pytest-regtest

a pytest plugin for snapshot testing

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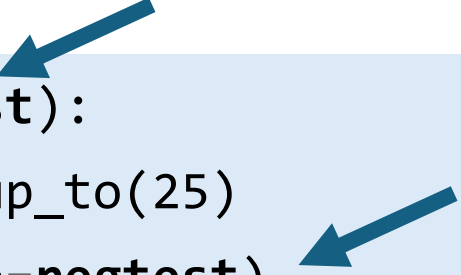https://sis.id.eth.zch

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pytest

- "The" Python unit testing framework.

- Test runner and test reporter + ...

- "Rich" `assert` statement by rewriting AST

- Plugin hooks for extensions

Regression testing

- Test for change and not for correctness.
- Snapshot testing is method to implement regression tests.
- Use cases:
  - Safety net for working with code without any tests (yet).
  - Testing complex data structures
  - Numerical data, e.g. matrices or data frames

Example

```python
def test_squares(regtest):

    numbers = squares_up_to(25)

    print(numbers, file=regtest)
```

```
$ pytest test_numbers.py
...
regression test output not recorded yet for test_numbers.py::test_squares:

[1, 4, 9, 16, 25]
```

```
$ pytest -v --regtest-reset test_numbers.py
...
the following output files have been reset:
  _regtest_outputs/test_numbers.test_squares.out…
```

Example (new in 2.0.0)

```python
def test_squares(snapshot):

    numbers = harmonic_sum(4)

    snapshot.check(numbers, atol=0, rtol=1e-8)
```

```
$ pytest test_numbers.py
...
snapshot not recorded yet:
    > snapshot.check(numbers, atol=0, rtol=1e-8)
    [1.          1.5          1.83333333 2.08333333]
```

```
$ pytest -v --regtest-reset test_numbers.py
...
the following output files have been reset:
  _regtest_outputs/test_numbers.test_squares__0
```

History

- I had scripts or helper functions to implement regression tests.

- After Europython 2014: Why not a plugin for pytest?

- Moved from internal repo to *gitlab.com* in 2020

- Forgot to set notifications.

- 2023: There are some pull request and issues!

- Since 2024: working on snapshots

Lessons learned:

- Small tools can make your life much easier.

- Don't forget to set email alerts for your repo!

Final call

Please try the plugin and provide feedback:

- Report issues
- Is documentation helpful and understandable?
- Are snapshot output for numerical data detailed enough?

Resources:

https://pytest-regtest.readthedocs.io

https://gitlab.com/uweschmitt/pytest-regtest/

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