



Creating Slides

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¹My University is somewhere in the middle of nowhere

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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
6. Controlling Content on Frames
7. Miscellaneous Content
8. Custom Objects Serilaization
9. Code to Generate Slides



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: 3.6.5 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}
```

Transitions added at and before given points and the how it was done at the end of the slides



IPySlides Online Running Sources

Note

- Edit on Kaggle
- Launch example Notebook [!\[\]\(633dd45d48d71eb51a85c6dd83ee51e9_img.jpg\) launch](#) [!\[\]\(bdddf9191a284aa0945448444083c5b0_img.jpg\) binder](#)
- Watch a Youtube Video

1. Add references like this per slide or citekey to add citations generally. ↵



Contents

1. Introduction
2. | Variety of Content Types to Display
3. Plotting and DataFrame
4. Interactive Widgets
5. Simple Animations with Frames
6. Controlling Content on Frames
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8. Custom Objects Serilaization
9. Code to Generate Slides

This is summary for current section created using block syntax of toc. See `Slides.xmd_syntax` for details.

- Item 1
- Item 2

$$E = mc^2$$

Markdown

```
1  ```toc Table of contents
2 Extra content for current section which is on right
3  ````
```



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 `IIPython.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 FigureWidget¹ (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.

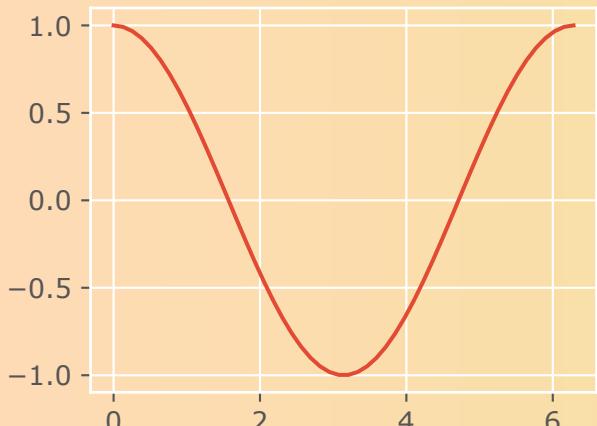


Contents

1. Introduction
2. Variety of Content Types to Display
- 3. Plotting and DataFrame**
4. Interactive Widgets
5. Simple Animations with Frames
6. Controlling Content on Frames
7. Miscellaneous Content
8. Custom Objects Serilaization
9. Code to Generate Slides

Plotting with Matplotlib

Python



