Student Name: **Weight: 20%**

Student ID: **Marks: /100**

Assignment: Programming Strategies

- Students should **ONLY** use programming constructs covered in modules 1 and 2.
- **Submission will not be accepted when using programming concepts that are not covered in modules 1 and 2**
- **Late submissions will not be accepted**

Scenario

Quest Phones is an online retail business specializing in cell phones and tablets. The owner initially hired your company to create an application to calculate Quest Phones' daily profits (Part 1). When you presented your results, the owner was so impressed with your company's work that they returned with a request to modify the previous program to calculate the total profit for customized periods of time (Part 2).

Equipment and Materials

For this assignment, you will need:

- Python IDE

Instructions

This assignment consists of two sections, both completed outside of class time. See the course schedule and Brightspace for exact dates.

Group Submission (95%)

1. Working in a group, review the Scenario and the Profit Calculator Details sections of this document, noting how the program expectations change between Part 1 and Part 2.
2. Review the grading criteria for submission.
3. Draft a pseudo code or flowchart to represent Part 1 of the program.
4. Create the code for a program that meets the requirements outlined for Part 1.
5. Test your code against the expected output provided for Part 1.
   Important: After successfully completing Part 1, save a copy of your work for submission (you need it in part 2).
6. Modify your Part 1 pseudo code or flowchart to represent Part 2 (no submission required for the pseudo code/flowchart).
7. Make a copy of your Part 1 code and modify it to meet the Part 2 requirements.
8. Test your code against the expected output provided for Part 2.

9. Submit the following to Brightspace:
   - The final code of the program that you implemented (.py file) after finishing the second part. You should submit only your Part 2 solution.
   - Your test outputs for Part 2 (.txt file).

Individual Submission (5%)

1. **Peer Assessment (1.5%)**
   Each student must also complete a peer assessment of their group members.
   - In the peer assessment, each group member will submit a quiz questionnaire for the other group members (not themselves). Further instructions will be provided by the instructor.

2. **Demonstration Video (3.5%)**

   Each student will submit a video (no more than 5 minutes long). In the video, the student will:
   - introduce themselves and indicate which team they are a part of (i.e. Team number) – camera should be on
   - share the group's final solution (code) and explain a part of the code that they developed

   You MUST complete both parts to earn 5%. Missing the peer assessment or demonstration video will lead to ZERO in the whole assessment item.

Quest Phones Profit Calculator Details

Part 1: Daily Profit Calculator

Quest Phones divides their phones and tablets into five categories, each with different profit margins. The owner has provided the following categories and profit margins for each category.

Table 1: Profit Margins Based on Product Category

Category	Description	Average Profit Per Unit
1	Apple iPhone	$127.68
2	Android Phone	$105.47
3	Apple Tablet	$80.23
4	Android Tablet	$69.67
5	Windows Tablet	$54.57

Create an application that automatically calculates Quest Phones' total profit for a one-day period. Your application must meet the following criteria:

- Calculates total profit for the day in CDN$.
- Asks the user to enter the product category (1–5) and then the quantity sold in that category.
- Allow the user to stop entering data if there aren't sales in all five categories by entering zero for the product category.
- Returns an error message when the user enters a value other than 0,1,2,3,4 or 5 for the product category.
- Profit calculation should be based on the data in the above table
- The program **MUST exactly create the provided sample output**

Important: After successfully completing Part 1, save a copy of your work for your reference.

Part 1 Test Plan

Input values are shown in **<u>bold underline</u>**.

```
Quest Phones Profit Calculator

Enter product number (1-5 or 0 to stop): 5
Enter quantity sold: 3
Enter product number 1-5 or 0 to exit: 1
Enter quantity sold: 2
Enter product number (1-5 or 0 to stop): 7
Product number must be between 1 and 5 or 0 to exit... Try Again...
Enter product number 1-5 or 0 to exit: 0

Total Profit for today is: $419.07
```

Part 2: Daily, Weekly and Weekend Profit Calculator

In addition to calculating total daily profit, the owner now wants the program to be able to calculate total profit for a weekend, a five-day workweek, or for a whole week.

