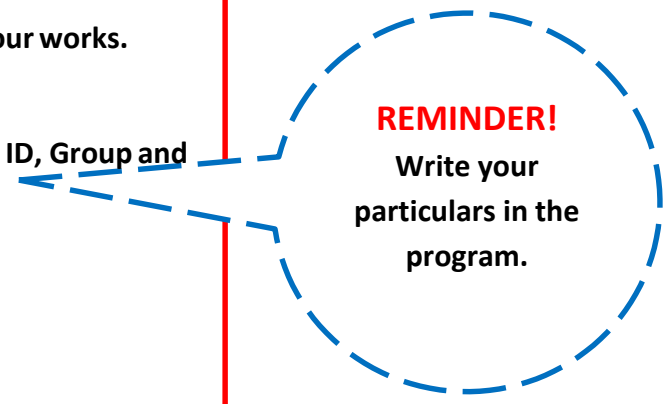
NOTE:

- Create a folder on Desktop to save your works.

- Use comment // to write your name, ID, Group and Lab Question in each program.

- Save your file as .c



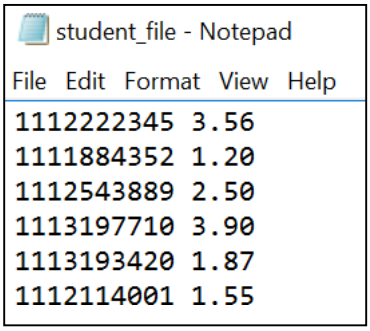
LAB OBJECTIVE

At the end of this lab activity, the students should be able to:

- Read and write from/to files to solve programming problems.

QUESTION 1

- Create a text file called *student_file.txt*. The file has the following data which is the student ID and *CGPA*.



- In the *main()* function:
  - Open the student_file.txt for reading.
  - If file could not be opened, display "File could not be opened".
  - Else, using while loop till end of file to:
    - read all the data from the file and store them in appropriate variables.
    - Call function *get_status()* and pass the CGPA as parameter.
    - Count how many students with the result status of fail, pass, credit and distinction using if-else statement.
    - Display student ID and result status.
  - Then, display the summary of results as shown in the sample output.
  - Close the file.

- In function *get_status()*:
  - Using if-else statement, identify the result status based on the CGPA (refer to the table).
  - Return the status.

CGPA	Status
0.00 to less than 2.00	Fail
2.00 to less than 2.50	Pass
2.50 to less than 3.50	Credit
3.5 to 4.00	Distinction

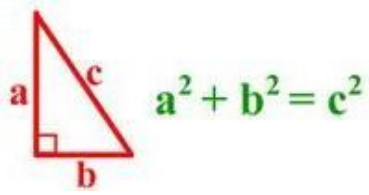
Sample Output

```
Sudent ID     : 1112222345
Status        : Distinction
Sudent ID     : 1111884352
Status        : Fail
Sudent ID     : 1112543889
Status        : Credit
Sudent ID     : 1113197710
Status        : Distinction
Sudent ID     : 1113193420
Status        : Fail
Sudent ID     : 1112114001
Status        : Fail

Students with Fail status        : 3
Students with Pass status        : 0
Students with Credit status      : 1
Students with Distinction status : 2
```

QUESTION 2

- Create a file called ***input.txt*** with the values shown below. The values show the **length (a)** and **width (b)** of a triangle.



input - Notepad

File Edit Format View Help

```
3 4
5.5 6.6
7 9
```

- Create 2 file pointer variables called ***fread*** (for reading) and ***fwrite*** (for writing).
- Open ***input.txt*** for reading and output.txt for writing.
- Display "Could not open file" if the file could not be opened.
- Else, loop till the end of file to:
  - Read the contents of ***input.txt*** which is **a** and **b**.
  - Calculate the triangle side – **c** with the formula:

    $c = \sqrt{a^2 + b^2}$
  - Write the values of **a**, **b** and **c** in ***output.txt*** file.
- Close the files
- The sample content of output.txt is shown below.

output - Notepad

File Edit Format View Help

```
3.00 4.00 5.00
5.50 6.60 8.59
7.00 9.00 11.40
```

QUESTION 3

- Create a structure called **Recycle** with attributes *name, weight* and *income*.
- In the *main()* function:
  - Create a structure variable array ***per*** ize 4.
  - Open a text file called **recycle.txt** for writing.
  - Using for loop, ask the user to enter name and weight of recycle materials for 4 persons.
    - Call function *get_price()* and pass the weight as the parameter.
    - Calculate the income of the recycled material: price multiply by the weight of the recycle materials.
    - Write the name, weight and income to the **recycle.txt** file.
  - Close the file.

- In function *get_price():*
  - Based on the weight, identify the price.
    - Weight less than 50kg, the price is RM 0.20 per kg.
    - Weight less than 100kg, the price is RM 0.40 per kg.
    - Weight more than 100kg, the price is RM 0.60 per kg.
  - Return the price.

The sample output and the content of recycle.txt after execution are shown below.

```
Enter name            : Jack Ma
Enter material weight : 45

Enter name            : Jason Maniam
Enter material weight : 99.9

Enter name            : Jasni Mohsin
Enter material weight : 123

Enter name            : Jocelyn Ming
Enter material weight : 77
```

recycle - Notepad

File Edit Format View Help

```
Jack Ma 45.00kg RM9.00
Jason Maniam 99.90kg RM39.96
Jasni Mohsin 123.00kg RM73.80
Jocelyn Ming 77.00kg RM30.80
```