```
1 sl.set_css({'background':'linear-gradient(135deg, transparent, black 50%)'})  
2  
3 import numpy as np, matplotlib.pyplot as plt  
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=(3.4, 2.5))  
8     _ = ax.plot(x,np.cos(x))  
9     write(ax, s.focus_lines([0,3,4]))
```



Writing Pandas DataFrame

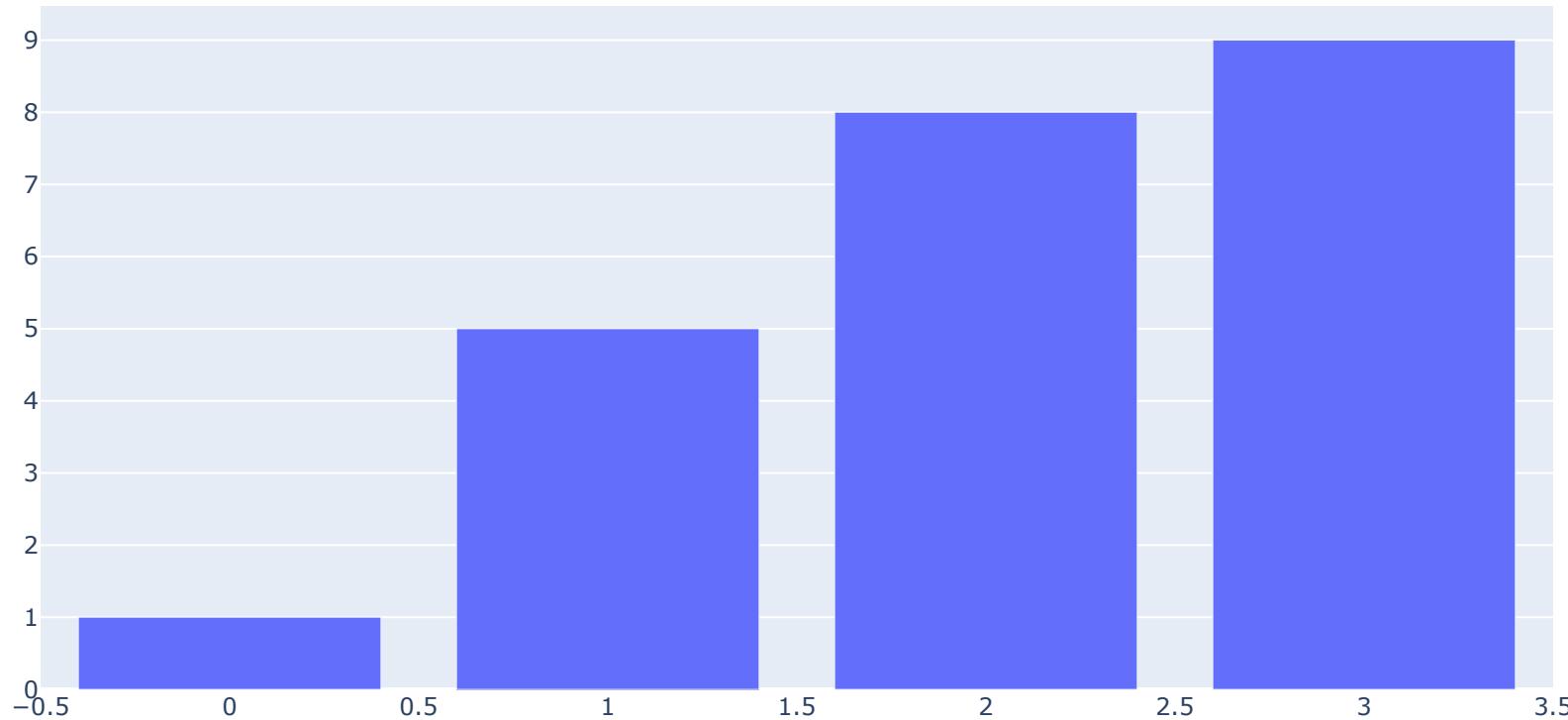
	sepal_length	sepal_width	petal_length	petal_width
count	150.000000	150.000000	150.000000	150.000000
mean	5.843333	3.057333	3.758000	1.199333
std	0.828066	0.435866	1.765298	0.762238
min	4.300000	2.000000	1.000000	0.100000
25%	5.100000	2.800000	1.600000	0.300000
50%	5.800000	3.000000	4.350000	1.300000
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





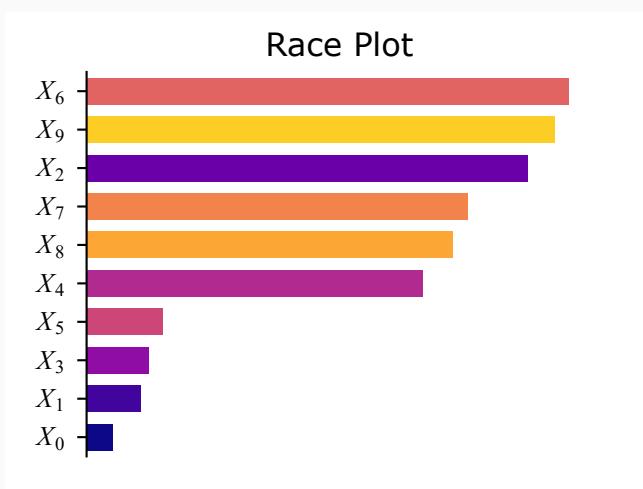
Interactive Apps with Widgets

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

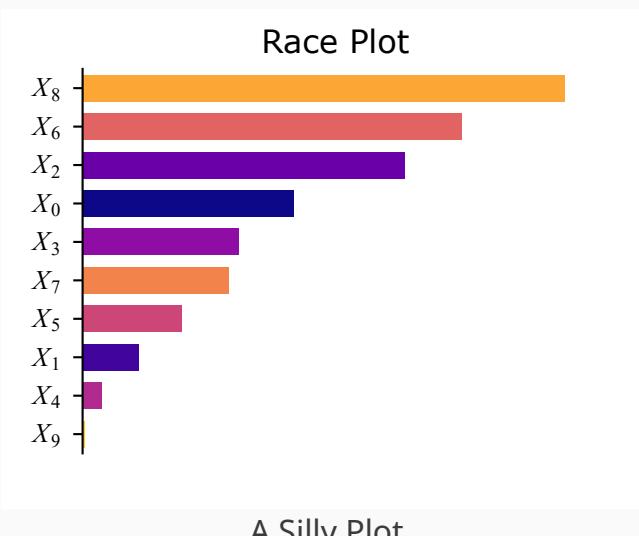
Python

