CS2121B Lab 3

LAB 3 INSTRUCTIONS

1. Log into OWL and navigate to the Lab Folder (Resources->Lab) and download the file **Lab3.pdf**.
2. Complete the tasks outlined in Lab3.
3. Submit the code, plot, and the sorted order in a **zip file** on OWL.

Exercise

- Draw each of the following functions in one plot, which represent the number of steps required for some algorithm, for n=[1,1000] and k=100.
    - You can use Matplotlib to plot.
- Determine the O(.) for each of the following functions.

(a) $T(n) = n^2 + 400n + 5$

(b) $T(n) = 67n + 3n$

(c) $T(n) = 2n + 5n \log n + 100$

(d) $T(n) = \log n + 2n^2 + 55$

(e) $T(n) = 3(2^n) + n^8 + 1024$

(f) $T(n, k) = kn + \log k$

(g) $T(n, k) = 9n + k \log n + 1000$

Figure 1: The list of functions.

- Arrange the following expressions from slowest to fastest growth rate.