A Python Package

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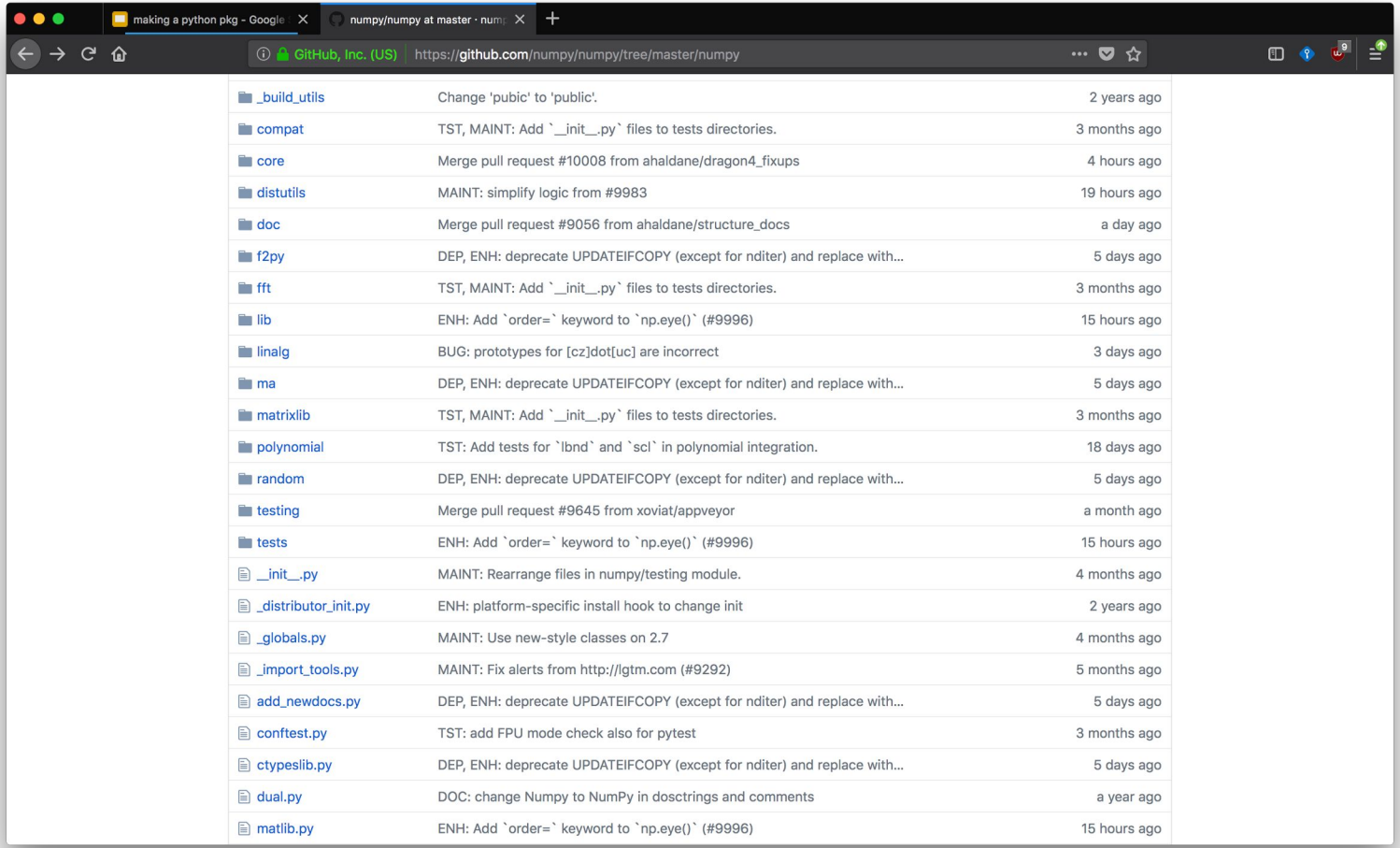
A maintainable, easy-to-use Python package

Creating a Python package is trivial.
Making it self-sustainable is not.
Making it easy-to-use is not.

