Activity 1. [Iterative Models]

Table 1. In milliseconds and without optimization. CHANGE THIS USING THE CORRECT THING

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| N | tLoop1 | tLoop2 | tLoop3 | tLoop4 |
| 100 | 46\*10^-4 | 48\*10^-4 | 334\*10^-4 | 190\*10^-4 |
| 200 | 82\*10^-4 | 160\*10^-4 | 1411\*10^-4 | 885\*10^-4 |
| 400 | 139\*10^-4 | 729\*10^-4 | 60\*10^-2 | 4400\*10^-4 |
| 800 | 426\*10^-4 | 332\*10^-3 | 267\*10^-2 | 262\*10^-2 |
| 1600 | 920\*10-4 | 106\*10^-2 | 1278\*10^-2 | 1879\*10^-2 |
| 3200 | 198\*10^-3 | 437\*10^-2 | 5182\*10^-2 | 126 |
| 6400 | 422\*10^-3 | 1612\*10^-2 | 225 | 836 |
| 12800 | 959\*10^-3 | 6977\*10^-2 | 973 | 5902 |
| 25600 | 557\*10^-5 | 205\*10^-2 | 4055 | 43585 |
| 51200 | 110\*10^-4 | 431\*10^-2 | 20690 | OoT |

For Loop1 it has a complexity of O(n\*log(n)), but it increase by 2.

For Loop2 it has a complexity of O(n^2\*log(n)), it follows it.

Loop 3 has a complexity of O(n^2\*log(n)), it follows the complexity.

Loop 4 has a complexity of O(n^3),

Activity 2. [Create models of given complexity]

|  |  |  |  |
| --- | --- | --- | --- |
| N | tLoop5 | tLoop6 | tLoop7 |
| 100 | 153\*10^-4 | 107\*10^-2 | 577 |
| 200 | 286\*10^-4 | 652\*10^-2 | 8233 |
| 400 | 965\*10^-4 | 61 | OoT |
| 800 | 3661\*10^-4 | 615 | OoT |
| 1600 | 144\*10^-2 | 4777 | OoT |
| 3200 | 61\*10^-1 | 42739 | OoT |
| 6400 | 221\*10^-1 | OoT | OoT |

Loop5 complexity is O(n^2\*log^2(n))

Loop6 complexity is O(n^3\*log(n))