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# **cookiecutter-modern-pypackage**

***Release 2.2.1***

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## GETTING STARTED

### 1.1 Cookiecutter Modern PyPackage

Cookiecutter template for a modern Python package.

- GitHub repo: <https://github.com/fedejaure/cookiecutter-modern-pypackage.git>
- Documentation: <https://cookiecutter-modern-pypackage.readthedocs.io>
- Free software: MIT license

#### 1.1.1 Features

- Dependency tracking using Poetry
- Testing setup with Pytest
- Github Actions ready for Continuous Integration testing
- Linting provided by Flake8 with flakeheaven
- Docstring linting provided by Darglint using the Google Python Style Guide
- Static type checking by Mypy
- Formatting provided by Black and Isort
- Checks dependencies for known security vulnerabilities with Safety
- Git hooks managed by pre-commit.
- All development tasks (lint, format, test, etc) wrapped up in a python CLI by invoke
- Multiple Python environments testing provided by Nox
- Documentation provided by Sphinx ready for generation with, for example, Read the Docs
- Command line interface using Click (optional)
- Automated dependency updates with Dependabot
- Coverage reports on Codecov
- Automated releases to PyPI and TestPyPI

## 1.1.2 Quickstart

Install the latest Cookiecutter if you haven't installed it yet (this requires Cookiecutter 1.4.0 or higher):

```
pip install -U cookiecutter
```

Generate a Python package project:

```
cookiecutter gh:fedejaure/cookiecutter-modern-pypackage --checkout v2.2.1
```

Then:

- Create a repo and put it there.
- Install the dev requirements into a virtualenv. (`poetry install`)
- Install pre-commit hooks. (`poetry run inv install-hooks`)
- Configure [Codecov](#) repository settings. (Codecov App, CODECOV\_TOKEN)
- Add the repo to your [Read the Docs](#) account + turn on the Read the Docs service hook.
- Configure [PyPI](#) and [TestPyPI](#) tokens. (PYPI\_TOKEN, TEST\_PYPI\_TOKEN)
- Release your package by pushing a new tag.

For more details, see the [tutorial](#).

## 1.1.3 Credits

This cookiecutter was built for learning purpose and inspired by:

- [audreyr/cookiecutter-pypackage](#): Cookiecutter template for a Python package.
- [briggysmalls/cookiecutter-pypackage](#): A fork from [audreyr/cookiecutter-pypackage](#) using Poetry for package management, with linting, formatting and more.
- [hypermodern-python](#): Hypermodern Python article series.

## 1.2 Tutorial

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**Note:** Did you find any of these instructions confusing? [Edit this file](#) and submit a pull request with your improvements!

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To start with, you will need a [GitHub account](#) and an account on [PyPI](#). Create these before you get started on this tutorial. If you are new to Git and GitHub, you should probably spend a few minutes on some of the tutorials at the top of the page at [GitHub Help](#).

### 1.2.1 Step 1: Install Cookiecutter

Install cookiecutter:

```
$ pip install cookiecutter
```

We'll also need poetry so [install that too](#).

### 1.2.2 Step 2: Generate Your Package

Now it's time to generate your Python package.

Use cookiecutter, pointing it at the cookiecutter-pypackage repo:

```
$ cookiecutter gh:fedejaure/cookiecutter-modern-pypackage --checkout v2.2.1
```

You'll be asked to enter a bunch of values to set the package up. If you don't know what to enter, stick with the defaults.

### 1.2.3 Step 3: Create a GitHub Repo

Go to your GitHub account and create a new repo named `mypackage`, where `mypackage` matches the `[project_name]` from your answers to running cookiecutter.

You will find one folder named after the `[project_name]`. Move into this folder, and then setup git to use your GitHub repo and upload the code:

```
$ cd mypackage
mypackage $ git init .
mypackage $ git add .
mypackage $ git commit -m "Initial skeleton."
mypackage $ git remote add origin git@github.com:myusername/mypackage.git
mypackage $ git push -u origin master
```

Where `myusername` and `mypackage` are adjusted for your username and package name.

You'll need a ssh key to push the repo. You can [Generate](#) a key or [Add](#) an existing one.

### 1.2.4 Step 4: Install Dev Requirements

You should still be in the folder containing the `pyproject.toml` file.

