Assignment – 1

Program Structure and Algorithms

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1. Conclusion –

'd' is related to 'n' as :

$$\boldsymbol{d} \propto \sqrt{\boldsymbol{n}}$$

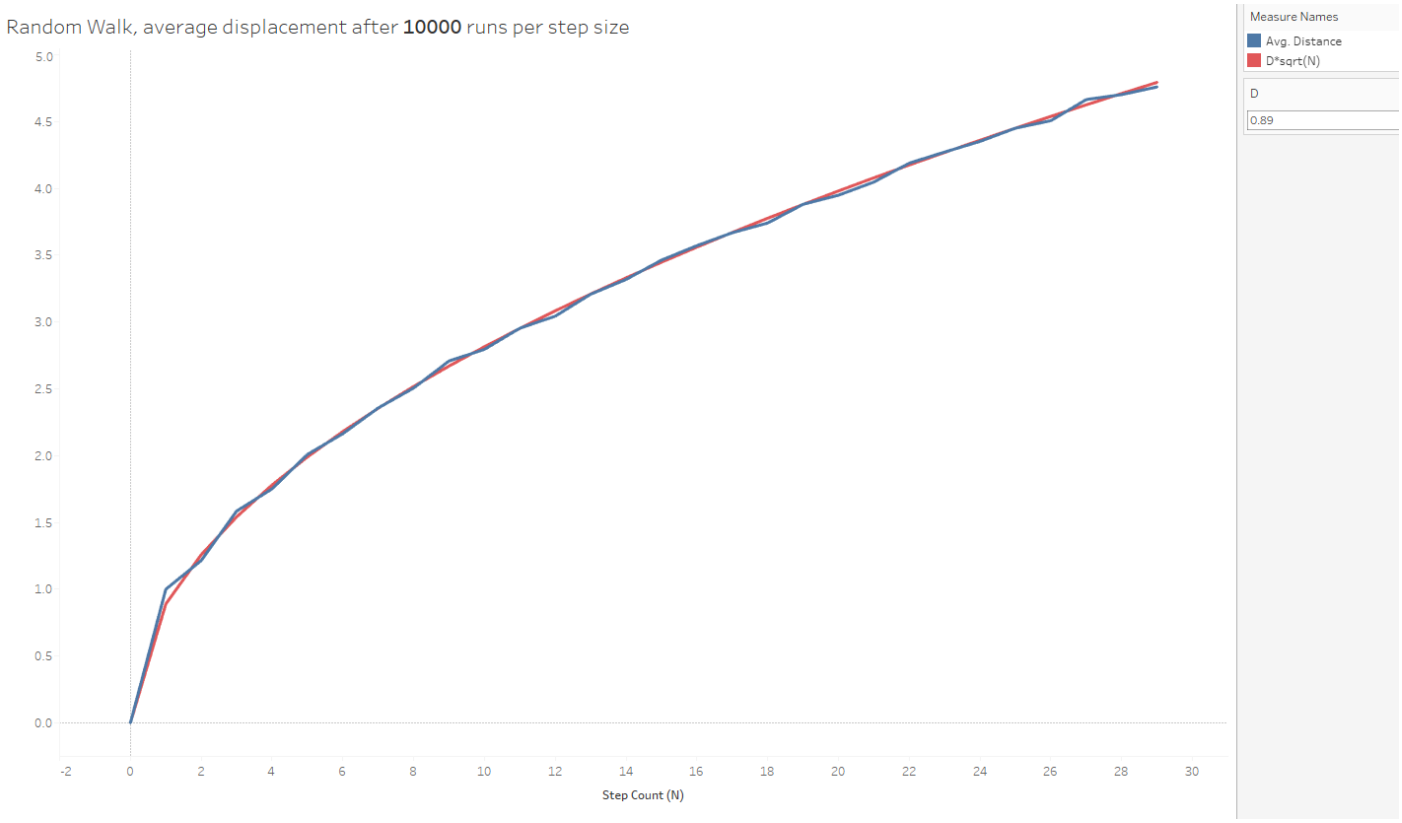
Multiple values of constant were tested, and empirically, c=0.89 was found to match most closely.

So final expression is:

$$\boldsymbol{d} = \mathbf{0.89}\sqrt{\boldsymbol{n}}$$

2. Evidence –

Graph for 0.89*sqrt(N) and average distance Vs Step Count, average is of 100 runs per step count.



Graph for 0.89*sqrt(N) and average distance Vs Step Count, average is of 10000 runs per step count.

3. Files included in zip –

- Assignment pdf file
- Csv dataset for 10000 runs per step size, ranging from n=0 to n=30
- RandomWalk.java – passes all unit tests
- RandomWalk_csv.java – modified randomwalk to output data to csv file for analysis
- Unit-tests.PNG – screenshot of all unit tests passing