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Program Structures and Algorithms (Fall 2021)

Assignment 1

Link to the assignment’s repository - <https://github.com/Phani56/INFO6205-Assignments>  
  
**Tasks performed**

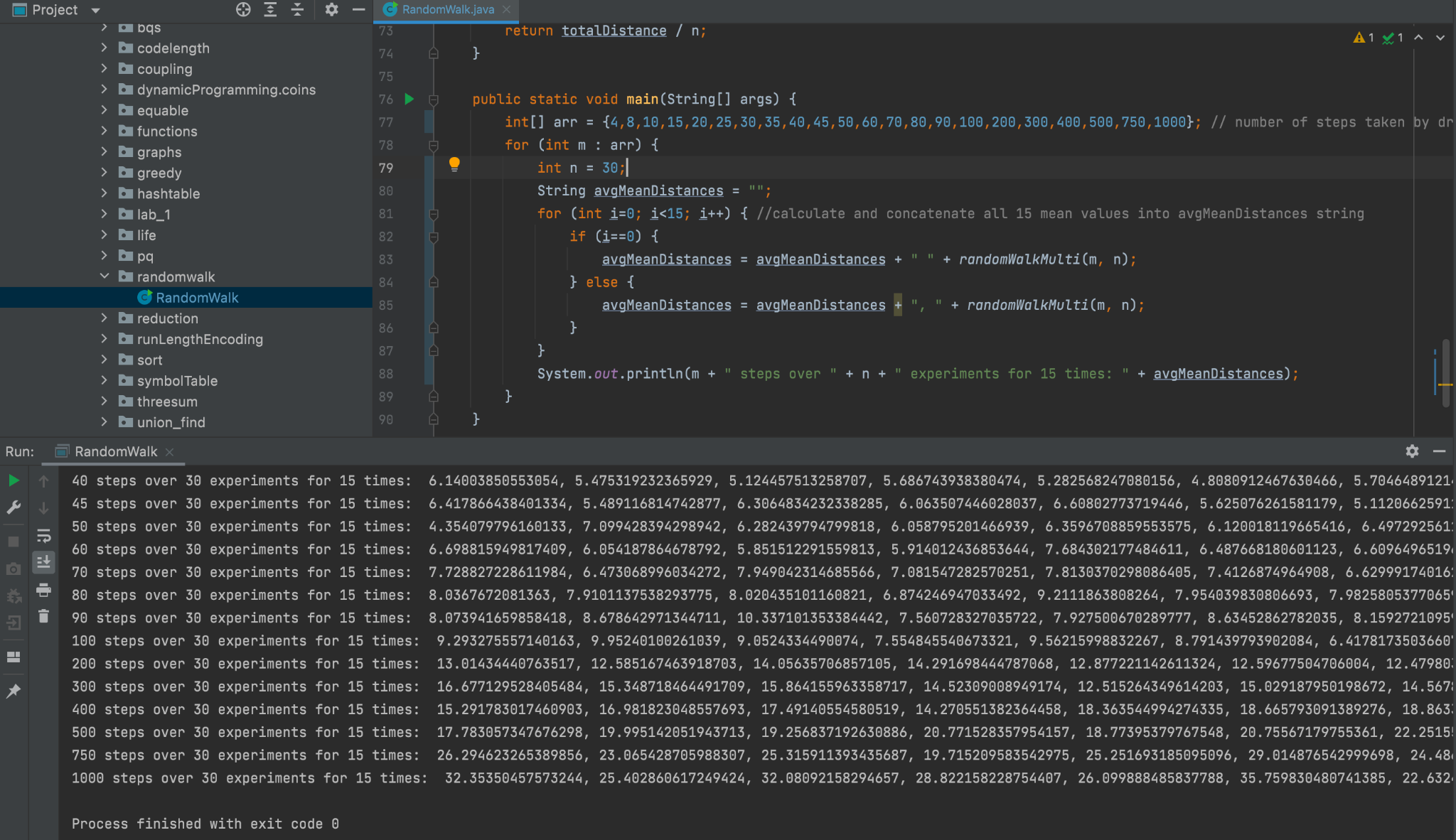
* Updated RandomWalk.java code from forked repo to run it for 22 different tests from number of steps spanning from 4 to 1000.
* Successfully ran the unit tests.
* Recorded the output values in a spreadsheet and plotted a graph between number of steps and the euclidean distance from origin.
* Deduced a functional relationship between n and d from the observations.

The code for getting distance for n random steps has been updated here in the repository *src/main/java/edu/neu/coe/info6205/randomwalk/RandomWalk.java*.