Modify a **copy** of your Part 1 program so that it meets the following criteria:

- Asks the user to indicate what time period they want to enter sales data for:

  Table 2: Time Period Selection

User Entry	Time Period
1	One day
2	Entire week (7 days)
3	Only Weekdays (Mon–Fri)
4	Only Weekend Days (Sun & Sat)

- Asks the user to enter sales data by one of the following four pathways:
  - If the user enters **1**, they are asked to enter sales data following the same criteria outlined in Part 1.
  - If the user enters **2** they are asked to enter sales data for each day of the week. (seven times, using the criteria outlined in Part 1)
  - If the user enters **3** they are asked to enter sales data for each day of the work week (five times, using the criteria outlined in Part 1)
  - If the user enters **4** they are asked to enter sales data for each day of the weekend. (two times, using the criteria outlined in Part 1)
- Calculates and prints the total daily profit for period of time selected. Displayed as "Total profit for *periodOfTime* is: $xx,xxx.xx"
- Calculates the daily profit for the period of time selected, i.e. Total profit / number of days in period
- Uses daily profit to print a customized comment depending on the calculation result:
  - If the daily profit is greater than or equal to $10,000/day then the program displays the message: "Successfully achieved daily profit goal of $10,000.00/day for option " *periodOfTime*.
  - If the daily profit is less than $10,000 the program displays the message: "Did not achieve daily profit goal of $10,000.00/day for option " *periodOfTime*.
  - Note: the daily profit goal is currently $10,000/day; however Quest Phones may, from time to time, adjust their daily profit goals
- The program continues working until the user exits by entering **0**.

- The program can accept the day input value in uppercase or lowercase letters or mix between both

- For day input, if invalid day entered, redisplay message to "Enter a specific day".

- The program should test if the inputs (that are numbers) are numbers before converting them to integers

Part 2 Test Plan

Run your program for the 2 sample runs provided. Input values are shown in **bold underline**.

Sample Run # 1

```
Quest Phones Profit Calculator

  Option      Time Period
      1       Single Day
      2       Entire Week
      3       Only Weekdays: Mon-Fri
      4       Only Weekend Days: Sun & Sat
      0       Exit
Enter menu option: 1
Enter a specific day [Sun, Mon, Tue, Wed, Thu, Fri, Sat]: Mon
For Mon
Enter product number (1-5 or 0 to stop): 1
Enter quantity sold: 37
Enter product number 1-5 or 0 to exit: 4
Enter quantity sold: 52
Enter product number 1-5 or 0 to exit: 0

Total Profit for the Mon is: $8,347.00
Did not achieve daily profit goal of $10,000.00/day for option "Mon"

Quest Phones Profit Calculator

  Option      Time Period
      1       Single Day
      2       Entire Week
      3       Only Weekdays: Mon-Fri
      4       Only Weekend Days: Sun & Sat
      0       Exit
Enter menu option: 2
For Sun
Enter product number (1-5 or 0 to stop): 0
For Mon
Enter product number (1-5 or 0 to stop): 2
Enter quantity sold: 600
Enter product number 1-5 or 0 to exit: 0
For Tue
Enter product number (1-5 or 0 to stop): 0
For Wed
Enter product number (1-5 or 0 to stop): 0
For Thu
```

```
Enter product number (1-5 or 0 to stop): 0
For Fri
Enter product number (1-5 or 0 to stop): 0
For Sat
Enter product number (1-5 or 0 to stop): 3
Enter quantity sold: 500
Enter product number 1-5 or 0 to exit: 0

Total Profit for the Entire Week is: $103,397.00
Successfully achieved daily profit goal of $10,000.00/day for option
"Entire Week"

Quest Phones Profit Calculator

  Option      Time Period
      1       Single Day
      2       Entire Week
      3       Only Weekdays: Mon-Fri
      4       Only Weekend Days: Sun & Sat
      0       Exit
Enter menu option: 3
For Mon
Enter product number (1-5 or 0 to stop): 5
Enter quantity sold: 900
Enter product number 1-5 or 0 to exit: 0
For Tue
Enter product number (1-5 or 0 to stop): 0
For Wed
Enter product number (1-5 or 0 to stop): 0
For Thu
Enter product number (1-5 or 0 to stop): 0
For Fri
Enter product number (1-5 or 0 to stop): 0

Total Profit for the Only Weekdays: Mon-Fri is: $49,113.00
Did not achieve daily profit goal of $10,000.00/day for option "Only
Weekdays: Mon-Fri"

Quest Phones Profit Calculator

  Option      Time Period
      1       Single Day
      2       Entire Week
      3       Only Weekdays: Mon-Fri
      4       Only Weekend Days: Sun & Sat
```

```
        0       Exit
Enter menu option:    4
For Sun
Enter product number (1-5 or 0 to stop): 0
For Sat
Enter product number (1-5 or 0 to stop): 4
Enter quantity sold: 600
Enter product number 1-5 or 0 to exit: 0

Total Profit for the Only Weekend Days: Sun & Sat is: $41,802.00
Successfully achieved daily profit goal of $10,000.00/day for option
"Only Weekend Days: Sun & Sat"

Quest Phones Profit Calculator

  Option       Time Period
      1        Single Day
      2        Entire Week
      3        Only Weekdays: Mon-Fri
      4        Only Weekend Days: Sun & Sat
      0        Exit
Enter menu option:   0
Program ended successfully
```

