UNIVERSITY of WASHINGTON

Software Design for Data Science

Advanced Packages

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Class Updates

Next week: Practice Presentations

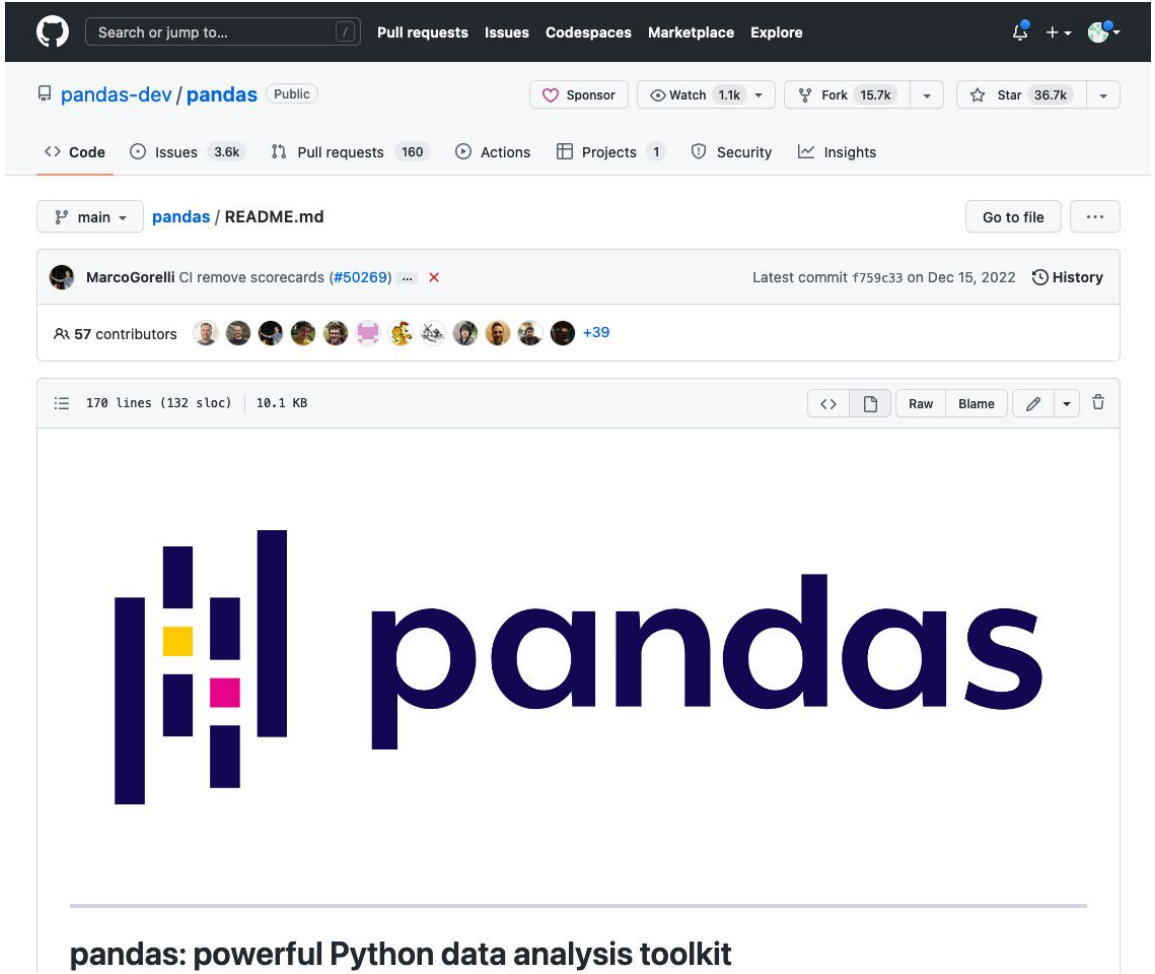
- Similar to your first demo - low stress
- You should ALSO have a first draft of your presentation
  - Definitely does not need to be complete, but we want to see the beginning
- This is also your time to have any last minute discussions with instructors

