Zuyue Xie (002198575)

**Program Structures & Algorithms  
  
Fall 2021**

**Assignment No. 1**

* Simulate a drunk man walk in 4 directions (north, south, east, west) with constant walk distance one. After n steps, the Euclidean distance of the man from the origin. In code, I pick number of steps to be (10,100,1000,10000,1000000,10000000), iterate each of them to be 30 times and get the average Euclidean distance of the man from the origin.
* I get the conclusion of where d is the Euclidean distance and n be the number of steps.
* I get this conclusion based on the graph show below, with more steps taken, we are expecting the number of the steps taken to be the square of the distance.

1.Output (Snapshot of Code output in the terminal)

Graphical user interface, text, application

Description automatically generated

2.Graphical Representation (Observations from experiments should be tabulated and analyzed by plotting graphs(usually in excel) to arrive on the relationship conclusion)Application

Description automatically generated with low confidence

3.Unit tests result:(Snapshot of successful unit)

Graphical user interface, text, application

Description automatically generated