**Relationship conclusion**

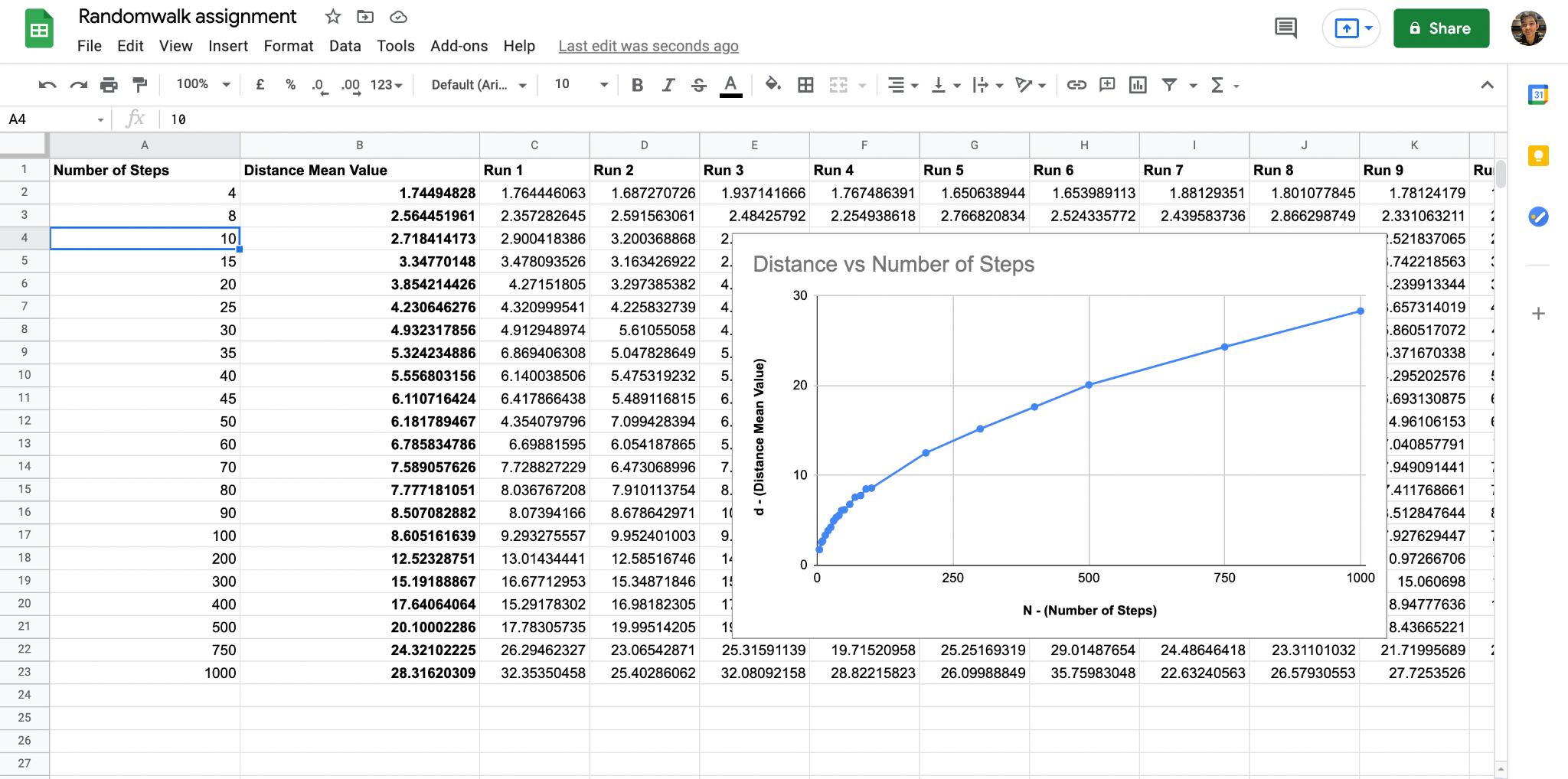
Let **n** be the number of steps taken and **d** is the euclidean distance covered, the based on the analysis the relationship can be approximately expressed as

As shown below, I have updated the main func and ran the code for respective values of n,



Graphical relationship between d and n.

Link to the spreadsheet - [Randomwalk assignment](https://docs.google.com/spreadsheets/d/1W2GFkicX6RKndTDAqYM1Me4Uf6-Ds4L7mDRS-4EE2Hg/edit?usp=sharing)



The graph plotted here is similar to that of the equation from which the conclusion was deduced.

The unit tests passed, attaching screenshot for the same