Project Requirements: stuff we've learned

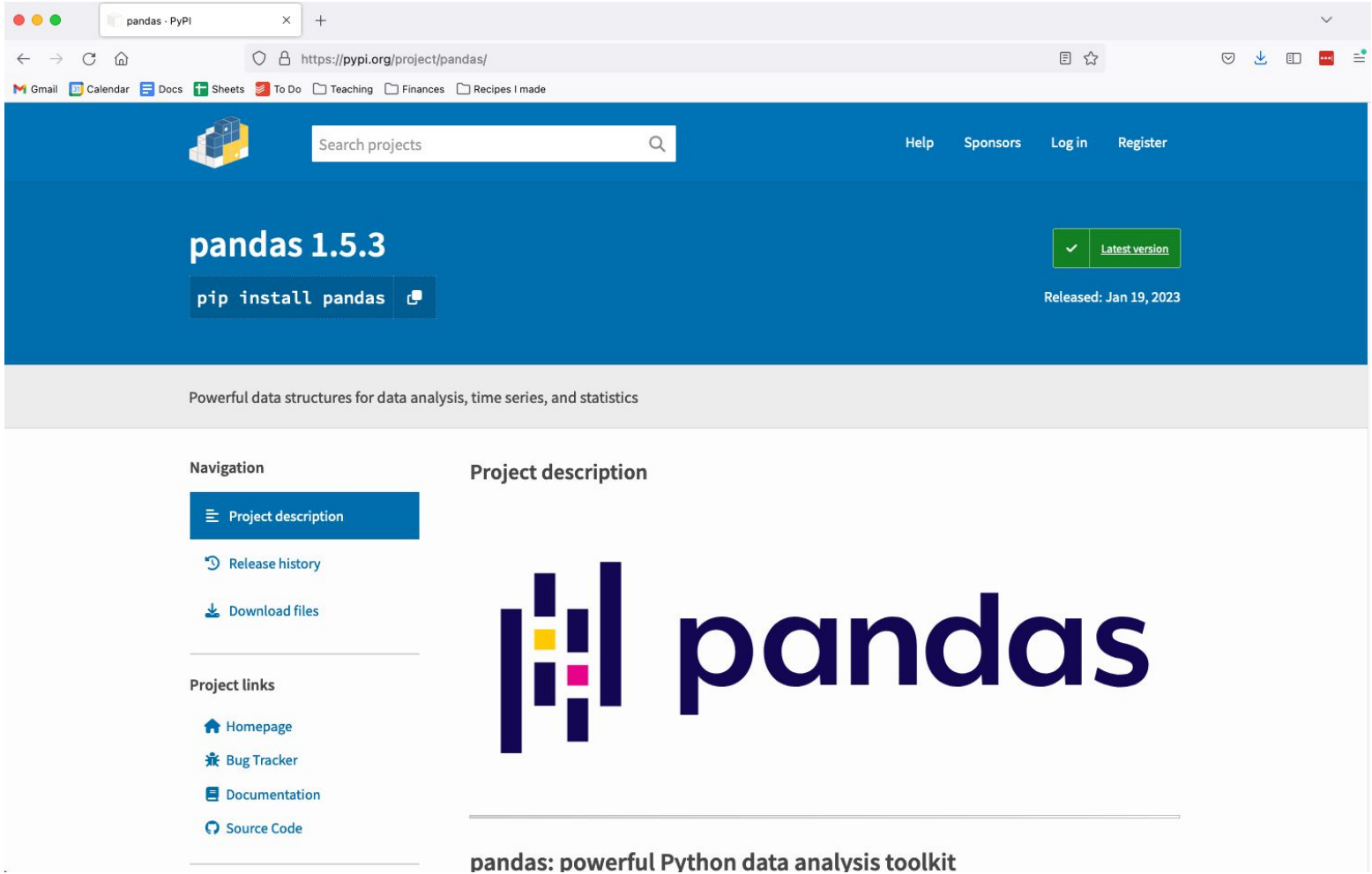
Just to reiterate: you must include the following in your projects.

