# Comp111-Programming II

**ASSIGNMENT # 1**

**Dictionary, Filing and Recursion**

**Deadline: 8/4/2020**

**Course: Programming II**

**Problem 1:**

Write a function that find the prime number in a given list and store the count for each prime number in a dictionary.

list: [7,1,7,3,4,8,1,13,6]

Output: 7:2 , 3:1, 13:1

**Problem 2:**

Write a function which read string from a file as an input and return a list that contains words which occurs more than once in string.

Following string should be in file.txt

String = “This is just demo string of words and this contains some words more than once”

Returned list: [this, words]

Hint: Use dictionary.

**Problem 3:**

Write a **recursive function** which takes a list of numbers as parameter and removes all adjacent duplicate elements.

Input: [1,5,3,4,4,6,7,8,8,11,4]

List after calling function: [1,5,3,4,6,7,8,11,4]

Input 2: [2,2,2,4,4,6,7,8,8,8]

List after calling function: [2,4,6,7,8]

**Problem 4:**

Write a **recursive function** which takes a string as parameter and return true if string is palindrome and false if not.

Input: “aaabaaa”

Return: true

Input: “aabaaa”

Return: false

**Problem 5:**

Define a recursive function ***prefix()***that accepts a positive integer ***n*** and a list ***lst*** as input, and returns a list containing only the first ***n*** elements in ***lst***. This function must have a recursive definition and does not use any library functions.

**Problem 6:**

Create a function ***swap(),*** to swap the characters at the even positions with the next character. Indexing starts at 0. Formally, given a string ***str*** of length ***L*** where ***L*** is even, you have to swap the characters at position ***I*** and ***i+1***.

For example:

str=”abcdpqrs” and L=8 the positions to be swapped are {(0,1),(2,3),(4,5),(6,7)}

Output: “badcqpsr”