

Effective Programming Practices for Economists

Software engineering

What to test? How to test it?

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Test for passing invalid data

```
def test_clean_agreement_scale_invalid_data():  
    with pytest.raises(ValueError):  
        _clean_agreement_scale(pd.Series([-77, "typo"]))
```

- Passing two codes that should not work
- We expect a `ValueError` to be raised
- Test will fail if
 - no error is being raised
 - a different error is being raised

Always perform the countercheck

```
def test_clean_agreement_scale_invalid_data():  
    with pytest.raises(ValueError):  
        _clean_agreement_scale(pd.Series(["-77", "typo"]))
```

- "-77" is perfectly valid data.
- Still, `ValueError` is raised as soon as one element in the series is invalid. Test passes.
- Tests may pass for other reasons than what you have in mind!

What to test?

- Only interfaces!
 - Typical input
 - Corner cases
 - "All" exceptions
 - Any bugs that you have encountered. Workflow:
 1. Pin down by finding minimal testcase
 2. Make it part of the test suite
 3. Fix the bug
- Any bug that came up once is likely to come back!

How to test?

- Granular tests
 - one assert statement per function
 - careful with anything that is not a scalar (make sure test uses "and" conditions, not "or")
- Always perform the countercheck!