**Home Work 1:**

1. Big O-notation

O(1) O(n) O(n^2) O(n^3) O(logn ) O(nlogn)

N = 100, 1000, 10000, 100000, 1000000

a. Sketch the graph and make a table to compare rate of growth

b. Analyze Binary search, linear search, and using Big –O notation

c. Compare Arrays vs Arraylist and analyze using Big –O notation.

d. Analyze at least three sorting methods, such as Insertion sort, selection, quick, shell, merge sort using big –O notation

e. Generics type and Example

2. Arrays vs Arraylist

Methods - search ()/sort (), add ()/remove ()

INCLUDE Sort/search algorithms

Analysis of Time for n= 100 n = 1000, n = 10000.

Use random numbers for input

3. #2.20 (Program) just code and analysis

4. Tower of Hanoi

Use recursion for program and include Big O-Notation analysis for the code

And also discuss greedy algorithm analysis.