# Assignment #19

| N | Trial 1 | Trial 2 | Trial 3 | Trial 4 | Trial 5 | Trial 6 | Trial 7 | Trial 8 | Trial 9 | Trial 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| **10m** | 18ms | 19ms | 21ms | 21ms | 22ms | 20ms | 20ms | 20ms | 22ms | 27ms |
| **20m** | 21ms | 35ms | 34ms | 35ms | 34ms | 21ms | 21ms | 34ms | 34ms | 59ms |
| **30m** | 54ms | 49ms | 31ms | 31ms | 32ms | 57ms | 48ms | 31ms | 33ms | 31ms |
| **40m** | 42ms | 44ms | 42ms | 42ms | 42ms | 42ms | 42ms | 43ms | 42ms | 42ms |
| **50m** | 52ms | 53ms | 53ms | 53ms | 56ms | 52ms | 53ms | 53ms | 54ms | 52ms |
| **60m** | 63ms | 63ms | 63ms | 63ms | 67ms | 63ms | 63ms | 64ms | 64ms | 63ms |
| **70m** | 73ms | 73ms | 73ms | 73ms | 74ms | 73ms | 74ms | 73ms | 73ms | 74ms |
| **80m** | 84ms | 84ms | 84ms | 87ms | 85ms | 85ms | 84ms | 85ms | 85ms | 87ms |
| **90m** | 94ms | 95ms | 96ms | 97ms | 95ms | 97ms | 94ms | 96ms | 94ms | 95ms |
| **100m** | 105ms | 140ms | 105ms | 105ms | 105ms | 105ms | 104ms | 105ms | 105ms | 104ms |
| **110m** | 116ms | 130ms | 114ms | 115ms | 115ms | 115ms | 115ms | 116ms | 117ms | 115ms |

1. **Does the time it takes the program to run grow at the same rate as the size of the array? Explain your answer.**
    - The rate of change of the time it takes to execute the class is proportional to the increase in the size of the array. The growth could be described as linear, because as the array increased by 10,000,000, the time roughly increased by 10.5ms.
2. **Did having different values in the arrays (the randomly assigned values in each of the 10 runs) significantly affect the time it took for the program to run? I.e. do the times seem consistent across the 10 runs.**
    - No, as the size increased, the program took more time to run and became slower each it was executed, as there was more data to process.