CSE3041 – Programming for Data Science

Practice Questions

Sno	Question
1	The DNA sequence is made up of four chemical bases, Adenine (A), Cytosine (C), Thymine (T), and Guanine (G). For a given DNA sequence like "ATCTCAGTCGTTGTCTACATGA", write a program to count the number of Adenine, Cytosine, Thymine, and Guanine. Read any input from user and print the output as dictionary which stores the Alphabet as key and its frequency as value. Example: Input: AAGGTAAGTTGA Output: 'G': 4, 'A': 5, 'C': 0, 'T': 3
2	Write a program to capitalize the first letter of each word in a text. Example Input/Output 1: Input: Have a great day. Output: Have A Great Day
3	A company organizes an online poll for its new product by getting the details of the customer such as name, age and rating of the product. The polled population has to be organized according to their age (less than or equal to 20 and older than 20). Implement an algorithm to display the sorted list of customers, according to the product ratings under both the age categories**.** Input 1 : No of customers(N) Input2 : Name, Age and rating. Output Format: Two sorted lists Example Input/Output : Input: N=5 Customer Details: Name Age Rating Cust1 18 8.3 Cust 2 25 9.1 Cust 3 17 8.8 Cust 4 52 7.4

	Cust 5 45 8.7 Output List 1 (Under the age 20) Cust 1 18 8.3 Cust 3 17 8.8 List 2 (Above the age 20) Cust 4 52 7.4 Cust 5 45 8.7 Cust 2 25 9.1
4	Abe is going to plant 'm' oak trees and 'n' pine trees. Abe would like to plant the trees in rows that all have the same number of trees and are made up of only one type of tree**.** What is the greatest number of trees Abe can have in each row? Write a recursive function to find the solution.
5	Write a function to remove all punctuations in a passage.
6	Given three points, write a program to check if they can form a triangle using the condition given below: - Three points can form a triangle, if they do not fall in a straight line and length of a side of triangle is less than the sum of length of other two sides of the triangle. For example, the points (5,10), (20,10) and (15,15) can form a triangle as they do not fall in a straight line and length of any side is less than sum of the length of the other two sides
7	Marks.csv file has the following data: RegNo, Name, Mark1, Mark2 and MArk3 of 'n' no of students. Write a program to read the data from the file and calculate the total marks scored by each student. Then copy the content in another file called result.csv along with the total marks scored by each student. [Note: use readlines()]