

Python Unit Testing Lab

Lab Objective

In this lab you will write and run unit tests in Python using the `unittest` module. You will test a simple `ParachuteSystem` class that simulates a parachute deployment system. By the end of this lab, you will:

- Understand the fundamentals of Unit testing.
- Learn how to write tests for all edge cases in a given function.
- Write assertions to verify test outcomes.

File Structure

```
Lab4-1 /  
|-- parachute.py  # Contains the ParachuteSystem class  
|-- test_parachute.py  # Contains unit tests for ParachuteSystem
```

Understanding the Code

`parachute.py`

This file contains the `ParachuteSystem` class with three methods:

- `deploy(speed, altitude)`: Decides whether to deploy the parachute.
- `calculate_landing_impact(speed, weight)`: Calculates the impact force.
- `is_safe_landing(speed, weight)`: Determines if the landing is safe.

`test_parachute.py`

This file contains unit tests for the `ParachuteSystem` class.

Tests for the `deploy` function with negative speed and successful deploy

TODO:

1. Test `deploy` function with too altitude i.e., <150
2. Test `calculate_landing_impact` function with given speed and altitude
3. Test the `is_safe_landing` function

Q: What other edge cases you can test for each of the functions provided?