and we are animating matplotlib

Python

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



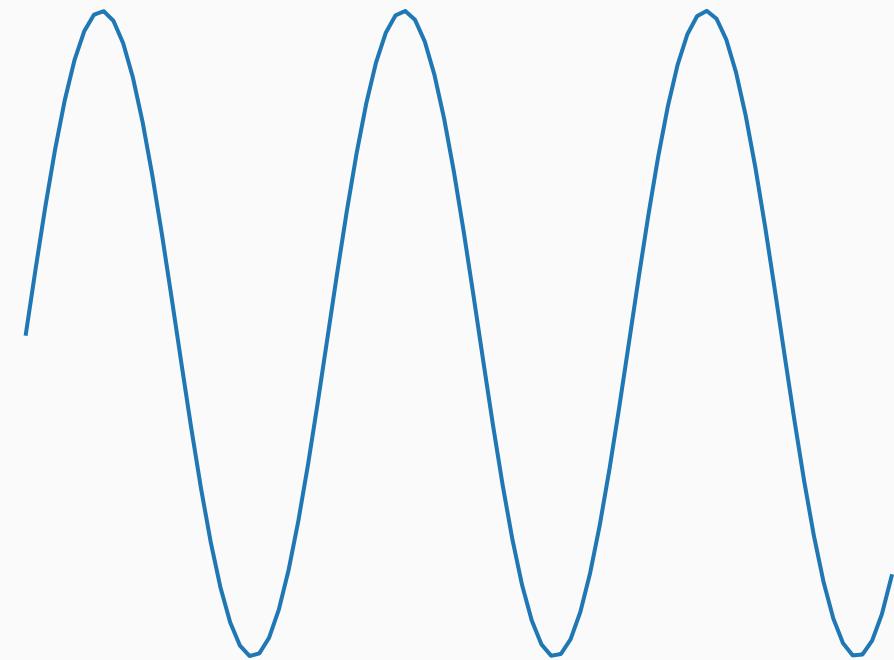
This is Slide 16.3

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

and we are animating matplotlib

Python

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



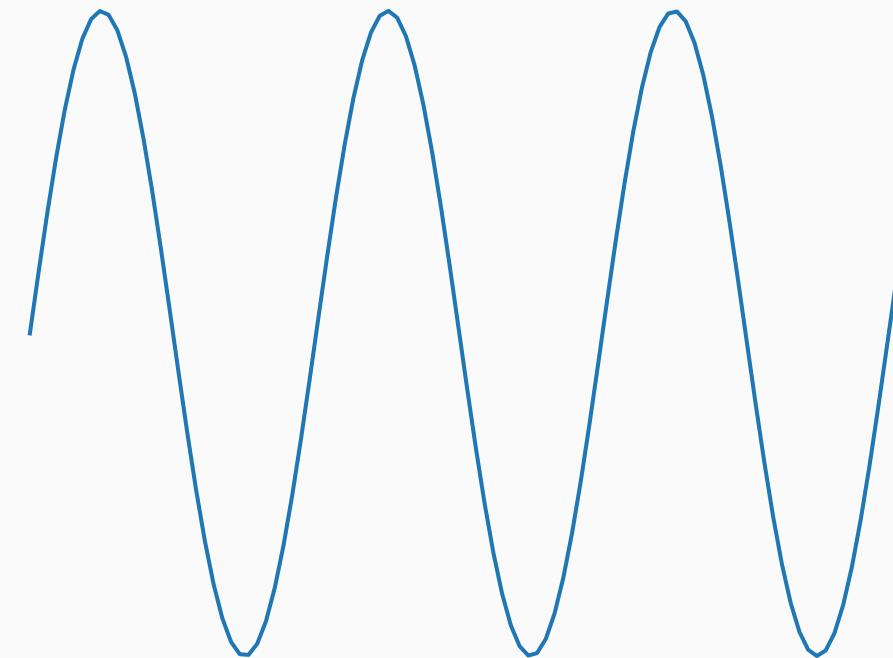
This is Slide 16.4

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

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)
```

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 something")
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)
```

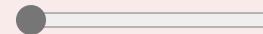
Block API

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.source.from_file(file).raw
9         N = raw_source.count('auto.') + raw_source.count('\n---') + 1 # Count number of
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()
```