Department of Statistics & Computer Science, University of Kelaniya
ACADEMIC YEAR – 2020/2021
COSC / COST 11023 – Fundamentals of Programming
Lab Session – 09

Throughout this lab session, you will learn about multi-dimensional arrays and file processing in in C.

1. Develop a C program to read the cricket players name and the runs scored for four T20 innings from the user given in the following order.

```
Asalanka,KIC 51 20 32 42
Perera,MDKJ 22 34 56 12
Shanaka,MD 12 14 22 56
Nissanka,P 45 32 01 34
Karunaratne,C 45 67 89 23
```

   Store the player names in a two-dimensional character array and runs in another two-dimensional integer array. Then, calculate total runs scored and average runs for each player and display it the following format:

```
Asalanka,KIC        145  36.25
Perera,MDKJ         124  31.00
Shanaka,MD          104  26.00
Nissanka,P          112  28.00
Karunaratne,C       224  56.00
```

Upload the completed program into lab 09 – Program 01 folder.

2. Develop a C program that reads three numbers from the file infile.txt, sums the numbers, and writes the sum to the file outfile.txt. Here is sample of the infile.txt and outfile.txt:

1 2 3 4

infile.txt

The sum of the first 3 numbers in infile.txt is 6

outfile.txt

Upload the completed program into lab 09 – Program 02 folder.

3. Develop a C program to read 20 integer values from an external file and fill into an array called numbers.

Upload the completed program into lab 09 – Program 03 folder.

4. Develop a C program to read the cricket players name and the total runs scored for the year from a text file. Player details are stored in the following format in a text file:

```
BKGMendis 34
PBBRajapaksa 450
MDKJPerera 1200
BOPFernando 102
MDShanaka 654
```

Find the total runs scored by the group of players and their average. Finally display the output in the following tabular format.

```
                BKGMendis                34
            PBBRajapaksa               450
              MDKJPerera              1200
             BOPFernando               102
               MDShanaka               654
      Total Runs Scored              2440
Average for the Year                488.00
```

Note: Assume that you don't know how many records are in the data file and your program should be able to read any number of records in the file.

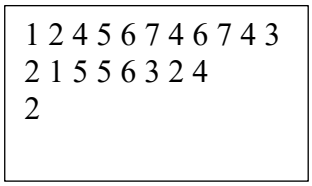
Upload the completed program into lab 09 – Program 04 folder.

5. Modify the above activity 03 program to write the program output to an external final called ***processed_data.txt***.

Upload the completed program into lab 09 – Program 05 folder.

6. Develop a C program that will read a file of numbers of type *int* and output the frequency of each number (count of each number) in the file. The file contains only whole numbers, positive and negative, separated by spaces, tabs, or line breaks.

   Note: Assume that you don't know how many numbers are in the data file and your program should be able to read any numbers in the file.
   Here is an example input.txt file and expected output from the program:



   input.txt

```
Output of the Program:
  Frequency of number 1: 2
  Frequency of number 2: 4
  Frequency of number 3: 2
  Frequency of number 4: 4
  Frequency of number 5: 3
  Frequency of number 6: 3
  Frequency of number 7: 2
```

Upload the completed program into lab 09 – Program 06 folder.