

# HKJournalist Module

A Custom Automatic Report Generator for Python Programs

Xinyi Li

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# Basic Idea

## Template

- ▶ Write a .md report with {var\_name} placeholders instead of real values in some critical place

## Python Runtime

- ▶ Maintain a global dict variable config to fetch mappings in time

```
1 config = {'var_name': value}
```

- ▶ Read .md template and fill in real value bound with var\_name

```
1 report_template_text = open('template.md','r').read()  
2 Path('raw_report.md').write_text(report_template_text.format(**config))
```

- ▶ Call pandoc to convert md report to pdf slides

```
1 pandoc -t beamer raw_report.md -o report.pdf
```

## Wrap Python runtime tasks into a module

```
1 from hkjournalist import Journalist
2
3 config = dict(...)
4
5 reporter = Journalist(template_file='template.md')
6 reporter.hear(config)
7 reporter.report(output_file='output.pdf', beamer=True)
```

## Display support for special types:

`pandas.DataFrame` → 3-line table (if numeric, round to `{.2f}`)

`matplotlib.axes.SubplotBase` →

1. save into a pdf standalone file in temp directory
2. use `` in template for referring
3. runtime change as ``
4. **Note:** before assigning it to dict, use

```
1 plt.tight_layout()
```

for better performance.

`function` print its definition

`list(str)` concatenate into a sentence, following its length (e.g. show features list)

# Install

## Pre-requirements

[Pandoc](https://pandoc.org/installing.html) <https://pandoc.org/installing.html>

[pdfLaTeX](#) integrated in TeXLive (and MacTeX for MacOS users).

**Make sure your environment variables set properly.**

► Install from PyPI:

```
1 pip install hkjournalist
```

**For Jupyter Notebook users with Chrome**

► cannot open .pdf on file browser. Download Firefox.

# Example

template.md

```
1 % Hello World
2 % Xinyi Li
3 % 2019-12-19
4
5 ---
6
7 ### sine plot
8
9 
10
11 ### sine table
12
13 {sin_table}
```

```
14
15 ### sine function
16
17 ```{.python}
18 {sin_func}
19 ```
```

**Note** use `{{}}` to escape `{}`

## Example I

demo.py (leave out headers)

```
1 config = {}
2 def sin_2x_and_cos_2x(x):
3     y = np.sin(x) * np.sin(x) + np.cos(x) * np.cos(x)
4     return y
5
6 x = np.arange(0, 4 * np.pi, 0.1)
7 y1 = np.sin(x)
8 y2 = np.cos(x)
9
10 df = pd.DataFrame({'x': x, 'sin(x)': y1, 'cos(x)': y2})
11 df['sin^2(x)+cos^2(x)'] = sin_2x_and_cos_2x(df['x']).values
12 df = df.set_index('x')
13
14 # plot sine curve as sin_plot
15 ax = df.plot()
```

## Example II

demo.py (leave out headers)

```
16 plt.tight_layout()
17 config['sin_plot'] = ax
18
19 # random select 5 point (x,y) as sin_table
20 config['sin_table'] = df.sample(5)
21 # sin_2x_and_cos_2x as sin_func
22 config['sin_func'] = sin_2x_and_cos_2x
23
24 # HK journalist runs faster than everyone! hear variables and make a
   big report
25 reporter = Journalist(template_file='template.md')
26 reporter.hear(config)
27 reporter.report(output_file='big_news.pdf', beamer=True,
   overwrite=True)
```



# Example

big\_news.pdf

Hello World

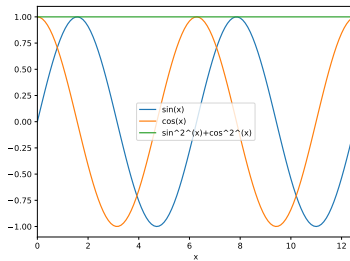
Xinyi Li

2019-12-19

Sine Table

| x   | sin(x) | cos(x) | sin <sup>2</sup> (x)+cos <sup>2</sup> (x) |
|-----|--------|--------|---|
| 6.6 | 0.31   | 0.95   | 1   |
| 5.6 | -0.63  | 0.78   | 1   |
| 7.3 | 0.85   | 0.53   | 1   |
| 5.9 | -0.37  | 0.93   | 1   |
| 4.7 | -1     | -0.01  | 1   |

Sine Plot



Sine Function

```
1 def sin_2x_and_cos_2x(x):  
2     y = np.sin(x) * np.sin(x) + np.cos(x) *  
        np.cos(x)  
3     return y
```

# Features

## Snapshot

```
1 Journalist.report(overwrite=False)
```

- ▶ it is why use .pdf instead of .html or raw .md
- ▶ add a timestamp at the end of output filename, such as  
1\_prophet\_report\_2019-12-18\_22:06:18.pdf

## Generate Template

```
1 Journalist.generate_template()
```

- ▶ after hear method
- ▶ generate template with **each** variable on subsection/slide page according its type:
  - ▶ var\_name as *title*, value as *page content*
- ▶ slight modification for usage

## References

[GitHub](https://github.com/li-xin-yi/HK-journalist) <https://github.com/li-xin-yi/HK-journalist>

[Documents](https://hk-journalist.readthedocs.io/en/latest/) <https://hk-journalist.readthedocs.io/en/latest/>

[Introduction](https://zhuanlan.zhihu.com/p/98708920) <https://zhuanlan.zhihu.com/p/98708920> (Chinese)

[Write Guide](https://pandoc.org/MANUAL.html) <https://pandoc.org/MANUAL.html>