Homework 3

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2.7.1

|  |  |
| --- | --- |
| N value | runtime |
| 5000000 | .016 s |
| 10000000 | .031 s |
| 20000000 | .035 s |
| 40000000 | .066 s |

The runtime is approximately O(N), which is what I said in my analysis.

2.7.2

|  |  |
| --- | --- |
| N value | runtime |
| 10000 | .146 s |
| 20000 | .450 s |
| 40000 | 1.783 s |
| 80000 | 6.379 s |

The runtime is close to O(N2), which is what I said in my analysis.

2.7.3

|  |  |
| --- | --- |
| N value | runtime |
| 500 | .146 s |
| 1000 | 1.070 s |
| 2000 | 8.020 s |
| 4000 | 56.239 s |

The runtime is about O(N3), which is about what I said in my analysis.

2.7.4

|  |  |
| --- | --- |
| N value | runtime |
| 10000 | .065 s |
| 20000 | .232 s |
| 40000 | .896 s |
| 80000 | 3.560 s |

The runtime is close to O(N2), which is what I said in my analysis.

2.7.5

|  |  |
| --- | --- |
| N value | runtime |
| 25 | .012s |
| 50 | .041 s |
| 100 | 1.458 s |
| 200 | 29.152 s |

I believe the running time is O(N5), which is what I said in my analysis.

2.7.6

|  |  |
| --- | --- |
| N value | runtime |
| 10000 | .053 s |
| 250 | .464 s |
| 500 | 6.303 s |
| 1000 | 1 m 49.144 s |

I believe the running time is O(N4), while I said it was O(N3) I honestly guessed for this one, so I am not surprised that I got it wrong