Docs

Programming good research code good

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Documentation

Write documentation

You will forget about 90% of what you worked on. down, you'll be in a good spot.	If you	write it

A word of warning

- ▶ I covered testing before documentation
- ► But why?

Testing before documentation

- It's more important that your code works (is correct) than it is easy to use
- Docs become stale, tests have a long shelf life
- If tests run, you can always copy and paste code if you can't remember how to use the code
- Relatedly: if something can be a check, a warning or an exception, it should be

Documented

```
def conv(A, B, padding='valid'):
    11 11 11
    Convolves the 1d signals A and B.
    Args:
        A: a 1d numpy array
        B: a 1d numpy array
        padding (str): padding type (valid, mirror)
    11 11 11
    pass
```

Defensive inline checks

```
def conv(A, B, padding='none'):
   assert A.ndim == 1
   assert B.ndim == 1
   if padding not in ('valid', 'mirror'):
     raise NotImplementedError(
        f"{padding} not implemented.")
```

What should you document?

- References to papers
- Why you wrote tricky code the way you did instead of the obvious way
- ► TODOs

```
# TODO(pmin): refactor this mess
```

- Usage, especially if other people will use your code.
- It's a gift from present you to future you

How should we document functions?

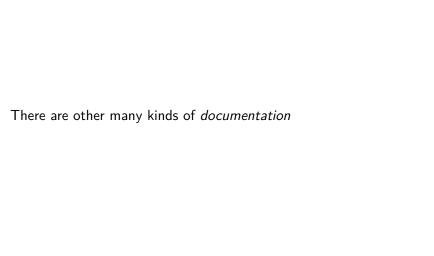
Numpy style or Google style.

```
def my_doubler(x):
    """Doubles x.

Args:
    x: the number to double

Returns:
    Twice x
"""

return x * 2
```



README, md

Schedule zoom webinars automatically This repo shows an example of batch scheduling many zoom webinars. Proceed as follows: • Clone this repo • Modify the tracks.json file in this repo with the webinar information. • Follow the instructions in this repo to create a zoom app with a local OAuth authentication server. Make sure to add all webinar permissions to this app, namely, in scopes: • /webinar:reaster: • /webinar:read:admin

Install the app. Inspect the locally started node is app to extract the access and refresh tokens. Create a .tokens json file and copy them in there:

```
{
    "access_token": "the access token",
    "refresh_token": "the refresh token",
}
```

• Create a .env file under this repo. Write in the following values:

Figure 1: We survived

Console usage

```
def main():
   parser = argparse.ArgumentParser(description='Manage sendgrid email batches with confidence')
   subparser = parser.add_subparsers(dest='verb')
   list_parser = subparser.add_parser('list', help='List batches')
   list_parser.add_argument("which", nargs='?', default='active', help='Which batches to list (active, all,
   create parser = subparser.add parser('create', help='Create a new batch')
   create parser.add argument("batch id", help='Batch id')
   create parser,add argument("template key", help='Template key')
   add parser = subparser.add parser('add', help='Adds a set of information to a batch')
   add parser.add argument("batch id", help='Batch id')
   add_parser.add_argument("csv", help='CSV file')
   template_parser = subparser.add_parser('templates', help='List templates')
   test parser = subparser.add parser('test', help='Sends a test email')
   test_parser.add_argument("batch_id", help='Batch id')
   test parser.add argument("to email", help='Email')
   remove parser = subparser.add parser('remove', help='Deletes an email batch')
   remove_parser.add_argument("batch_id", help='Batch id')
```

Figure 2: We survived

Console usage

```
(py3) $ python sendit.py
usage: sendit.py [-h] {list,create,add,templates,test,remove
Manage sendgrid email batches with confidence
positional arguments:
  {list, create, add, templates, test, remove, send}
    list
                         List batches
    create
                         Create a new batch
    add
                         Adds a set of information to a bate
    templates
                         List templates
    test
                         Sends a test email
                         Deletes an email batch
    remove
    send
                         Sends an email batch
optional arguments:
  -h, --help
```

show this help message and exit

Lab book & blogs

- ▶ I like notion.so as a labbook
- Blog: jekyll hosted on Github pages or wordpress.com
- ▶ I used to have a self-hosted wordpress.org website starting in 2005, it was lost in the sands of time use a hosted service
- ▶ I have had a wordpress.com blog for the last 12 years. Two weeks ago I copied and pasted from a blog post dated 2009.

Dashboards

- If you have a project that relies on tracking and improving a metric, use a dashboard
 - Lots of machine learning projects are set up this way
- Not only acts as a LTM, acts as an information radiator
- Many ways to do this (most of these are commercial cloud offerings with a free tier):
 - R Shiny
 - Streamlit
 - Panel
 - Plotly dash
 - Gooogle Data Studio
 - ► W&B

Sample dashboard

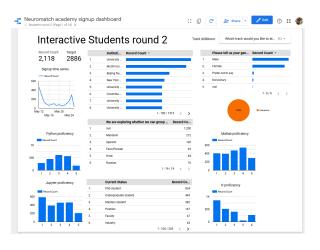


Figure 3: NMA dashboard

Lesson 4

- Write documentation
- Write the right kind of documentation
- Save your long-term memory and offload it to digital store
- ► 5-minute exercise: make a README.md file and push it to Github