```
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 me')
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
```



Contents

1. Introduction
2. Variety of Content Types to Display
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4. Interactive Widgets
- 5. Simple Animations with Frames**
6. Controlling Content on Frames
7. Miscellaneous Content
8. Custom Objects Serilaization
9. Code to Generate Slides



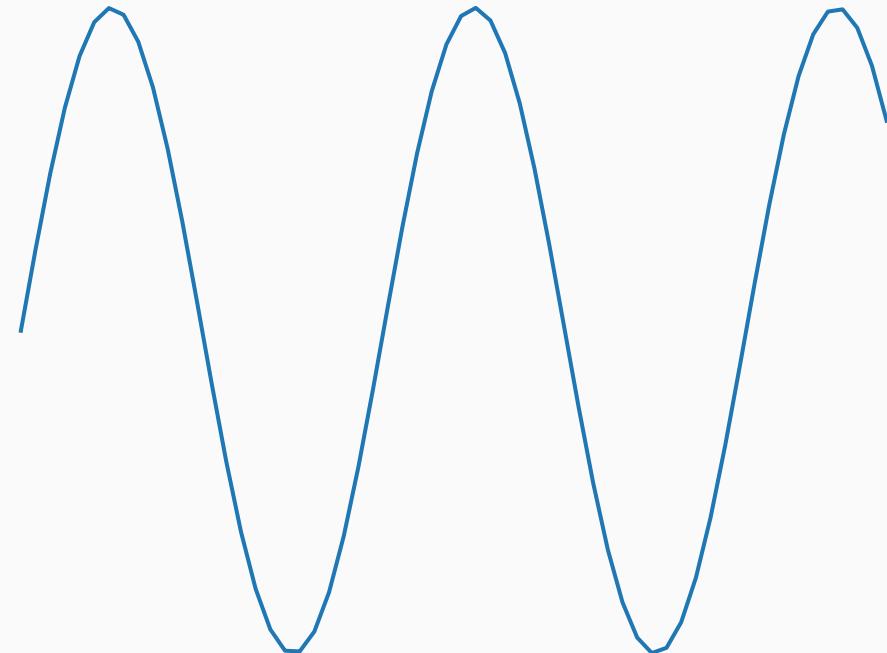
This is Slide 16.0

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

and we are animating matplotlib

Python

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



Python



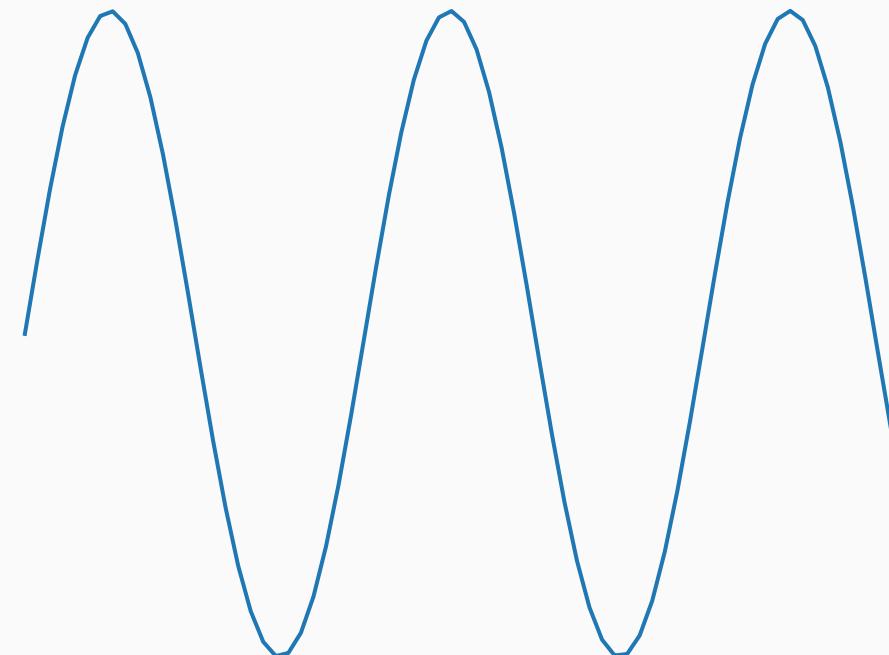
This is Slide 16.1

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

and we are animating matplotlib

Python

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



2



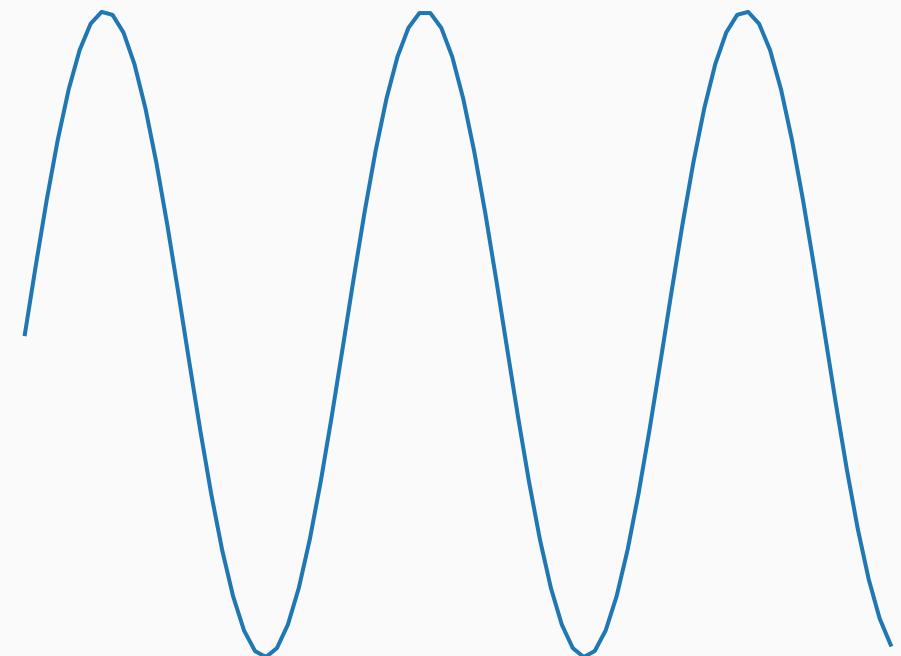
This is Slide 16.2

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