A Python Package

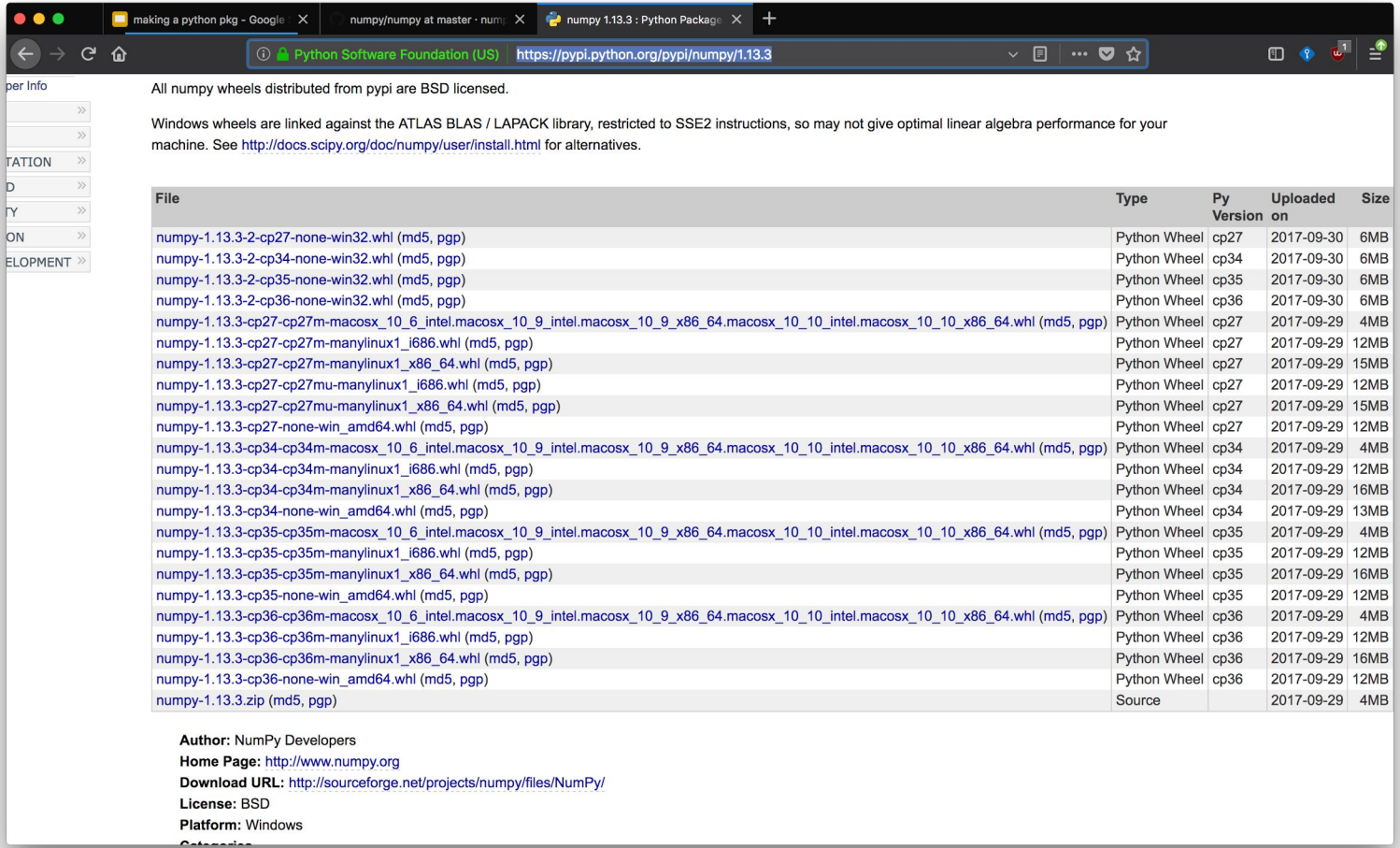
- A module containing a collection of sub-modules and script files.
- An installable

Structure of the NumPy package



_build_utils	Change 'pubic' to 'public'.	2 years ago
compat	TST, MAINT: Add `__init__.py` files to tests directories.	3 months ago
core	Merge pull request #10008 from ahaldane/dragon4_fixups	4 hours ago
distutils	MAINT: simplify logic from #9983	19 hours ago
doc	Merge pull request #9056 from ahaldane/structure_docs	a day ago
f2py	DEP, ENH: deprecate UPDATEIFCOPY (except for nditer) and replace with...	5 days ago
fft	TST, MAINT: Add `__init__.py` files to tests directories.	3 months ago
lib	ENH: Add `order=` keyword to `np.eye()` (#9996)	15 hours ago
linalg	BUG: prototypes for [cz]dot[uc] are incorrect	3 days ago
ma	DEP, ENH: deprecate UPDATEIFCOPY (except for nditer) and replace with...	5 days ago
matrixlib	TST, MAINT: Add `__init__.py` files to tests directories.	3 months ago
polynomial	TST: Add tests for `lbnd` and `scl` in polynomial integration.	18 days ago
random	DEP, ENH: deprecate UPDATEIFCOPY (except for nditer) and replace with...	5 days ago
testing	Merge pull request #9645 from xoviat/appveyor	a month ago
tests	ENH: Add `order=` keyword to `np.eye()` (#9996)	15 hours ago
__init__.py	MAINT: Rearrange files in numpy/testing module.	4 months ago
_distributor_init.py	ENH: platform-specific install hook to change init	2 years ago
_globals.py	MAINT: Use new-style classes on 2.7	4 months ago
_import_tools.py	MAINT: Fix alerts from http://lgtm.com (#9292)	5 months ago
add_newdocs.py	DEP, ENH: deprecate UPDATEIFCOPY (except for nditer) and replace with...	5 days ago
conftest.py	TST: add FPU mode check also for pytest	3 months ago
ctypeslib.py	DEP, ENH: deprecate UPDATEIFCOPY (except for nditer) and replace with...	5 days ago
dual.py	DOC: change Numpy to NumPy in docstrings and comments	a year ago
matlib.py	ENH: Add `order=` keyword to `np.eye()` (#9996)	15 hours ago

NumPy on PyPI



All numpy wheels distributed from pypi are BSD licensed.

