Program Structures & Algorithms

INFO 6205 Summer Full 2019

Assignment 1

1. Random Walk Code

In the random walk assignment, we should complete two walk function and calculate the distance d which may depend on the value m which means how many steps and value l which means the length for each step. Besides, we also have a test class and we run the unit test to ensure the code runs correctly.

In the move function, I respectively superimpose the distances moved in the x and y directions and save them into the parameter x and y. Then, I complete the randomwalk function by using the for loop to go through m steps, for each time it will also call the randommove function to generate 4 different conditions like (1, 0), (-1, 0), (0, 1) or (0, -1). Finally, to calculate the distance d, I use the normal calculation of the use of the Pythagorean theorem as the math.sqrt function. We can also change the l in the function randommove by changing the 1 and -1 in the integer value step to 3 and -3.

1. Conclusion

From the curve that is generated by the average value, we can see it is similar but a little bit smaller than the curve which is d = , for the curve l = 1 is three times smaller than l = 3, then we draw this conclusion. For the other part of the conclusion, we can see the bigger the value m, the higher accuracy with the curve d = But with bigger l, the less accuracy with the curve d =