

HKIIT(ST)

Diploma of Foundation Studies

AY 2025/26

Project (20%)

Stream : Information Technology
Course Code : FS113002N
Module Title : Programming Concept and Applications
Module Code : ITE3711
Date of Submission : 12-12-2025

Objective:

- Develop a Python program (Version: Python 3) to provide different functions.
- The program should accept input data, including student name, student ID, marks of different assessments, etc.
- The program should process the data, analyze the input data, determine the module result and give a conclusion.

Group size:

- 1 – 2 students

Hand in:

- Zip all the source codes (.py format files) and submit to Moodle.

Demonstration:

- Each group will present the project during class to your subject lecturer.
- Show the layout and walk through all the functions.

Part 1 – Input student information and assessments' marks (30%):

1. The program will get the following inputs from the user.
 - Student Name
 - Must be alpha character.
 - Not null.
 - Student ID
 - Must be digit.
 - The length of the student ID must be equal to 9.
 - Not null.
 - Test Marks
 - Must be digit.
 - Test Marks must be between 0 – 100.
 - Not null.
 - Project Marks
 - Must be digit.
 - Project Marks must be between 0 – 100.
 - Not null.
 - Workshop Marks
 - Must be digit.
 - Workshop Marks must be between 0 – 100.
 - Not null.
 - Exam Marks
 - Must be digit.
 - Exam Marks must be between 0 – 100.
 - Not null.
2. Store the input data in the variable if the input data is valid.
3. Show an error message to the user if the input data is invalid.

Hints:

While True:

hints1.isalpha()

hints2.isdigit()

(Reference cases – Terminal output only)

Part 1 - Input student information and assessments' marks:

1. Start of the program

```
***** Enter information *****
```

Enter student name:

2. Invalid input – Student Name

```
***** Enter information *****
```

Enter student name:

Invalid name, please try again.

Enter student name:

3. Valid input – Student Name

```
***** Enter information *****
```

Enter student name:

Invalid name, please try again.

Enter student name:

Enter student ID:

4. Valid input – Student ID

```
***** Enter information *****
```

Enter student name:

Invalid name, please try again.

Enter student name:

Enter student ID:

Enter test marks:

5. All inputs are successful.

```
***** Enter information *****  
  
Enter student name: 1  
Invalid name, please try again.  
Enter student name: chantaiman  
Enter student ID: 88888888  
Enter test marks: 100  
Enter project marks: 100  
Enter workshop marks: 100  
Enter exam marks: 100
```

** Reminder to store all input data in the corresponding variables.*

Part 2 – Calculate the CA marks, Module marks, and determine the module grade and remarks (28%):

1. Calculate the CA Marks by using the following formula.

$$\text{CA Marks} = \frac{\text{Test Marks} * 40\%}{100} + \frac{\text{Project Marks} * 30\%}{100} + \frac{\text{Workshop Marks} * 30\%}{100}$$

2. Calculate the Module Marks by using the following formula.

$$\text{Module Marks} = \frac{\text{CA Marks} * 50\%}{100} + \frac{\text{Exam Marks} * 50\%}{100}$$

3. Determine the module grade by using the following table.

CA Marks	Exam Marks	Module Marks	Module Grade
< 40	-	-	F
-	< 40		
>=40	>=40	>= 75 and <=100	A
		>=65 and < 75	B
		>=40 and < 65	C

4. Determine the remarks and comments by using the following table.

Module Grade	Remarks	Comments
F	Restudy	Don't get discouraged, keep trying!
A	Pass with A grade	Well done!
B	Pass with B grade	Almost can get an A grade, work harder!
C	Pass with C grade	Please be careful, you only qualified for a C.
Others	Invalid Module Grade	Please double-check the input marks.

(Reference cases – Terminal output only)

Part 2 - Calculate the CA marks, Module marks, and determine the module grade and remarks:

1. Showing the result of A grade

***** Enter information *****

Enter student name:

Invalid name, please try again.

Enter student name:

Enter student ID:

Enter test marks:

Enter project marks:

Enter workshop marks:

Enter exam marks:

***** Result *****

Student name: chantaiman

Student ID: 88888888

Test Marks: 100 , Project Marks: 100 , Workshop Marks: 100 , Exam Marks: 100.0

Module Marks: 100.0 , Module Grade: A , Remarks: Pass with A grade

Well done!

***** Result *****

2. Showing the result of B grade

***** Enter information *****

Enter student name:

Invalid name, please try again.

Enter student name:

Enter student ID:

Enter test marks:

Enter project marks:

Enter workshop marks:

Enter exam marks:

***** Result *****

Student name: chantaiman

Student ID: 888888888

Test Marks: 74 , Project Marks: 74 , Workshop Marks: 74 , Exam Marks: 74.0

Module Marks: 74.0 , Module Grade: B , Remarks: Pass with B grade

Almost can get an A grade, work harder!

***** Result *****

3. Showing the result of C grade

***** Enter information *****

Enter student name:

Invalid name, please try again.

