COMP 4030/6030 -- Assignment 3

Due: 9/26/2017 before class. **For this assignment, submit a hard copy in class.**

1. (20 Points) Express the complexity of these functions using the big-O notation:
   1. T(n) = 2n2 + 3n3
   2. T(n) = 5 + n
2. (20 Points) Use the definition of big-O to show that T(n) = 5 + n3  O(n3)
3. (20 points) Write down the running time function of the following Python function. Then describe it in terms of O and 

def h(a\_list)

n = len(a\_list)

i = n-1

sum = 0

while i>=0 do:

i = i – 1

j = 1

while j<n do:

j = j\*2

sum = sum + a\_list[i] + a\_list[j]

1. (20 points) Write down the running time function of the following Python function. Then describe it in terms of O and .

def g(a\_list)

n = len(a\_list)

sum = 0

for i in range(n):

for j in range(n\*n):

for k in range(j):

sum = i + j + a\_list[i]

1. (20 points) Write down the running time function of the following Python function. Then describe it in terms of O and . (Assume that the running time of function **foo** is n\*log(n).)

def bar(a\_list)

n = len(a\_list)

sum = 0

for i in range(n):

sum = sum + a\_list[i]

value = 1

for j in range(n\*n):

value = value \* j

**foo**(sum, value)