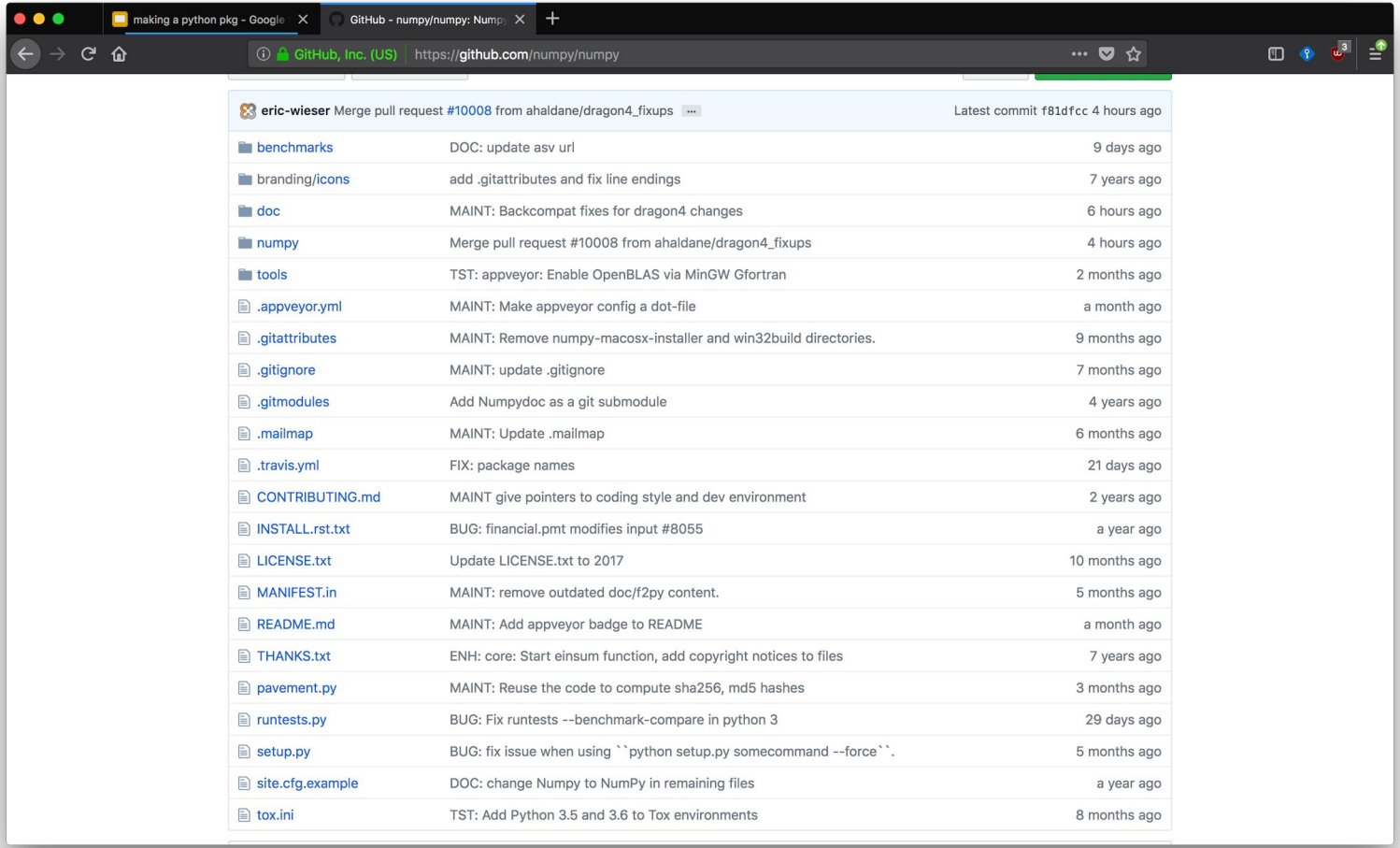
Windows wheels are linked against the ATLAS BLAS / LAPACK library, restricted to SSE2 instructions, so may not give optimal linear algebra performance for your machine. See http://docs.scipy.org/doc/numpy/user/install.html for alternatives.

File	Type	Py Version	Uploaded on	Size
numpy-1.13.3-2-cp27-none-win32.whl (md5, pgp)	Python Wheel	cp27	2017-09-30	6MB
numpy-1.13.3-2-cp34-none-win32.whl (md5, pgp)	Python Wheel	cp34	2017-09-30	6MB
numpy-1.13.3-2-cp35-none-win32.whl (md5, pgp)	Python Wheel	cp35	2017-09-30	6MB
numpy-1.13.3-2-cp36-none-win32.whl (md5, pgp)	Python Wheel	cp36	2017-09-30	6MB
numpy-1.13.3-cp27-cp27m-macosx_10_6_intel.macosx_10_9_intel.macosx_10_9_x86_64.macosx_10_10_intel.macosx_10_10_x86_64.whl (md5, pgp)	Python Wheel	cp27	2017-09-29	4MB
numpy-1.13.3-cp27-cp27m-manylinux1_i686.whl (md5, pgp)	Python Wheel	cp27	2017-09-29	12MB
numpy-1.13.3-cp27-cp27m-manylinux1_x86_64.whl (md5, pgp)	Python Wheel	cp27	2017-09-29	15MB
numpy-1.13.3-cp27-cp27mu-manylinux1_i686.whl (md5, pgp)	Python Wheel	cp27	2017-09-29	12MB
numpy-1.13.3-cp27-cp27mu-manylinux1_x86_64.whl (md5, pgp)	Python Wheel	cp27	2017-09-29	15MB
numpy-1.13.3-cp27-none-win_amd64.whl (md5, pgp)	Python Wheel	cp27	2017-09-29	12MB
numpy-1.13.3-cp34-cp34m-macosx_10_6_intel.macosx_10_9_intel.macosx_10_9_x86_64.macosx_10_10_intel.macosx_10_10_x86_64.whl (md5, pgp)	Python Wheel	cp34	2017-09-29	4MB
numpy-1.13.3-cp34-cp34m-manylinux1_i686.whl (md5, pgp)	Python Wheel	cp34	2017-09-29	12MB
numpy-1.13.3-cp34-cp34m-manylinux1_x86_64.whl (md5, pgp)	Python Wheel	cp34	2017-09-29	16MB
numpy-1.13.3-cp34-none-win_amd64.whl (md5, pgp)	Python Wheel	cp34	2017-09-29	13MB
numpy-1.13.3-cp35-cp35m-macosx_10_6_intel.macosx_10_9_intel.macosx_10_9_x86_64.macosx_10_10_intel.macosx_10_10_x86_64.whl (md5, pgp)	Python Wheel	cp35	2017-09-29	4MB
numpy-1.13.3-cp35-cp35m-manylinux1_i686.whl (md5, pgp)	Python Wheel	cp35	2017-09-29	12MB
numpy-1.13.3-cp35-cp35m-manylinux1_x86_64.whl (md5, pgp)	Python Wheel	cp35	2017-09-29	16MB
numpy-1.13.3-cp35-none-win_amd64.whl (md5, pgp)	Python Wheel	cp35	2017-09-29	12MB
numpy-1.13.3-cp36-cp36m-macosx_10_6_intel.macosx_10_9_intel.macosx_10_9_x86_64.macosx_10_10_intel.macosx_10_10_x86_64.whl (md5, pgp)	Python Wheel	cp36	2017-09-29	4MB
numpy-1.13.3-cp36-cp36m-manylinux1_i686.whl (md5, pgp)	Python Wheel	cp36	2017-09-29	12MB
numpy-1.13.3-cp36-cp36m-manylinux1_x86_64.whl (md5, pgp)	Python Wheel	cp36	2017-09-29	16MB
numpy-1.13.3-cp36-none-win_amd64.whl (md5, pgp)	Python Wheel	cp36	2017-09-29	12MB
numpy-1.13.3.zip (md5, pgp)	Source		2017-09-29	4MB

