Informatics for Astronomers - WS2021

Roland Ottensamer, Marina Dütsch, Miguel Verdugo, Andreas Schanz

Exercise sheet 8 - Testing, documentation and packaging

The following will be also part of the assessment:

(1) Try to present exercises in a way that everyone can understand (even those who didn't do the exercises), so please explain the vital parts of your solution in a clear way.

(2) Try to also include some background information where applicable, and/or explain the possible context/motivation for the given exercise.

---

1. Testing is an important part in software development. Please discuss the differences between *unit testing*, *integration testing* and *compliance testing*.
2. Write some simple tests for the class `Vector`. That is, make sure that the methods are working as expected and returning the correct results

```
class TestVector:

    def test_method1(self):
        assert "condition"

    def test_method2(self):
        assert "another condition"

#etc
```

   (a test suite can be executed with the following command: `python -m pytest tests.py` or simply `pytest test_file.py`)
3. Create a package from the `Vector` example. In order to do this, follow the guide found at https://packaging.python.org/tutorials/packaging-projects/ and upload it to the PyPI testserver. Then you should download/install it using `pip` and use it in a small script.
4. Create a `README.md` (in markdown) file for the package `Vector`, where basic instructions how to use the package are included, like purpose, installation, requirements and examples. The example code for these examples should be embedded in the text and displayed with code highlighting. You can test the document with https://jbt.github.io/markdown-editor/ for example.
5. Please write the docstrings for our class `Vector` and its implemented methods (distance, dot and cross products) and access them within a `python` session.

6. Please show the most common formats for docstrings (`numpydoc`, `google` and `reST`) and discuss their differences using a example. That is, write the same docstrings in the three formats.