Enter student name:

Enter student ID:

Enter test marks:

Enter project marks:

Enter workshop marks:

Enter exam marks:

***** Result *****

Student name: chantaiman

Student ID: 888888888

Test Marks: 64 , Project Marks: 64 , Workshop Marks: 64 , Exam Marks: 64.0

Module Marks: 64.0 , Module Grade: C , Remarks: Pass with C grade

Please be careful, you only qualified for a C.

***** Result *****

4. Showing the result of F grade

***** Enter information *****

Enter student name:

Invalid name, please try again.

Enter student name:

Enter student ID:

Enter test marks:

Enter project marks:

Enter workshop marks:

Enter exam marks:

***** Result *****

Student name: chantaiman

Student ID: 88888888

Test Marks: 39 , Project Marks: 39 , Workshop Marks: 39 , Exam Marks: 39.0

Module Marks: 39.0 , Module Grade: F , Remarks: Restudy

Don't get discouraged, keep trying!

***** Result *****

Part 3 – Input more than one student data (Challenge) (27%):

1. Ask the user to input one more student data or not.
 - Yes → Input one more student data.
 - No → Show the conclusion of current input data.
2. If Yes, input one more student data.
 - Functions in Part1 and Part2.
 - Count the number of A, B, C and F grade students.
 - Count the total number of students' input.
 - Calculate the average marks of all students.
3. If No, show the conclusion. (refer to reference cases)
 - Total number of students' input
 - Average marks of all students
 - Count the number of students getting A grade
 - Count the number of students getting B grade
 - Count the number of students getting C grade
 - Count the number of students getting F grade

Hints:

Global variables, E.g.

- *countTotalStudent*
- *countA*
- *countB*
- *countC*
- *countF*
- *Etc.*

Function

While True:

- *Decide to enter one more student data or not.*

Average marks

- *total marks of all students / total number of students input*

(Reference cases – Terminal output only)

Part 3 – Input more than one student data (Challenge):

1. Enter one more student data.

***** Enter information *****

Enter student name: chantaiman

Enter student ID: 888888888

Enter test marks: 100

Enter project marks: 100

Enter workshop marks: 100

Enter exam marks: 100

***** Result *****

Student name: chantaiman

Student ID: 888888888

Test Marks: 100 , Project Marks: 100 , Workshop Marks: 100 , Exam Marks: 100.0

Module Marks: 100.0 , Module Grade: A , Remarks: Pass with A grade

Well done!

***** Result *****

Do you want to enter another student record? [Y/y] for Yes, [N/n] for No: ☒

***** Enter information *****

Enter student name: chansiuming

Enter student ID: 999999999

Enter test marks: 74

Enter project marks: 74

Enter workshop marks: 74

Enter exam marks: 74

***** Result *****

Student name: chansiuming

Student ID: 999999999

Test Marks: 74 , Project Marks: 74 , Workshop Marks: 74 , Exam Marks: 74.0

Module Marks: 74.0 , Module Grade: B , Remarks: Pass with B grade

Almost can get an A grade, work harder!

***** Result *****

Do you want to enter another student record? [Y/y] for Yes, [N/n] for No:

There is/are 2 students' record(s) inputted, and the average marks is: 87.0

Total number of A grade: 1

Total number of B grade: 1

Total number of C grade: 0

Total number of F grade: 0

Part 4 – Enhancement of the project (15%)

For example,

1. Implement a new function that enhances the functionality of the project.
2. Provide a user interface for the user to interact with the Python program (e.g. using Tkinter).

```
import tkinter as tk
from tkinter import messagebox

# Create the main window
main_window = tk.Tk()
main_window.title("Simple Calculator")
main_window.geometry("300x300") # Set window size to accommodate placed widgets

# Create input field for the first number
label_number1 = tk.Label(main_window, text="Enter the first number:")
label_number1.place(x=50, y=20, width=200, height=30)

input_field1 = tk.Entry(main_window)
input_field1.place(x=50, y=50, width=200, height=30)

# Create input field for the second number
label_number2 = tk.Label(main_window, text="Enter the second number:")
label_number2.place(x=50, y=90, width=200, height=30)

input_field2 = tk.Entry(main_window)
input_field2.place(x=50, y=120, width=200, height=30)

# Create result label
result_label = tk.Label(main_window, text="Result: ")
result_label.place(x=50, y=160, width=200, height=30)

# Create calculate button with embedded logic
calculate_button = tk.Button(main_window, text="Calculate", command=lambda: (
    result_label.config(text=f"Result: {float(input_field1.get()) +
float(input_field2.get())}")
    if input_field1.get().replace(".", "").replace("-", "").isdigit() and
input_field2.get().replace(".", "").replace("-", "").isdigit()
    else messagebox.showerror("Error", "Please enter valid numbers!")
))
calculate_button.place(x=50, y=200, width=100, height=30)

# Start the main event loop
main_window.mainloop()
```