Author: NumPy Developers
Home Page: http://www.numpy.org
Download URL: http://sourceforge.net/projects/numpy/files/NumPy/
License: BSD
Platform: Windows
Categories

Python Package ++

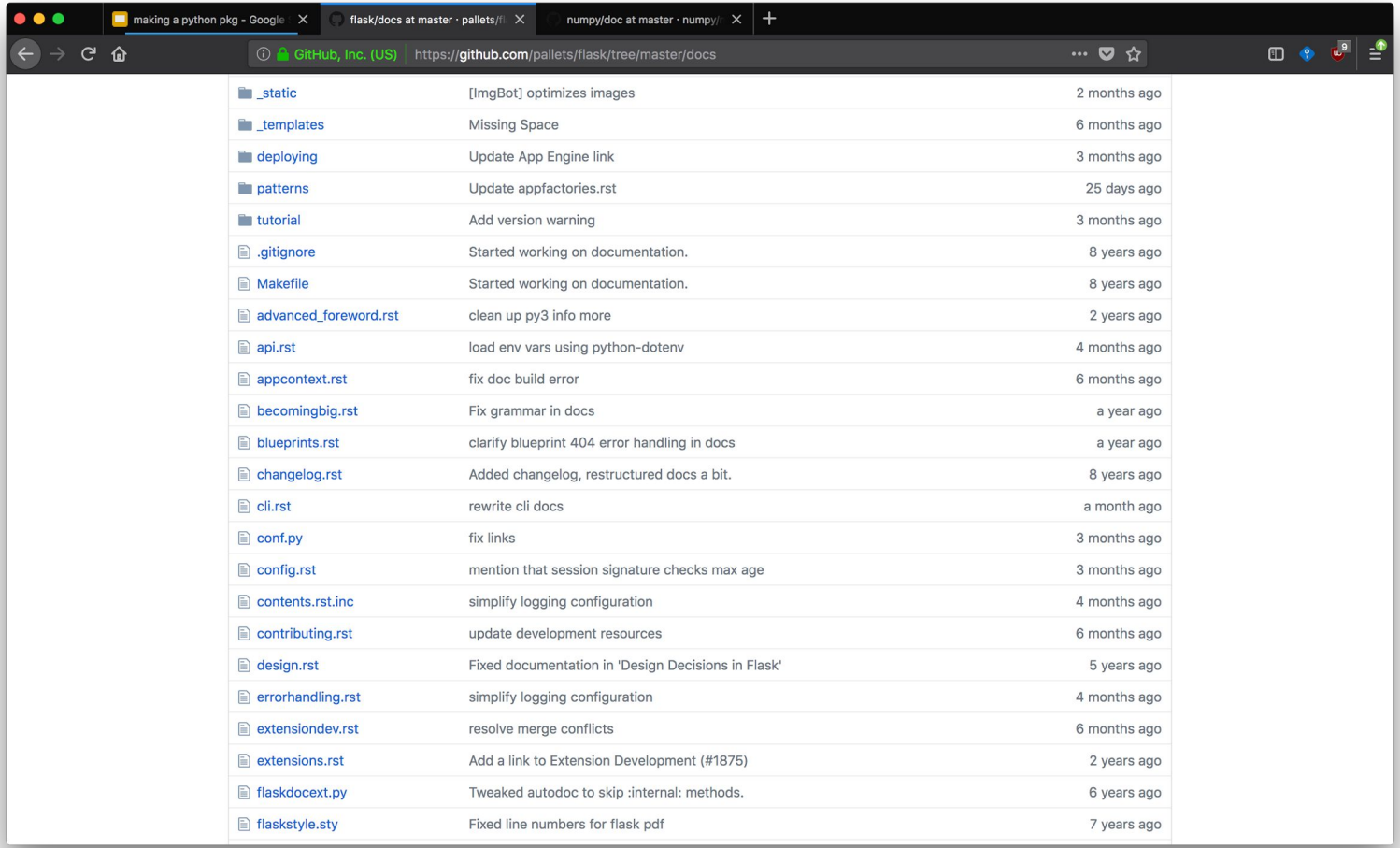
- Usability thanks to entry_points
- Easily installable thanks to PyPI and Twine.
- User documentation using Sphinx
- CI using Travis