- **Tests**
  - High test coverage
  - High coverage is not *sufficient* - make sure you write good tests
- **README**
  - Updated!
- **Inline documentation (docstrings)**
  - For functions/modules
- **examples** folder
  - How do various users interact with your system?
  - How do we (the instructors) run the code and tests?
- **Style**: pylint 100%
- **Continuous Integration**
- **Pull requests & reviews**
- **Package distribution** *(today!)*

Distributing a Python package


Search or jump to...
Pull requests
Issues
Codespaces
Marketplace
Explore
pandas-dev / pandas
Public
Sponsor
Watch 1.1k
Fork 15.7k
Star 36.7k
Code
Issues 3.6k
Pull requests 160
Actions
Projects 1
Security
Insights
main
pandas / README.md
Go to file
MarcoGorelli CI remove scorecards (#50269)
Latest commit f759c33 on Dec 15, 2022
History
57 contributors
+39
170 lines (132 sloc)
10.1 KB
Raw
Blame
pandas
pandas: powerful Python data analysis toolkit

PyPI


pandas · PyPI
https://pypi.org/project/pandas/
Gmail
Calendar
Docs
Sheets
To Do
Teaching
Finances
Recipes I made
Search projects
Help
Sponsors
Log in
Register
pandas 1.5.3
pip install pandas
Latest version
Released: Jan 19, 2023
Powerful data structures for data analysis, time series, and statistics
Navigation
Project description
Release history
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Bug Tracker
Documentation
Source Code
Project description
pandas
pandas: powerful Python data analysis toolkit

Extending project structure for PyPI

```
myproject/
    README.md
    LICENSE
    pyproject.toml
    myproject/
        __init__.py
        core.py
        subpackage/
        submodule/
        tests/
```

Contains metadata for the package for PyPI. This metadata is then piped to a package builder - often `setuptools` but there are others like `hatchling`

https://packaging.python.org/en/latest/tutorials/packaging-projects/

Extending project structure for PyPI

```
myproject/
    README.md
    LICENSE
    pyproject.toml
    requirements.txt
    myproject/
        __init__.py
        core.py
        subpackage/
        submodule/
        tests/
```

Contains absolute dependencies, especially useful if you're publishing an application.
Can be generated using:

```
conda list --export > requirements.txt
```

OR

```
pip freeze > requirements.txt
```

Extending project structure for PyPI

```
myproject/
    README.md
    LICENSE
    pyproject.toml
    requirements.txt
    MANIFEST.in
    myproject/
        __init__.py
        core.py
        subpackage/
        submodule/
        tests/
```

Specify data and files that should also be packaged in addition to the Python modules

Example `pyproject.toml`

https://github.com/UWDATA515/ci_example/blob/main/pyproject.toml

More examples

Check out existing Python packages. These may be more complicated:

https://github.com/numpy/numpy

https://github.com/pandas-dev/pandas

Submitting your package to PyPI

Update your code and version number. Run your test suites and ensure your code works as intended. Create a PyPI account if you don't have one already

Create your source, and if desired, binary distribution:

```
$ python -m build
```

Install `twine` package to submit builds to PyPI.

(Can install using conda install twine, pip install twine, etc.)

```
$ twine upload dist/*
```

Exercise: Set up your project's `pyproject.toml` file

https://setuptools.pypa.io/en/latest/userguide/index.html

Make sure it builds!

```
python -m build
```

(remember to install the build tools as part of your environment!)

Test it out!

- Move the built tar.gz from dist to a folder outside your repo
- Create a new (empty) conda environment
- `python3 -m pip install ./<your-package-name>.tar.gz`
- Try running python and try importing your modules and functions