Written Part

Answer 1:

Actual running times of the program:

|  |  |  |  |
| --- | --- | --- | --- |
| Input Size | Max\_subsequence\_sum1  O () | Max\_subsequence\_sum2  O ( | Max\_subsequence\_sum3  O (n) |
| 128 | 0.026140928268432617 | 0.0016891956329345703 | 4.100799560546875e-05 |
| 256 | 0.2099459171295166 | 0.006294965744018555 | 9.799003601074219e-05 |
| 512 | 1.8340489864349365 | 0.02067708969116211 | 0.00015306472778320312 |
| 1024 | 14.689089059829712 | 0.06085681915283203 | 0.0003070831298828125 |
| 2048 | 116.21543502807617 | 0.21791601181030273 | 0.0004830360412597656 |
| 4096 | 949.041708946228 | 0.8554830551147461 | 0.0008399486541748047 |

Answer 2:

Predicted running times of the program based on the first input

|  |  |  |  |
| --- | --- | --- | --- |
| Input Size | Max\_subsequence\_sum1  O () | Max\_subsequence\_sum2  O ( | Max\_subsequence\_sum3  O (n) |
| 128 | 0.026140928268432617 | 0.0016891956329345703 | 4.100799560546875e-05 |
| 256 | 0.2091274261 | 0.006756782532 | 8.2015991211e-05 |
| 512 | 1.6730194092 | 0.02702713013 | 0.000164031982422 |
| 1024 | 13.3841552734 | 0.1081085205 | 0.0003280639648 |
| 2048 | 107.0732421875 | 0.432434082 | 0.0006561279297 |
| 4096 | 856.5859375 | 1.7297363281 | 0.001312255859 |