Design Report

The function I have chosen to test is the net height gain function. The net height gain function, finds the increase in height from the starting elevation to the finishing elevation of the route. If the difference in height from the start point to the finish point is negative, the net height gain function will return zero. If it is positive, the function will return the positive difference. As elevation is normally measured in meters, I have decided to use doubles with two decimal places instead of an int for my test data. To test the function, I have identified multiple cases where an error might occur. Firstly, to test typical inputs, I have decided to test cases where the net gain in height value is negative and positive. To test error cases ( testing whether a function will throw an error for error behavior), I have decided to test using zero route points/empty a vector . Once typical inputs and error cases are complete, I will test edge and corner cases. For edge cases, I tested the function with one route point( the smallest possible number of values in a vector),and for corner cases I tested with a vector full of route points with the value of zero , a vector with one route point with the value of zero and with a vector where the start point and the end point are identical values. In terms of boundary cases, I have identified 2 tests. The boundary case for my function occurs at the absolute value of zero. If the test is below zero/negative then zero would be returned, if the test is positive( including zero and above ) the test will return the difference. For this, I have chosen the value of -0.01( the smallest value in 2 decimal places that is below zero) and 0.00 ( the boundary condition).