

Program Structures and Algorithms Spring 2024

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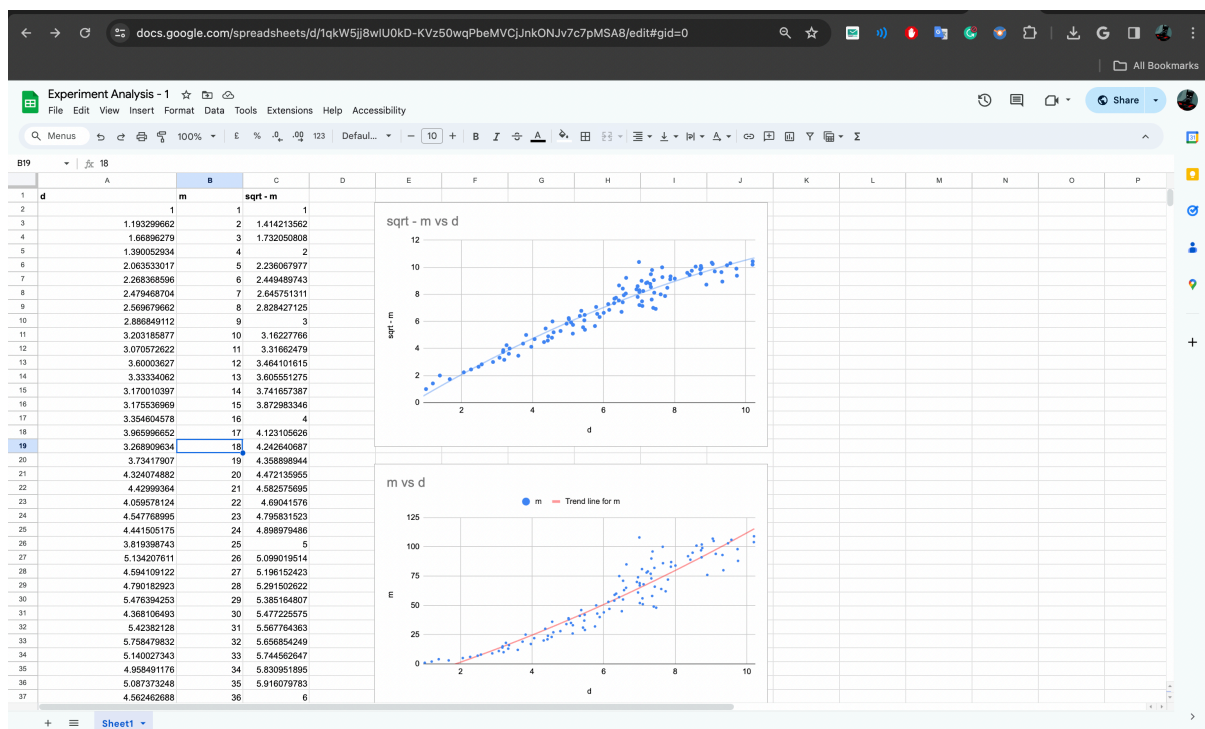
GITHUB LINK: <https://github.com/tarunangrish-neu/INFO6205>

Task: In this code, we simulate the random walk experiment for different values of m and calculate the average Euclidean distance over multiple runs. The results should align with the relationship stated below.

Relationship Conclusion: From this experiment, it can be concluded that the value of distance is proportional to square root of m . We can put this in a equation stating this as -

$$d = k * \sqrt{m}, \text{ where } k \text{ is the constant of proportionality.}$$

Evidence to support that conclusion: <https://docs.google.com/spreadsheets/d/1qkW5jj8wIU0kD-KVz50wqPbeMVCjJnkONJv7c7pMSA8/edit?usp=sharing>



Unit Test Screenshots:

The image shows an IDE interface with the following components:

- Project Explorer:** A tree view on the left showing a project structure. The path is `test > java > edu.neu.coe.info6205 > randomwalk > RandomWalkTest`. Other folders include `bqs`, `dynamicProgramming`, `functions`, `graphs`, `greedy`, `lab_1`, `life`, `madhava`, `pq`, `reduction`, `sort`, `symbolTable`, and `theosim`.
- Code Editor:** Two tabs are open: `RandomWalk.java` and `RandomWalkTest.java`.
 - `RandomWalk.java` (lines 81-100):

```
81  
82  
83  
84  
85  
86  
87  
88  
89  
90  
91  
92  
93  
94  
95  
96  
97  
98  
99  
100
```
 - `RandomWalkTest.java` (lines 1-10):

```
1  
2  
3  
4  
5  
6  
7  
8  
9  
10
```
- Run Console:** A panel at the bottom showing the execution of `RandomWalkTest`. It reports "Tests passed: 6 of 6 tests - 408 ms" and "Process finished with exit code 0". The test results table is as follows:

Test Name	Duration
testRandomWalk2	7 ms
testMove0	32 ms
testMove1	1 ms
testMove2	2 ms
testMove3	2 ms
testRandomWalk	364 ms
- Bottom Bar:** Displays the file path `INFO6205 > src > main > java > edu > neu > coe > info6205 > randomwalk > RandomWalk > main`, the editor theme `GitHub Dark (Material)`, the time `94:28`, and the encoding `UTF-8` with `4 spaces`.