Install the new project's local development requirements inside a virtual environment using poetry:

```
$ poetry install
$ poetry run inv install-hooks
```

### 1.2.5 Step 5: Set Up Codecov

Codecov provides highly integrated tools to group, merge, archive, and compare coverage reports.

Log into your account at [Codecov](#). If you don't have one, create one and log into it.

Click on *Add new repository*. Choose the desired one. Then follow the instructions to setup the `CODECOV_TOKEN` on the github secrets.

Install the [Codecov](#) github App.

Now your coverage reports will be generated when a new PR is created.

### 1.2.6 Step 6: Set Up Read the Docs

[Read the Docs](#) hosts documentation for the open source community. Think of it as Continuous Documentation.

Log into your account at [Read the Docs](#). If you don't have one, create one and log into it.

If you are not at your dashboard, choose the pull-down next to your username in the upper right, and select "My Projects". Choose the button to Import the repository and follow the directions.

Now your documentation will get rebuilt when you make documentation changes to your package.

### 1.2.7 Step 7: Release on PyPI and TestPyPI

The Python Package Index or [PyPI](#) is the official third-party software repository for the Python programming language. Python developers intend it to be a comprehensive catalog of all open source Python packages.

[TestPyPI](#) is a separate instance of the Python Package Index ([PyPI](#)) that allows you to try out the distribution tools and process without worrying about affecting the real index.

Log into your account at [PyPI](#) and [TestPyPI](#). Go to Account Settings and generate an API tokens.

Go to the repository settings on GitHub, and add two secrets named `PYPI_TOKEN` and `TEST_PYPI_TOKEN` with the tokens that you just generated.

Release your package by pushing a new tag.

### 1.2.8 Having problems?

Visit our [Issues](#) page and create a new Issue. Be sure to give as much information as possible.

## 1.3 Changelog

All notable changes to this project will be documented in this file.

The format is based on [Keep a Changelog](#), and this project adheres to [Semantic Versioning](#).

### 1.3.1 Unreleased

### 1.3.2 2.2.1 - 2023-05-25

#### Changed

- Moved mypy configurations from `mypy.ini` to `pyproject.toml`.
- Moved poetry dev-dependencies to `group.dev.dependencies`.
- peter-evans/create-pull-request from v4.2.3 to v5.0.1.
- actions/checkout from v3.3.0 to v3.5.2.
- codecov/codecov-action from v2.0.2 to v3.1.4.
- actions/setup-python from v4.5.0 to v4.6.1.
- pytest-cov from ^3.0.0 to ^4.1.0.
- coverage from ^7.2.1 to ^7.2.6.
- flakeheaven from ^3.2.1 to ^3.3.0.
- black from ^23.1.0 to ^23.3.0.
- sphinx from ^6.1.3 to ^7.0.1.
- flake8-bugbear from ^23.2.13 to ^23.3.12.
- watchdog from ^2.3.1 to ^3.0.0.
- pytest-cookies from ^0.6.1 to ^0.7.0.
- pytest from ^7.2.2 to ^7.3.1.
- mypy from ^1.0.1 to ^1.3.0.
- pre-commit from ^3.1.1 to ^3.3.2.
- invoke from ^2.0.0 to ^2.1.2.

#### Fixed

- Adjusted minimum target version for Black.

### 1.3.3 2.2.0 - 2023-03-09

#### Added

- Python 3.11 support.
- nox-poetry.
- flake8-broken-line ^0.6.0.
- flakeheaven ^3.2.1.

## Changed

- black from ^21.9b0 to ^23.1.0.
- flake8 from ^3.9.2 to >=4.0.1,<5.0.0.
- checkout action from v2.3.4 to v2.4.0.
- darglint from ^1.8.0 to ^1.8.1.
- actions/setup-python from v2.2.2 to v4.5.0.
- actions/checkout from v2.4.0 to v3.3.0.
- github/codeql-action from v1 to v2.
- peter-evans/create-pull-request from v3.10.1 to v4.2.3.
- mindsers/changelog-reader-action from v2.0.0 to v2.2.2.
- pre-commit from ^2.15.0 to ^3.1.1.
- isort from ^5.9.3 to ^5.12.0.
- sphinx from ^4.2.0 to ^6.1.3.
- flake8-bugbear from ^21.9.2 to ^23.2.13.
- mypy from ^0.910 to ^1.0.1.
- pre-commit-hooks from v4.0.1 to v4.4.0.
- watchdog from ^2.1.6 to ^2.3.1.
- invoke from ^1.6.0 to ^2.0.0.
- pytest from ^6.2.5 to ^7.2.2.
- xdoctest from ^0.15.10 to ^1.0.0.
- flake8-bandit from ^2.1.2 to ^3.0.0.
- safety from ^1.10.3 to ^2.4.0b1.
- flake8-annotations from ^2.6.2 to ^2.9.1.
- flake8-blind-except from ^0.2.0 to ^0.2.1.
- flake8-logging-format from ^0.6.0 to ^0.9.0.
- xdoctest from ^1.0.0 to ^1.1.1.
- coverage from ^6.0.1 to ^7.2.1.
- flake8-docstrings from 1.6.0 to 1.7.0.
- flake8-builtins from 1.5.3 to 2.1.0.
- click from ^8.0.3 to ^8.1.3.

