## **Robel Tesfamariam**

## **ID: 109706**

Question 1 – Comparing Algorithm

Write a pseudo code for the following algorithms

* Algorithm 1: Create a new array consisting of even numbers only. Then use nested loops to solve the problem using the newly created array of even numbers only.

of n integers

* Algorithm 2: Use a nested loop to solve the problem without creating an extra array.

of n integers

s

* Algorithm 3: Use one loop. Find max and min of even integers. Compute max – min

of n integers

s

We can easily determine the worst-case time complexity

* Algorithms 1 and 2 are
* Algorithm 3 is

This is consistent because in W1D1 algorithms 1 and 2 time to finish is getting bigger when the size of input array is getting bigger. While algorithm 3 is not.

What I learned from W1D1 and W2D2

* W1D1: we can identify which algorithm is better by practical experiment.
* W1D2: we can identify which algorithm is better based on its time complexity.

Question 2 – Consider the following functions to determine the relationships that exist among the complexity classes they belong.

10, 1, n3, n1/3, log(log n), n2, n1/2, logn , log nn, nk (k > 3), , n1/k (k > 3), nlogn, ln n, 2n, 3n, nn, n1/2 logn, n1/3 logn, n!.

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| Functions | Time complexity class |
| 1,10 |  |
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