and we are animating matplotlib

Python

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



2



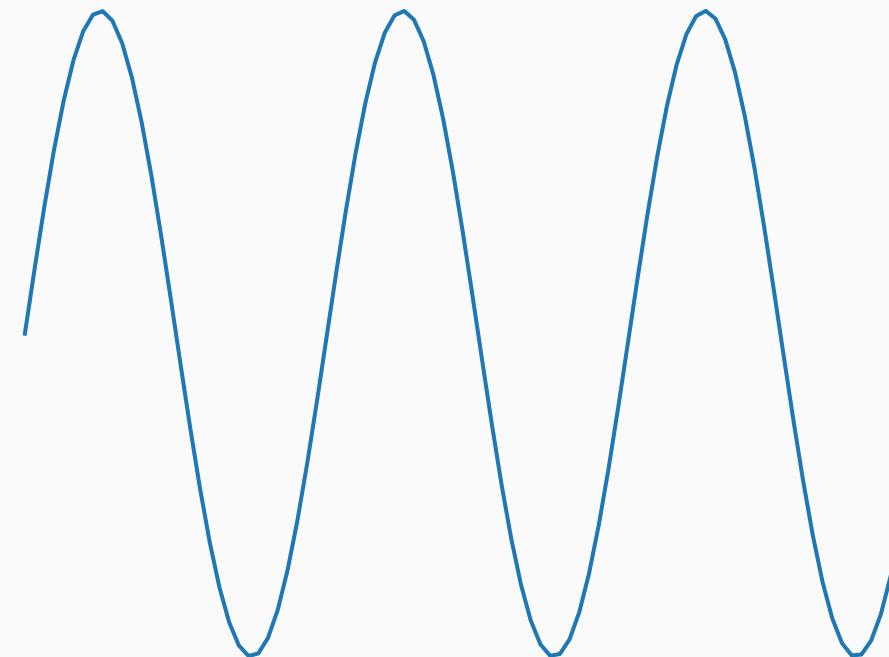
This is Slide 16.3

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

and we are animating matplotlib

Python

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





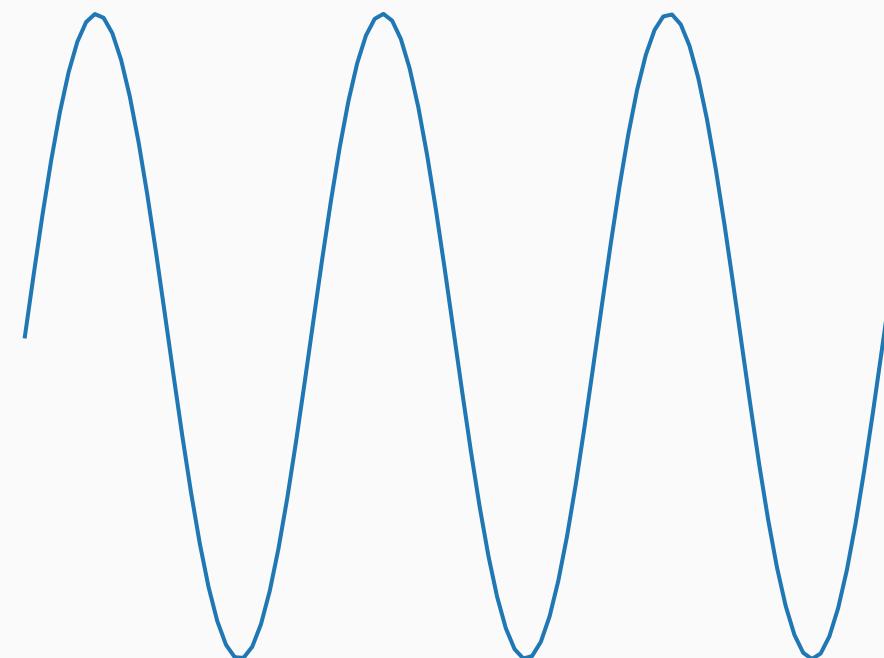
This is Slide 16.4

and we are animating matplotlib

Python

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

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





Contents

1. Introduction
2. Variety of Content Types to Display
3. Plotting and DataFrame
4. Interactive Widgets
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- 6. Controlling Content on Frames**
7. Miscellaneous Content
8. Custom Objects Serilaization
9. Code to Generate Slides



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)]`')
2 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

(شیخ)





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
```



