

Foundations of Technical Programming

Week 12

You may be asked to demonstrate/explain your work to the tutor, if you are absent/unavailable or fail to demonstrate properly, zero marks will be awarded.

12.1

Aim: To demonstrate your knowledge in using handling FILES in C Programs

Title: C Program to Read & Write data into a data file

In this lab you will write a program for reading information from a data file and saves a summary report into another data file. The summary report will include the average, the maximum, and the minimum value. A data file named 'speed.txt' contains several speed readings, the first record in the speed data file contains an integer that specifies the number of records that follow. Each of the following lines contains a time and speed reading.

```
10
0.0    132.5
0.1    147.2
0.2    148.3
0.3    157.3
0.4    163.2
0.5    158.2
0.6    169.3
0.7    148.2
0.8    137.6
0.9    135.9
```

The output of the problems should be saved into another data file, named 'Output.txt'. With the following data:

```
Number of sensor readings: 10
Average reading: 149.77
Maximum reading: 169.30
Minimum reading: 132.5
```

12.2

Aim: To demonstrate your knowledge in using File I/O to write and read structures

Title: C Program to Store Information of Students permanently

- a. Write a C-Program creating three students details based on the following Student Structure. On reading details of three students, write the student details to a .txt file to store them permanently.

type struct {

```
    char ID[10];    //student ID
```

```
    char name[10]; //student name
```

```
    float marks;    //subject marks
```

}student;

Sample data: Details for 3 students

Student-1

ID – 10011
Name – John
Marks - 55

Student-2

ID – 10012
Name – Peter
Marks – 100

Student-3

ID – 10013
Name – Helen
Marks - 42

- b. Write a separate C- Program, which would read the details from the .txt file and displays onto the screen.