### Removed

- Python 3.7 support.
- flakehell ^0.9.0.

### 1.3.4 2.1.0 - 2021-10-12

#### Added

- Python 3.10 support.

#### Changed

- pre-commit from ^2.13.0 to ^2.15.0.
- watchdog from ^2.1.3 to ^2.1.6.
- flake8-bugbear from ^21.4.3 to ^21.9.2.
- xdoctest from ^0.15.5 to ^0.15.10.
- sphinx from ^4.1.1 to ^4.2.0.
- black from ^21.7b0 to ^21.9b0.
- pytest from ^6.2.4 to ^6.2.5.
- isort from ^5.9.2 to ^5.9.3.
- peter-evans/create-pull-request from v3.10.0 to v3.10.1.
- coverage from ^5.3 to ^6.0.1.
- pytest-cov from ^2.10.1 to ^3.0.0.
- click from ^8.0.1 to ^8.0.3.

### 1.3.5 2.0.1 - 2021-07-26

#### Fixed

- package discovery when `project_name != project_slug`.
- end-of-file hook.
- pypi release step only for open source projects.

## Changed

- isort from ^5.8.0 to ^5.9.2.
- watchdog from ^2.1.2 to ^2.1.3.
- xdoctest from ^0.15.4 to ^0.15.5.
- mypy from ^0.902 to ^0.910.
- sphinx from ^4.0.2 to ^4.1.1.
- invoke from ^1.5.0 to ^1.6.0.
- actions/upload-artifact from v2.2.0 to v2.2.4.
- actions/download-artifact from v2.0.5 to v2.0.10.
- codecov/codecov-action from v1.3.1 to v2.0.2.
- pypa/gh-action-pypi-publish for v1.4.1 to v1.4.2.

## 1.3.6 2.0.0 - 2021-06-12

### Added

- optional CODE\_OF\_CONDUCT.md file.
- optional CONTRIBUTING.md file.
- optional SECURITY.md file.
- multiple issue templates config.
- codeql analysis workflow.
- pre-commit autoupdate workflow.

### Changed

- sphinx from 3.5.4 to 4.0.2.
- watchdog from 2.0.3 to 2.1.2.
- flake8 from 3.9.1 to 3.9.2.
- pytest from 6.2.3 to 6.2.4.
- pre-commit from ^2.12.1 to ^2.13.0.
- pre-commit-hooks from ^3.0.0 to ^4.0.1.
- black from ^20.8b1 to ^21.5b2.
- click from ^7.1.2 to ^8.0.1.
- mypy from ^0.812 to ^0.902.

## Removed

- Python 3.6 support.

## 1.3.7 1.2.3 - 2021-04-27

### Changed

- sphinx from 3.5.2 to 3.5.4.
- flake8 from 3.8.4 to 3.9.1.
- isort from 5.7.0 to 5.8.0.
- flake8-bugbear from 21.3.2 to 21.4.3.
- flake8-annotations from 2.6.1 to 2.6.2.
- darglint from 1.7.0 to 1.8.0.
- pytest from 6.2.2 to 6.2.3.
- watchdog from ^2.0.2 to ^2.0.3.
- pre-commit from ^2.11.1 to ^2.12.1.
- actions/setup-python from v2.2.1 to v2.2.2.
- pre-commit flakehell additional\_dependencies versions config.

### Fixed

- flakehell config for flake8 >= 3.9.1.