making a python pkg - Google
GitHub - numpy/numpy: Numpy
GitHub, Inc. (US)
https://github.com/numpy/numpy
eric-wieser Merge pull request #10008 from ahaldane/dragon4_fixups
Latest commit f81dfcc 4 hours ago
benchmarks DOC: update asv url 9 days ago
branding/icons add .gitattributes and fix line endings 7 years ago
doc MAINT: Backcompat fixes for dragon4 changes 6 hours ago
numpy Merge pull request #10008 from ahaldane/dragon4_fixups 4 hours ago
tools TST: appveyor: Enable OpenBLAS via MinGW Gfortran 2 months ago
.appveyor.yml MAINT: Make appveyor config a dot-file a month ago
.gitattributes MAINT: Remove numpy-macosx-installer and win32build directories. 9 months ago
.gitignore MAINT: update .gitignore 7 months ago
.gitmodules Add Numpydoc as a git submodule 4 years ago
.mailmap MAINT: Update .mailmap 6 months ago
.travis.yml FIX: package names 21 days ago
CONTRIBUTING.md MAINT give pointers to coding style and dev environment 2 years ago
INSTALL.rst.txt BUG: financial.pmt modifies input #8055 a year ago
LICENSE.txt Update LICENSE.txt to 2017 10 months ago
MANIFEST.in MAINT: remove outdated doc/f2py content. 5 months ago
README.md MAINT: Add appveyor badge to README a month ago
THANKS.txt ENH: core: Start einsum function, add copyright notices to files 7 years ago
pavement.py MAINT: Reuse the code to compute sha256, md5 hashes 3 months ago
runtests.py BUG: Fix runtests --benchmark-compare in python 3 29 days ago
setup.py BUG: fix issue when using ``python setup.py somecommand --force``. 5 months ago
site.cfg.example DOC: change Numpy to NumPy in remaining files a year ago
tox.ini TST: Add Python 3.5 and 3.6 to Tox environments 8 months ago

entry_points in Flask

```
108         entry_points='''
109             [console_scripts]
110             flask=flask.cli:main
111         '''
112     )
```

Sphinx docs on Flask



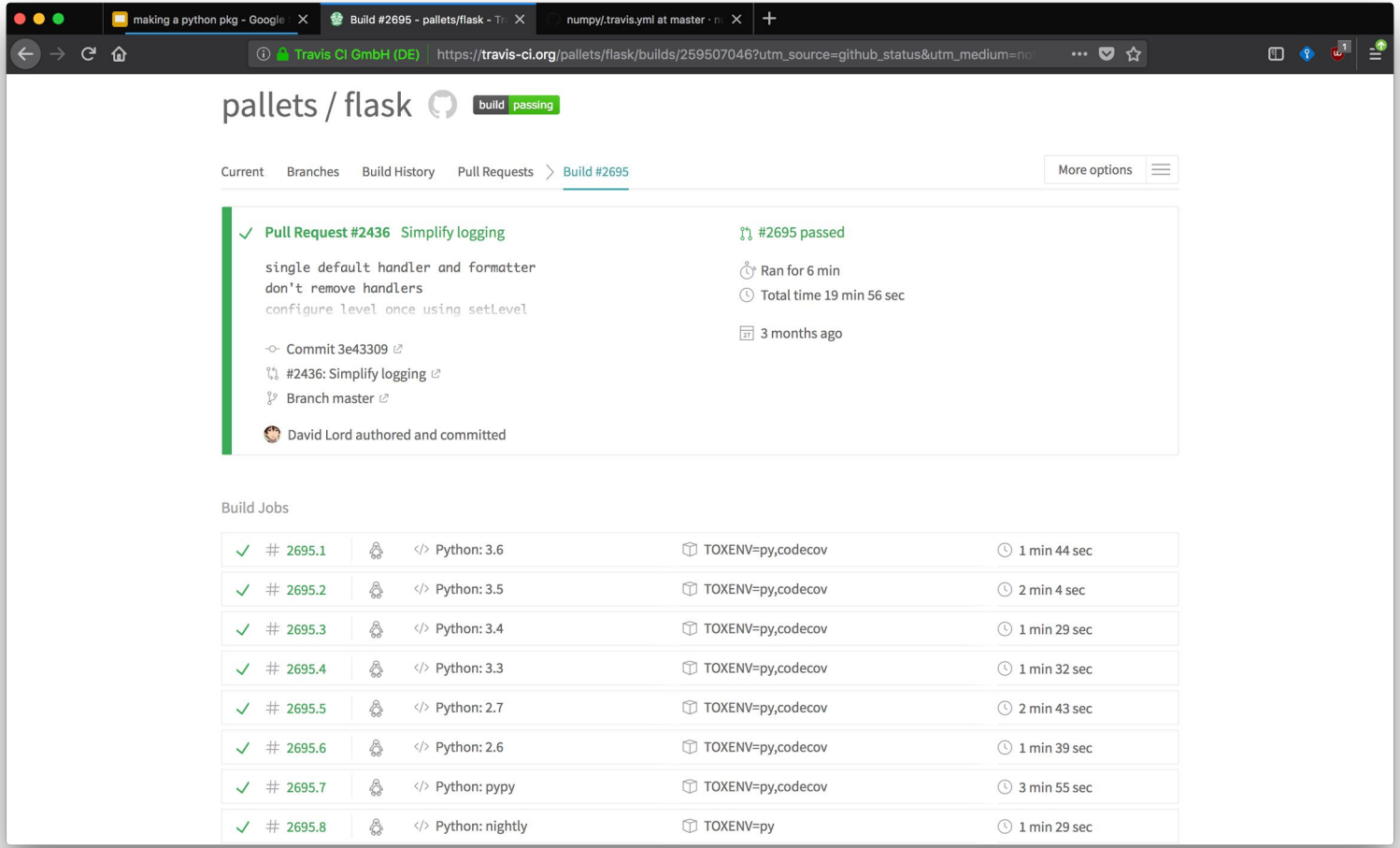
_static	[ImgBot] optimizes images	2 months ago
_templates	Missing Space	6 months ago
deploying	Update App Engine link	3 months ago
patterns	Update appfactories.rst	25 days ago
tutorial	Add version warning	3 months ago
.gitignore	Started working on documentation.	8 years ago
Makefile	Started working on documentation.	8 years ago
advanced_foreword.rst	clean up py3 info more	2 years ago
api.rst	load env vars using python-dotenv	4 months ago
appcontext.rst	fix doc build error	6 months ago
becomingbig.rst	Fix grammar in docs	a year ago
blueprints.rst	clarify blueprint 404 error handling in docs	a year ago
changelog.rst	Added changelog, restructured docs a bit.	8 years ago
cli.rst	rewrite cli docs	a month ago
conf.py	fix links	3 months ago
config.rst	mention that session signature checks max age	3 months ago
contents.rst.inc	simplify logging configuration	4 months ago
contributing.rst	update development resources	6 months ago
design.rst	Fixed documentation in 'Design Decisions in Flask'	5 years ago
errorhandling.rst	simplify logging configuration	4 months ago
extensiondev.rst	resolve merge conflicts	6 months ago
extensions.rst	Add a link to Extension Development (#1875)	2 years ago
flaskdocext.py	Tweaked autodoc to skip :internal: methods.	6 years ago
flaskstyle.sty	Fixed line numbers for flask pdf	7 years ago

