**Course: Algorithm  
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Homework: Lab 2**

1. **Question 1 – Comparing Algorithm**

Write 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

**As we can easily determine the worst-case time complexity:**

**Algorithm 1 & 2 is**

**Algorithm 3 is**

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

**W1D1**: We can know which algorithm is better by practical experiment

**W1D2**: We can know which algorithm is better based on its time complexity

1. **Question 2 – Complete the table:**

|  |  |
| --- | --- |
| 10, 1 |  |
| , log2n, ln*n*, n1/2logn, n1/3logn |  |
| n1/k (k>3) |  |
| n1/2, n1/3 |  |
| nlog*n*, lognn |  |
| n3, n2, nk |  |
| 2n, 3n |  |
| n! |  |
| nn |  |