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|  | **Data Structures Week 4 Lab – Part 1**  **(Friday, February 11, 2015)** |

**Instructions**

* As you work on the following exercises, feel free to discuss with your peers, but make sure you ultimately understand the concepts well enough to do the work independently.

**Activity 1**

Determine the runtime, *T*(*n*) of the following algorithms (written in pseudocode) by counting the number of operations executed by the algorithm, and then express your answer using Big O notation.

(1) Alg1(n)

sum = 5;

sum += n;

return sum;

(2) Alg2(int n)

count = 0;

for ( i = 0; i < n; i++)

count++;

return count;

(3) Alg3(int n)

count = 0;

for ( i = 0; i < n; i++)

for ( j = 0; j < n; j++)

count++;

return count;

(3) Alg3(int n)

count = 0;

for ( i = 0; i < n; i++)

for ( j = 0; j < i; j++)

count++;

return count;

(4) Alg4(int n)

count = 0;

for ( i = 0; i < n; i++)

for ( j = 0; j < n\*n; j++)

count++;

return count;