Travis CI on Flask

making a python pkg - Google | flask/.travis.yml at master · pall | numpy/.travis.yml at master · n

GitHub, Inc. (US) https://github.com/pallets/flask/blob/master/.travis.yml

```yaml
sudo: false
language: python

matrix:
  include:
    - python: 3.6
      env: TOXENV=py,codecov
    - python: 3.5
      env: TOXENV=py,codecov
    - python: 3.4
      env: TOXENV=py,codecov
    - python: 3.3
      env: TOXENV=py,codecov
    - python: 2.7
      env: TOXENV=py,codecov
    - python: 2.6
      env: TOXENV=py,codecov
    - python: pypy
      env: TOXENV=py,codecov
    - python: nightly
      env: TOXENV=py
    - python: 3.6
      env: TOXENV=docs-html
    - python: 3.6
      env: TOXENV=py-simplejson,codecov

install:
  - pip install tox

script:
  - tox

cache:
  - pip

branches:
  only:
    - master
    - /^.*-maintenance$/
```


making a python pkg - Google
Build #2695 - pallets/flask - Tr
numpy/.travis.yml at master · n
Travis CI GmbH (DE)
https://travis-ci.org/pallets/flask/builds/259507046?utm_source=github_status&utm_medium=no
pallets / flask
build passing
Current
Branches
Build History
Pull Requests
Build #2695
More options
Pull Request #2436 Simplify logging
single default handler and formatter
don't remove handlers
configure level once using setLevel
Commit 3e43309
#2436: Simplify logging
Branch master
David Lord authored and committed
#2695 passed
Ran for 6 min
Total time 19 min 56 sec
3 months ago
Build Jobs
2695.1 Python: 3.6 TOXENV=py,codecov 1 min 44 sec
2695.2 Python: 3.5 TOXENV=py,codecov 2 min 4 sec
2695.3 Python: 3.4 TOXENV=py,codecov 1 min 29 sec
2695.4 Python: 3.3 TOXENV=py,codecov 1 min 32 sec
2695.5 Python: 2.7 TOXENV=py,codecov 2 min 43 sec
2695.6 Python: 2.6 TOXENV=py,codecov 1 min 39 sec
2695.7 Python: pypy TOXENV=py,codecov 3 min 55 sec
2695.8 Python: nightly TOXENV=py 1 min 29 sec

