Assignment 1

INT2067/INT5051 Introduction to Programming and Problem Solving
2025-2026 Semester 2

Due Date: February 15, 2026 23:59 (Sunday)

1 Introduction

In this assignment, you will write a Python program to help a school department plan an international study tour. This program acts as a universal budgeting tool for any international study tour. The user will define the base cost per student depending on their specific destination.

Your program will collect from users different costs and the number of students that are interested, and determine group discounts using conditional logic, and display payment progress at specific ratios across different timelines.

2 Functional Requirements (70%)

1. **Setup and User Input [20%]**

- **[10%] Welcome Message:** Print a friendly welcome message (e.g., "Welcome to the Global Study Tour Budgeting Tool").
- **[10%] User Inputs:** Ask the user for the following in order:
    - **Enter base tour cost per student (HKD):** The cost per student for the chosen destination (e.g., 4000)
    - **Number of students**: Total number of participants.
    - *Note: Both inputs should be handled as floats to allow for precise currency and calculations.*

2. **Logic and Calculations [20%]**

- **[10%] Operator Application:** Calculate the Total Estimated Revenue (Budget × Students). Apply a fixed 5% "Admin & Insurance Fee" to total Estimated Revenue (Budget x Students) and print the final adjusted total.

- **[10%] Control Flow (If/Else):** Determine the "Tour Tier" based on the number of students:
    - If students >=30: 15% Group Discount applies to final adjusted total

- If students >= 15: 5% Group Discount applies to final adjusted total
- Otherwise: No discount.
- Print the applicable discount percentage and the final discounted price.

3. Payment Schedule (If/Else/Else-if) [20%]

- **[20%] Installment Calculations:** To help the finance department plan, calculate the specific installment paid at different times of the school year. Use a `if-elif-else` statement to calculate and print the payment progress at these specific ratios at different timelines:
  - Timing: deposit
    - Ratio = 0% of the final discounted price
  - Timing: q1
    - Ratio = 25% of the final discounted price
  - Timing: q2
    - Ratio = 25% of the final discounted price
  - Timing: final
    - Ratio = 50% of the final discounted price
  - If the timing is not equal to the above 4 options, the system should print "`Invalid timing entered.`". The output must be displayed in a clear format.
  - The system should be case-sensitive (e.g., 'Q1' should not work and 'q1' should work).

4. Formatting and Precision [10%]

- **[10%] Rounding & Alignment:** print the outputs in the following formats:
  - All currency values and percentages should be displayed with exactly two decimal places.
  - The output should be neatly formatted in columns or a consistent list format.

Program Design and User Interface (30%)

The following will also be considered when your assignment is graded.

- [10%] The variable names should be sensible and the code should be tidy.

- [10%] You should break down your program into code blocks with comments.
- [10%] The output should be neat and the required information should be shown clearly. The text in the output should be correct and contain no spelling mistakes.

3 Submission Requirements

Your Python file should be named as assignment01.py. Submit only the Python file assignment01.py through Moodle. Failure to submit the file properly will result in a penalty of 5 to 20 marks.

See Moodle for the exact time of the deadline for submission. Late submission is usually not accepted. You should submit earlier to avoid possibly high traffic around the deadline.

4 Plagiarism Policy

The assignment should be done only by yourself. Every line of code should be written by you. The use of any artificial intelligence (AI) tools is **NOT** allowed in this assignment. Discussions on the assignment should be kept at a high-level only. You are suggested to refer your classmates to the relevant notes or lab exercises if you want to help them.

You need to put down a declaration for having not used AI tools as a comment at the beginning of your program file. For example, your declaration may look like this:

Declaration: this code is my own individual and original work without an AI assistant.

If you have used AI tools or consulted the assignment with anyone, you should provide an acknowledgment as a comment at the beginning of your program file. Give the names of all classmates that you have turned to. For example, your acknowledgement may look like:

Acknowledgement: I have asked Peter, George, and Mary for help.

Acknowledgement: I have used AI tools (such as ChatGPT, gpt4o via POE, etc.) in working on this assignment.

If plagiarism is found, both the copier and originator will get zero mark for the assignment. Repeat offenders may result in a deduction of the course grade.

5 Sample Input and Output

Example 1

Input:

- Cost = HKD4000
- Number of students: 30
- Timing: q1

Output:

```
Welcome to the Global Study Tour Budgeting Tool
-----------------------------------------------------
Enter base tour cost per student (HKD): 4000
Enter number of students: 30
-----------------------------------------------------
Calculation Summary
Adjusted Total (with 5% Fee): 126000.00
Applied Discount: 15.00%
Final Discounted Price: 107100.00
-----------------------------------------------------
Payment Lookup
Enter milestone (deposit, q1, q2, or final):q1
Your First Quarter payment is: $26775.00
-----------------------------------------------------
```

Example 2

Input:

- Cost = HKD4000
- Number of students: 15
- Timing: final

Output:

```
Welcome to the Global Study Tour Budgeting Tool
-----------------------------------------------------
Enter base tour cost per student (HKD): 4000
Enter number of students: 15
-----------------------------------------------------
Calculation Summary
Adjusted Total (with 5% Fee): 63000.00
Applied Discount: 5.00%
Final Discounted Price: 59850.00
-----------------------------------------------------
Payment Lookup
Enter milestone (deposit, q1, q2, or final):final
Your Final payment is: $29925.00
-----------------------------------------------------
```

Example 3

Input:

- Cost = HKD4000.5
- Number of students: 15
- Timing: q3

```
Welcome to the Global Study Tour Budgeting Tool
-------------------------------------------------------
Enter base tour cost per student (HKD): 4000.5
Enter number of students: 15
-------------------------------------------------------
Calculation Summary
Adjusted Total (with 5% Fee): 63007.88
Applied Discount: 5.00%
Final Discounted Price: 59857.48
-------------------------------------------------------
Payment Lookup
Enter milestone (deposit, q1, q2, or final):q3
Invalid timing entered.
-------------------------------------------------------
```

Example 4

Input:

- Cost = HKD4000
- Number of students: 30
- Timing: Q1

```
Welcome to the Global Study Tour Budgeting Tool
-------------------------------------------------------
Enter base tour cost per student (HKD): 4000
Enter number of students: 30
-------------------------------------------------------
Calculation Summary
Adjusted Total (with 5% Fee): 126000.00
Applied Discount: 15.00%
Final Discounted Price: 107100.00
-------------------------------------------------------
Payment Lookup
Enter milestone (deposit, q1, q2, or final):Q1
Invalid timing entered.
-------------------------------------------------------
```