Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam - 603 110
(An Autonomous Institution, Affiliated to Anna University, Chennai)

UCS2403: DESIGN & ANALYSIS OF ALGORITHMS

Assignment 2

1. (a) Write a program to find unique (non-repeating) elements in a list. That is, find those elements that do not have duplicates in the list. For example, in the list $[3, 6, 9, 2, 3, 9, 1, 15, 21, 3, 1]$, the unique elements are $[6, 2, 15, 21, 1]$. The order of elements in the output list should be the same as that in the original list.

   (b) What is the time complexity of your algorithm? You may ignore the improvements introduced by language specific implementations (say, using *set* in Python).

2. (a) Given an integer `n` as input, write a program to print the sum of the following series up to n terms.

$$1 + (1 + 2) + (1 + 2 + 3) + \ldots + (1 + 2 + 3 + \ldots + n)$$

   (b) What is the time complexity of your code?

3. (a) Write a program to print all the most frequently occurring characters in a given string, as a list.
   For example, if the input string is "example",the output should be [e]. If the input string is "exist", then the output should be [e,x,i,s,t].

   (b) What is the complexity of your code?