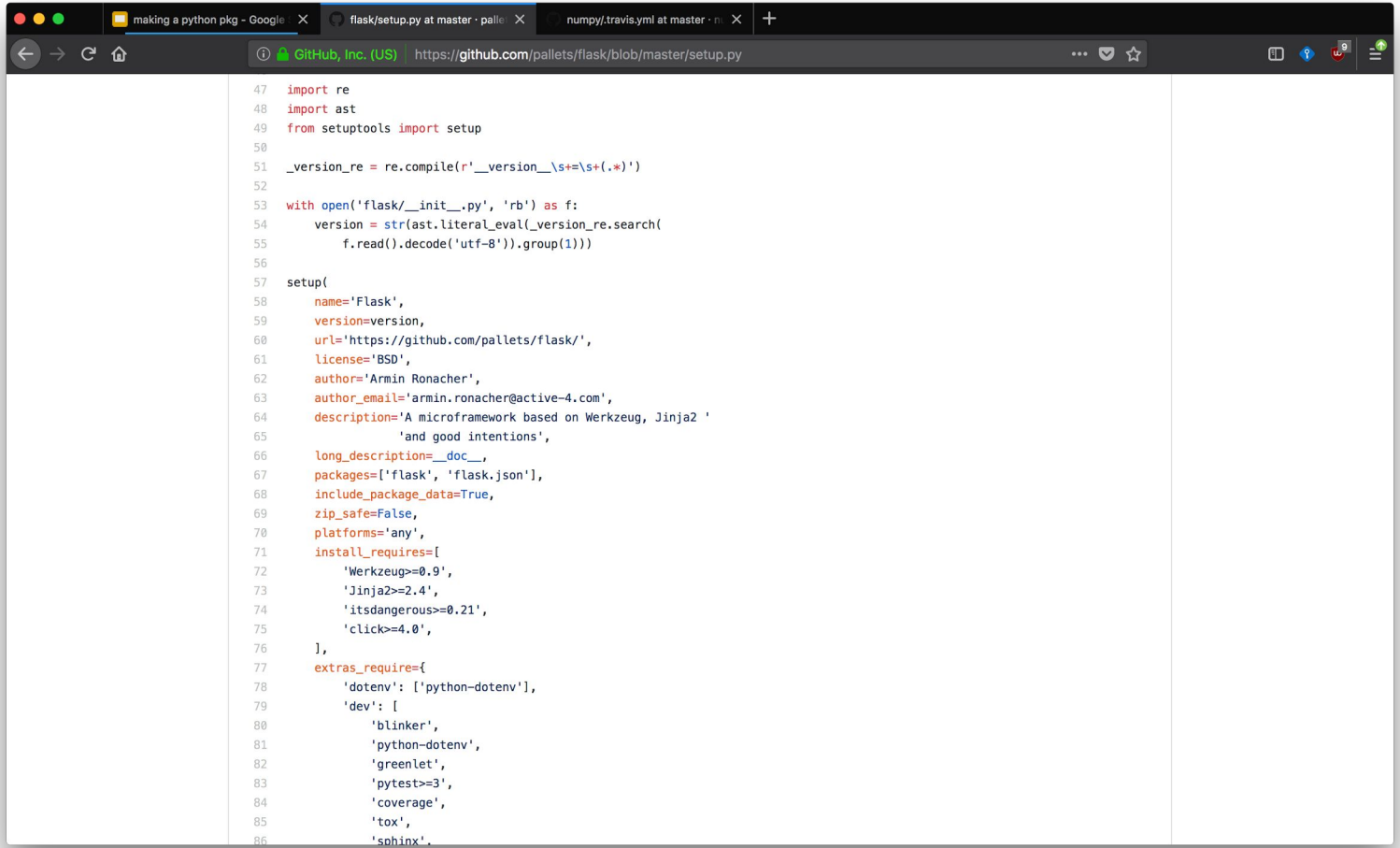
A (basic) Python Package

Let’s convert a simple script file into a Python package

A (basic) Python Package

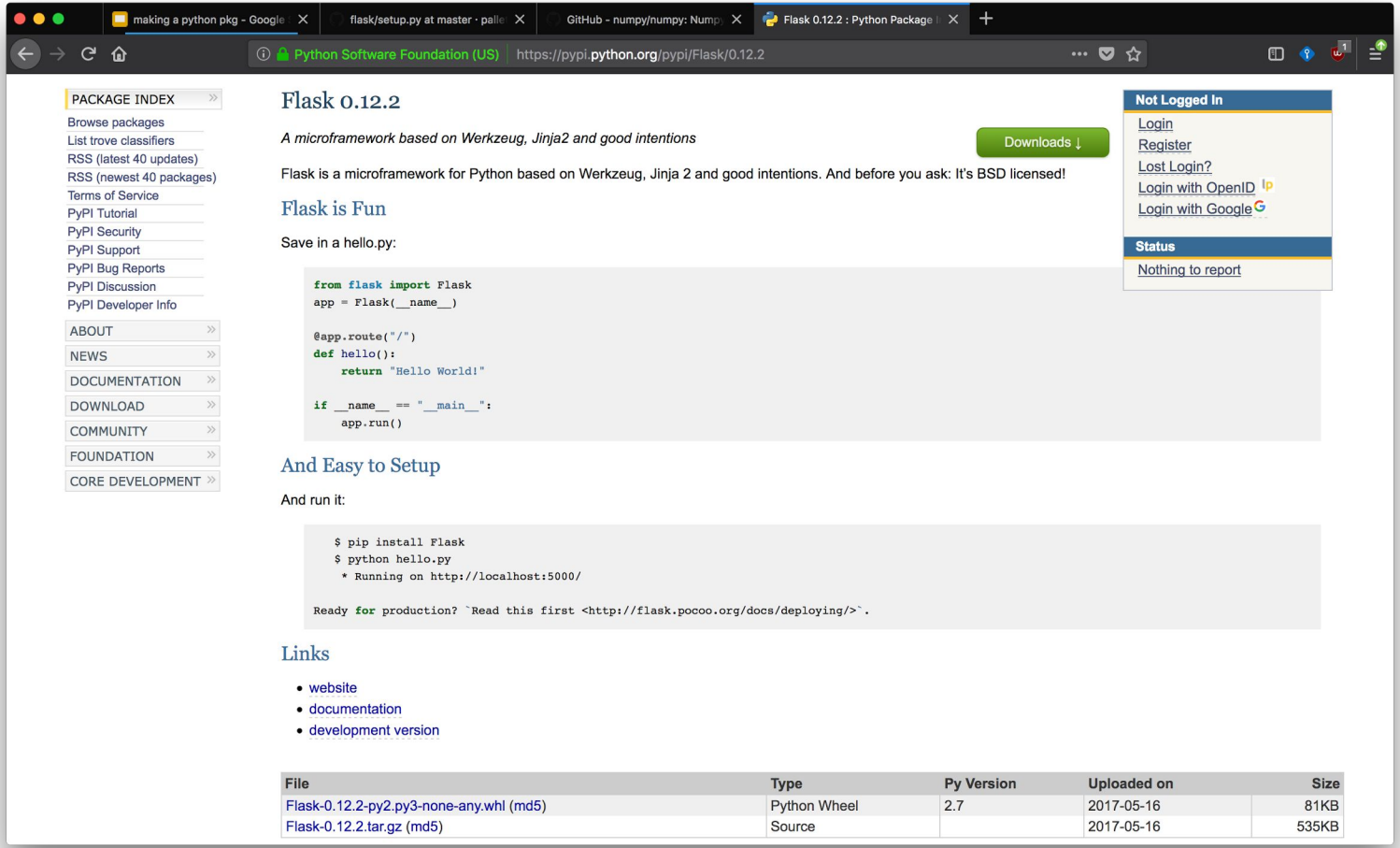
- Creating a simple setup.py file and understanding setuptools.
- Creating a simple directory structure and understanding the importance of the __init__.py file.
- Creating a pip-installable Python egg/wheel using setuptools.