Sample Run # 2

```
Quest Phones Profit Calculator

  Option       Time Period
      1        Single Day
      2        Entire Week
      3        Only Weekdays: Mon-Fri
      4        Only Weekend Days: Sun & Sat
      0        Exit
Enter menu option: 7
Invalid menu selection... Try again

Quest Phones Profit Calculator

  Option       Time Period
      1        Single Day
      2        Entire Week
      3        Only Weekdays: Mon-Fri
      4        Only Weekend Days: Sun & Sat
      0        Exit
```

```
Enter menu option: j
Invalid menu selection... Try again

Quest Phones Profit Calculator

  Option      Time Period
      1       Single Day
      2       Entire Week
      3       Only Weekdays: Mon-Fri
      4       Only Weekend Days: Sun & Sat
      0       Exit
Enter menu option: 1
Enter a specific day [Sun, Mon, Tue, Wed, Thu, Fri, Sat]: xxx
Enter a specific day [Sun, Mon, Tue, Wed, Thu, Fri, Sat]: SAT
For Sat
Enter product number (1-5 or 0 to stop): 0

Total Profit for the Sat is: $0.00
Did not achieve daily profit goal of $10,000.00/day for option "Sat"

Quest Phones Profit Calculator

  Option      Time Period
      1       Single Day
      2       Entire Week
      3       Only Weekdays: Mon-Fri
      4       Only Weekend Days: Sun & Sat
      0       Exit
Enter menu option: 0
Program ended successfully
```

Marking Criteria

Group Submission

	Needs Improvement (0–50%)	Good (51–75%)	Excellent (76–100%)	Marks
Working code	• The project doesn't run in all scenarios • Input requests work but don't match the scenario • Syntax of if/else statements has mistakes • Output works but doesn't match the scenario	• The project runs in all scenarios • Input requests work but don't match the scenario • Correct use of if/else statements • Output works but doesn't match the scenario	• The project runs in all scenarios • Input requests match the scenario exactly • Correct use of if/else statements • Output matches the scenario	/55

Style	• Indentation – not consistent
	• Readability – poor variable names
	• Documentation
	  o No comments are included at the top.
	  o No comments indicating major code sections or what they do
		• Indentation – some parts are consistent and some are not
		• Readability – some variable names are not ideal
		• Documentation
		  o Comments at the top are missing or incomplete.
		  o Comments indicating major code sections and what they do are incomplete
			• Indentation – consistent
			• Readability – good variable names
			• Documentation
			  o Comments at the top are complete and include name, date, program description including details on inputs, processing and outputs (4–5 sentences minimum).
			  o Comments indicate major code sections and what they do
				/20

Testing	• Sample output doesn't match the provided test plan • Output is not formatted according to the specification (test plan)	• Parts of the sample output don't exactly match the provided test plan • Output formatted according to the specification (test plan)	• Sample output exactly matches the provided test plan • Output formatted according to the specification (test plan)	/20

Peer assessment and demonstration video	• Not submitted		• Completed for all group members	**/5**
			Total	**/100**