Ram Gopal Varma Alluri
002196886

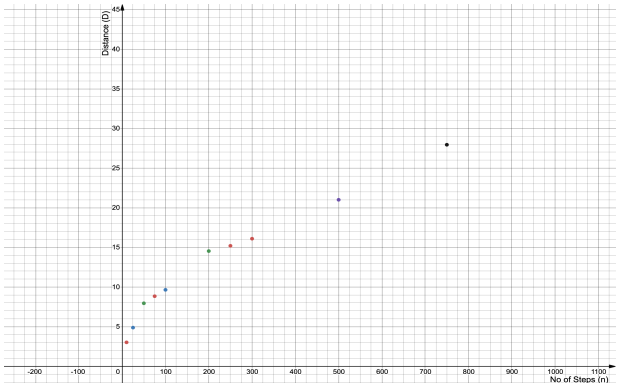
INFO 6205 Program Structures and Algorithms
Assignment 1

Conclusion:

Based on the evidence presented below, the results of this study seem to indicate that the relationship between distance(d) and steps (n) is $d \approx \sqrt[2]{n}$. More precisely, the distance (d) is somewhat lesser than $\sqrt[2]{n}$

Evidence:

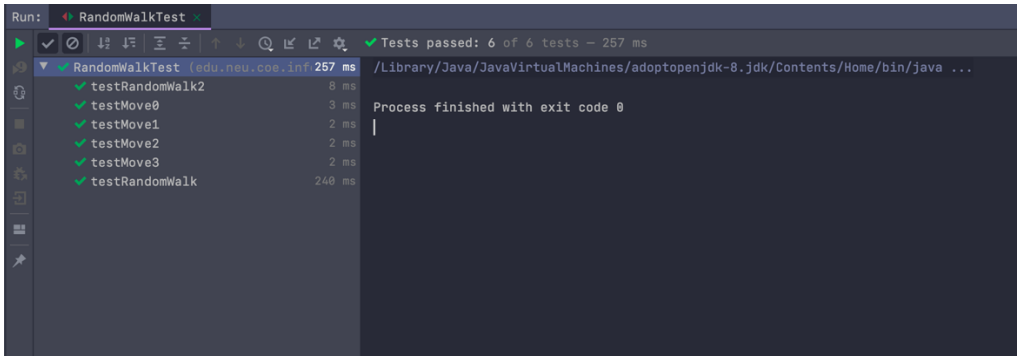
No of Steps(n)	No of Experiments	Distance Travelled (d)	$d \approx \sqrt[2]{n}$
10	30	3.021565506971396	true
25	30	4.8801969932373215	true
50	30	7.951082843372185	true
75	30	8.843600832900375	true
100	50	9.646757877519912	true
200	50	14.538182745370937	true
500	100	21.006565823532057	true
750	100	27.950692948224873	true



Considering the given fact i.e. step length of the drunken person is always "1". These results show that the distance(d) is smaller than $\sqrt[2]{n}$, irrespective of the number of experiments conducted.

Test Cases:

All the given unit test cases are passed. Below is the screenshot for reference



Source Code: (Link)

Attached in the directory