420-SN1-RE Programming in Science - Lab Exercise 11

October 15, 2024

Introduction

Goals for this lab:

- Work with strings and lists.
- Implement functions to pass tests ("test-driven development").
- Create new tests for functions.

Introduction

In this lab you will use simple unit testing to guide the development of functions, and the verify the operation of functions.

We have provided a simple file named `lab11test.py` that implements a few of the tests required for these functions.

Exercise 1

Open `lab11test.py` and examine the code. It expects to import a function named `sumsq(x)`, which takes a list of numbers and returns the sum of the squares of the numbers.

Create a file named `lab11.py` and implement the expected `sumsq(x)` function. Verify that your function passes all of the tests.

Exercise 2

Write a function `average(x)` that returns the average of the values of the parameter `x`, which is assumed to be a list of numeric values (`int` and/or `float`). If the `list` is empty, your function should return zero.
Check the file lab11test.py for some test cases.

Exercise 3

Write a function `is_pangram(x)` that tests whether the string `x` is an English *pangram*. A pangram is a sentence or phrase that uses every letter in a language's alphabet.
Check the file lab11test.py for some test cases.

What to hand in

For this lab, hand in a **single** Python `.py` file with all of your code, consisting of your programs and showing the results requested.

Run your code and check that it produces the expected results.