The Flask setup.py file




```
import re
import ast
from setuptools import setup

_version_re = re.compile(r'__version__\s+=\s+(.*)')

with open('flask/__init__.py', 'rb') as f:
    version = str(ast.literal_eval(_version_re.search(
        f.read().decode('utf-8')).group(1)))

setup(
    name='Flask',
    version=version,
    url='https://github.com/pallets/flask/',
    license='BSD',
    author='Armin Ronacher',
    author_email='armin.ronacher@active-4.com',
    description='A microframework based on Werkzeug, Jinja2 '
                'and good intentions',
    long_description=__doc__,
    packages=['flask', 'flask.json'],
    include_package_data=True,
    zip_safe=False,
    platforms='any',
    install_requires=[
        'Werkzeug>=0.9',
        'Jinja2>=2.4',
        'itsdangerous>=0.21',
        'click>=4.0',
    ],
    extras_require={
        'dotenv': ['python-dotenv'],
        'dev': [
            'blinker',
            'python-dotenv',
            'greenlet',
            'pytest>=3',
            'coverage',
            'tox',
            'sphinx',
```

Flask on PyPI


making a python pkg - Google
flask/setup.py at master · palle
GitHub - numpy/numpy: Numpy
Flask 0.12.2 : Python Package
Python Software Foundation (US)
https://pypi.python.org/pypi/Flask/0.12.2
PACKAGE INDEX
Browse packages
List trove classifiers
RSS (latest 40 updates)
RSS (newest 40 packages)
Terms of Service
PyPI Tutorial
PyPI Security
PyPI Support
PyPI Bug Reports
PyPI Discussion
PyPI Developer Info
ABOUT
NEWS
DOCUMENTATION
DOWNLOAD
COMMUNITY
FOUNDATION
CORE DEVELOPMENT
Flask 0.12.2
A microframework based on Werkzeug, Jinja2 and good intentions
Downloads ↓
Flask is a microframework for Python based on Werkzeug, Jinja 2 and good intentions. And before you ask: It's BSD licensed!
Flask is Fun
Save in a hello.py:
from flask import Flask
app = Flask(__name__)
@app.route("/")
def hello():
return "Hello World!"
if __name__ == "__main__":
app.run()
And Easy to Setup
And run it:
$ pip install Flask
$ python hello.py
* Running on http://localhost:5000/
Ready for production? `Read this first <http://flask.pocoo.org/docs/deploying/>`.
Links
website
documentation
development version
Not Logged In
Login
Register
Lost Login?
Login with OpenID
Login with Google
Status
Nothing to report
File
Type
Py Version
Uploaded on
Size
Flask-0.12.2-py2.py3-none-any.whl (md5)
Python Wheel
2.7
2017-05-16
81KB
Flask-0.12.2.tar.gz (md5)
Source
2017-05-16
535KB

Python Package ++

Using entry_points, docs and CI

The power of entry_points

Making your package easy-to-use

The power of entry_points

- Understanding the console_scripts entry_point.
- Creating and using a console_script entry_point.
- Understanding how entry_points work.

Want to dig deeper?

- Figure out what all packages in your current Python installation provide entry_points.
- Create a pair of packages, the former exposes an entry_point and the latter uses the entry_point to contribute functionality to the former.

Uploading package to PyPI

Making it easily installable

Using PyPI

- Creating eggs and wheels.
- Registering and uploading package to PyPI using twine.

Want to dig deeper?

- Look into creating packages installable in (Ana)Conda environments using conda-forge
- Look into signing packages before uploading them to PyPI

Adding user-facing docs

Using Sphinx

User-facing docs

- Using sphinx-quickstart
- Understanding ReST
- Understanding Sphinx

- Setting up GitHub Pages to host package docs.

Want to dig deeper?

- Changing the Sphinx theme.
- Auto generate API docs from code.
- Doc tests

CI using Travis CI

Testing your code

Want to dig deeper?

- Create a build matrix, testing the package with various versions of package dependencies.
- Setup Appveyor CI to test the package on Windows.
- Use fabric/invoke to make setting up environment easy.

Want more?

- Parse command line arguments when using console_scripts entry_point.
- Running tests on the user machines e.g. NumPy, Pandas.
- Shipping and installing packages that contain Cython code.
- Learn how to use git-bisect to identify commit/changes that are causing a bug.