**CIS 360 Lab #2: Implementing and Analyze Algorithms**

**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ID \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Task A.** Implement the three algorithms in Section 1.4 in Zybooks:

* MaxsubSlow (Figure 1.4.2)
* MaxsubFaster (Figure 1.4.3)
* MaxsubFastest (Figure 1.4.4)

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**Task B.** For each algorithm , perform experiment with 10 different n values and measure the running time. Select appropriate n values so the running time is measurable and the change in running time is meaningful. Fill the table below.

GENERATE AN ARRAY MIX UP

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| --- | --- | --- | --- | --- |
| n | T1(n)(COUNT)  MaxsubSlow | T1(n)/n | T1(n)/(n^2) | T1(n)/(n^3) |
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| n🡪infinite | Predict this: |  |  | 1 |

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| n | T2(n)  MaxsubFaster | T2(n)/n | T2(n)/(n^2) | T2(n)/(n^3) |
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| n🡪infinite | Predict this: |  |  |  |

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| n | T3(n)  MaxsubFastest | T3(n)/n | T3(n)/(n^2) | T3(n)/(n^3) |
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| n🡪infinite | Predict this: |  |  |  |

Based on the experimental data, What function is the best estimation of the time complexity T(n) of each algorithm?

Answer:

T1(n) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

T2(n) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

T3(n) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Does your answer above match the analysis result in Section 1.4? Yes / No \_\_\_\_\_\_\_\_\_\_

If No, what would be the reasons?

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