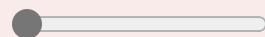
Block API

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,\n2 slides.block_red(\n3     [\n4         '#!!! Table',\n5         '''\n6             |h1|h2|h3|\n7             +---+---+\n8             |d1|d2|d3|\n9         ]\n10    )
```



LATEX in Slides

Use \$ \$ or \$\$ \$\$ to display latex in Markdown, or embed images of equations *LATEX* needs time to load, so keeping it in view until it loads would help.



LATEX in Slides

Use \$ \$ or \$\$ \$\$ to display latex in Markdown, or embed images of equations *LATEX* needs time to load, so keeping it in view until it loads would help.

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



LATEX in Slides

Use \$ \$ or \$\$ \$\$ to display latex in Markdown, or embed images of equations *LATEX* needs time to load, so keeping it in view until it loads would help.

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

$$ax^2 + bx + c = 0$$

```
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
'text-[value]'	[value] should be one of tiny, small, big, large, huge.
'align-[value]'	[value] should be one of center, left, right. _____ اردو عربی
'rtl'	
'info'	Blue text. Icon i for note-info class.
'tip'	Blue Text. Icon lightbulb for note-tip class.
'warning'	Orange Text. Icon exclamation for note-warning class.
'success'	Green text. Icon checkmark for note-success class.
'error'	Red Text. Icon lightning bolt 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.
'jupyter-only'	Hidden on exported slides/report, but will appear on main slides.
'page-break'	Report will break page in print after object with this class



Contents

1. Introduction
2. Variety of Content Types to Display
3. Plotting and DataFrame
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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 user  
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()
```



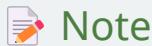
This is all code to generate slides

Python

```
1 def demo(self):
2     "Demo slides with a variety of content."
3     from .._demo import demo_slides
4     return demo_slides(self)
```

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
3
4 from ipyslides.formatters import libraries, supported_reprs
5
6 def demo_slides(slides):
7     slides.close_view() # Close any previous view to speed up loading 10x faster on
8     slides.clear() # Clear previous content
9     raw_source = slides.code.cast(__file__).raw
10    N = raw_source.count('auto.') + raw_source.count('\n---') + 1 # Count number of
11    slides.create(*range(N)) # Create slides first, this is faster
```



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`
```



Python

```
1 bib_slide.get_source().display()  
2 slides.write('### Reference { .align-left }')
```

Reference

-
1. This is reference to FigureWidget using `citewf` syntax`
 2. I was cited for no reason