## 1.3.8 1.2.2 - 2021-03-19

### Changed

- xdoctest from 0.15.2 to 0.15.4.
- pre-commit from ^2.9.3 to ^2.11.1.
- pytest from ^6.2.1 to ^6.2.2.
- mypy from ^0.790 to ^0.812.
- watchdog from ^1.0.2 to ^2.0.2.
- sphinx from ^3.4.3 to ^3.5.2.
- darglint from ^1.5.8 to ^1.7.0.
- flake8-annotations from ^2.5.0 to ^2.6.1.
- flake8-bugbear from ^20.11.1 to ^21.3.2.
- flake8-docstrings from 1.5.0 to 1.6.0.
- codecov/codecov-action from v1.0.13 to v1.3.1.

#### Fixed

- bump2version invoke command.

### 1.3.9 1.2.1 - 2021-01-23

#### Changed

- xdoctest from 0.15.0 to 0.15.2.

#### Fixed

- bump2version config file.

### 1.3.10 1.2.0 - 2021-01-17

#### Added

- pyproject documentation entry.
- pyproject tool.poetry.urls section.

#### Fixed

- Readme links.

#### Changed

- sphinx from ^3.4.0 to ^3.4.3.
- safety from ^1.10.0 to ^1.10.3.
- flake8-blind-except from ^0.1.1 to ^0.2.0.
- flake8-annotations from ^2.1.0 to ^2.5.0.
- isort from ^5.6.4 to ^5.7.0.
- invoke from ^1.4.1 to ^1.5.0.
- flakehell from ^0.7.1 to ^0.9.0.
- parametrize cli tests.

### 1.3.11 1.1.3 - 2020-12-23

#### Changed

- sphinx from ^3.3.0 to ^3.4.0.
- recommonmark from 0.6.0 to 0.7.1.
- watchdog from ^0.10.2 to ^1.0.2.
- pre-commit from ^2.8.2 to ^2.9.3.
- flakehell from ^0.7.0 to ^0.7.1.
- safety from ^1.9.0 to ^1.10.0.
- darglint from ^1.3.0 to ^1.5.8.
- flake8-bugbear from ^20.1.4 to ^20.11.1.
- actions/setup-python from v2.1.4 to v2.2.1.
- pytest from ^6.1.2 to ^6.2.1.

### 1.3.12 1.1.2 - 2020-11-07

#### Changed

- flakehell from ^0.6.1 to ^0.7.0.
- create-release action from v1 to v1.1.4.
- checkout action from v2 to v2.3.4.
- setup-python action from v2 to v2.1.4.
- sphinx from ^3.2.1 to ^3.3.0.
- pre-commit from ^2.7.1 to ^2.8.2.
- pytest from ^6.1.1 to ^6.1.2.

#### Fixes

- mypy nox session requirements.

### 1.3.13 1.1.1 - 2020-10-18

#### Fixes

- docs/conf.py imports.
- coverage config.

### 1.3.14 1.1.0 - 2020-10-17

#### Changed

- to src structure.
- project\_name validation.

#### Added

- project\_title.

### 1.3.15 1.0.1 - 2020-10-15

#### Fixed

- unnecessary validation\_depth on mindsers/changelog-reader-action.

### 1.3.16 1.0.0 - 2020-10-15

#### Added

- License section on the docs.
- Codecov integration.
- PyPI and TestPyPI steps on the release workflow.
- Python 3.9 support.

#### Changed

- github actions ready to configure activity types.
- isort from ^5.5.4 to ^5.6.4.
- bump2version from master to ^1.0.1.
- mypy from ^0.782 to ^0.790.
- coverage from ^5.1 to ^6.0.1.
- pytest-cov from ^2.8.1 to ^2.10.1.
- pytest from ^5.4.2 to ^6.1.1.
- flake8 from ^3.7.9 to ^3.8.4.

### Fixed

- missing pre-commit requirement.
- get release version on the release workflow.

## 1.3.17 0.2.1 - 2020-10-05

### Changed

- changelog-reader-action from v1.1.0 to v2.
- sphinx from 3.0.4 to 3.2.1.
- flakehell from 0.3.6 to 0.6.1.
- black from 19.10b0 to 20.8b1.
- xdoctest from 0.12.0 to 0.15.0.
- mypy from 0.770 to 0.782

### Fixed

- read the docs dependencies.

## 1.3.18 0.2.0 - 2020-10-04

### Added

- Dependabot configuration.
- Safety session to nox.
- Safety step to the test workflow.

