**Program Structures & Algorithms**

**Spring 2022**

**Assignment No. 1**

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* **Task**

**To find out the relationship between euclidean distance and steps taken.**

* **Output screenshot**

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* **Relationship Conclusion**
* The relationship between d and n can be concluded in the following manner: d =
* The above relationship can be calculated approximately from the observed values between d and n in the following tables and graphs.
* **Evidence / Graph**

**Graphs for two experiments:**

|  |  |
| --- | --- |
| d (Distance) | n (Steps) |
|  |  |
| 0 | 0 |
| 6.358207559 | 50 |
| 8.869105009 | 110 |
| 12.95810403 | 180 |
| 14.1443231 | 260 |
| 19.16378456 | 420 |
| 20.19975746 | 560 |
| 23.16829213 | 700 |
| 25.81344646 | 900 |
| 28.99233007 | 1000 |
| For 100 experiments |  |

|  |  |
| --- | --- |
| d (Distance) | n (Steps) |
|  |  |
| 0 | 0 |
| 6.249881375 | 50 |
| 9.278182598 | 110 |
| 11.81139479 | 180 |
| 14.11591284 | 260 |
| 18.10707348 | 420 |
| 21.09169761 | 560 |
| 23.31485627 | 700 |
| 26.22281111 | 900 |
| 27.67578562 | 1000 |
| For 2000 experiments |  |

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* **Unit tests result**

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