**Objective:** Verify the functionality and reliability of the GPX elevation comparison script, including data parsing, API integration, elevation computation, and plotting. Test performance of different curve smoothing algorithms

**Features to be tested:**

* Accurate parsing of GPX files
* Correct elevation retrieval from APIs (Open-Elevation)
* Accurate distance calculation (testing haversine)
* Proper plot generation
* Error handling for network/API issues
* CLI input handling
* Edge Cases(correct GPX input, correct coordinates etc.)

**Test approach:**

* **Unit Tests:** focus on isolated logic (ex: distance computing, plotting etc)
* **Integration Tests:** Test multiple components and services (ex: parsing a GPX file and retrieving elevation data from an API, and verifying that the elevation data is correctly fetched)

**For Curve Smoothing Algorithms:**

* Code runs without error
* Returns output of correct shape and type
* Brings the noisy curve closer to the true curve
* Accuracy of smoothing
* Consistency