### Changed

- flake8 version to ^3.7.9.
- isort version to ^5.5.4.
- poetry export without hashes on the noxfiles.

### Removed

- Pyup.io integration.
- seed-isort-config from the pre-commit-config.

#### Fixed

- docs/readme.md symbolic link to README.md.
- docs/changelog.md symbolic link to CHANGELOG.md.
- missing badges.

### 1.3.19 0.1.4 - 2020-09-07

#### Changed

- Python actions to the v2.

#### Removed

- Unnecessary python steps on the release workflow.

#### Fixed

- bump2version version.

### 1.3.20 0.1.3 - 2020-08-13

#### Fixed

- isort support for pyproject.toml
- docs conf code style.

#### Removed

- sphinx-autodoc-typehints from the dev requirements.

### 1.3.21 0.1.2 - 2020-06-14

#### Fixed

- Read the docs build config.

#### Removed

- Pytype from the dev requirements.

### 1.3.22 0.1.1 - 2020-06-14

#### Added

- New option `serve` to the `invoke docs` task.

#### Changed

- Improve docs tutorial section.
- Improve docs index section.

#### Fixed

- README spelling.
- Ivoke pytype task typo.

### 1.3.23 0.1.0 - 2020-06-11

#### Added

- First release.



## 2.1 Prompts

When you create a package, you are prompted to enter these values.

### 2.1.1 Templated Values

The following appear in various parts of your generated project.

**full\_name**

Your full name.

**email**

Your email address.

**github\_username**

Your GitHub username.

**project\_name**

The name of your new Python package project. This is used in the package name and the Github repository name, so use - instead of spaces.

**project\_slug**

The namespace of your Python package. This should be Python import-friendly. Typically, it is the slugified version of project\_name.

**project\_title**

The title of your new Python project. This is used in documentation, so spaces and any characters are fine here.

**project\_short\_description**

A 1-sentence description of what your Python package does.

**version**

The starting version number of the package.

## 2.1.2 Options

The following package configuration options set up different features for your project.

**open\_source\_license**

Whether to add a license file. Options: ["MIT", "BSD", "ISC", "Apache Software License 2.0", "GNU General Public License v3", "Not open source's"]

**command\_line\_interface**

Whether to create a console script using Click. Console script entry point will match the project\_name. Options: ["Click", "No command-line interface"]

**add\_code\_of\_conduct**

Whether to add a Contributor Covenant Code of Conduct file.

**add\_contributing\_file**

Whether to add a Contributing Guide file.

**add\_security\_file**

Whether to add a Security Policy file.

**contact\_method**

Whether to add a contact method. Used on files such of *CODE\_OF\_CONDUCT.md*, *CONTRIBUTING.md* and *SECURITY.md*.

## 2.2 Invoke

The generated project is ready to run some useful tasks like formatting, linting, testing and more.

To do this we use `pyinvoke` to wrap up the required commands.

Execute `inv[oke] --list` to see the list of available commands.

```
$ poetry shell
$ inv[oke] --list
Available tasks:

clean          Run all clean sub-tasks.
clean-build    Clean up files from package building.
clean-docs     Clean up files from documentation builds.
clean-python   Clean up python file artifacts.
clean-tests    Clean up files from testing.
coverage       Create coverage report.
docs           Build documentation.
flake8         Run flake8.
format         Format code.
hooks          Run pre-commit hooks.
install-hooks  Install pre-commit hooks.
lint           Run all linting.
mypy           Run mypy.
safety         Run safety.
tests          Run tests.
version        Bump version.
```

## ADVANCED FEATURES

### 3.1 Console Script Setup

Optionally, your package can include a console script using Click (Python 3.8+).

#### 3.1.1 How It Works

If the ‘command\_line\_interface’ option is set to [‘click’] during setup, cookiecutter will add a file ‘cli.py’ in the project\_slug subdirectory. An entry point is added to pyproject.toml that points to the main function in cli.py.

#### 3.1.2 Usage

To use the console script in development:

```
pip install -e projectdir
```

‘projectdir’ should be the top level project directory with the pyproject.toml file

The script will be generated with output for no arguments and –help.

**--help**                      show help menu and exit

#### 3.1.3 More Details

You can read more about Click at: <http://click.pocoo.org/>

### 3.2 MIT License

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