Data Structures Lab (CSC204) **Session: Monsoon 2023-24**
III BTech (CSE) **Date: 04.08.2023**

Practice Assignment (Introduction to Data Structures)

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1. Write a program that takes a string as input during runtime, counts the frequency of each character in the input, and saves the frequency count statistics to a text file, named "frequency.txt" on the desktop.

   Sample input:
   Enter the text: Hello, World!

   Content of output file would be:

Character	Frequency
H	1
E	1
L	3
O	2
,	1
W	1
R	2
D	1
!	1

2. Write a program to rearrange an unsorted array of integers such that all zeros are placed at the end of the array without changing the order of non-zero elements.

   Sample input:
   Enter the number of elements (N): 10
   Enter the elements: 4 0 2 0 1 3 0 5 0 6

   Sample Output:
   Elements after rearrange is: 4 2 1 3 5 6 0 0 0 0

3. Write a program that uses a structure to represent student information, including name, roll number, and marks in three subjects (Mathematics, Physics, and Chemistry). The program should calculate the total marks and average marks for each student and display the student's grade based on the average marks.

   The grading criteria are as follows:

   Average Marks >= 90: Grade A
   80 <= Average Marks < 90: Grade B
   70 <= Average Marks < 80: Grade C
   60 <= Average Marks < 70: Grade D
   Average Marks < 60: Grade E

Sample Input:

Enter the number of students: 1
Enter the details of first student:
Name: Sounak
Roll Number: 101
Marks in Mathematics: 85
Marks in Physics: 92
Marks in Chemistry: 88

Sample Output:

Student 1:
Name: Sounak
Roll Number: 101
Total Marks: 265
Average Marks: 88.33
Grade: B