

University of Technology, Jamaica
School of Computing and Information Technology
Faculty of Engineering and Computing
Programming 1 Final Project-based Assessment (CMP1024)
Semester 1 – AY: 2023/2024

DUE DATE: Monday November 27, 2023

INSTRUCTION:

1. **Organize yourselves in groups containing a minimum of two (2) students and a maximum of four (4)**
2. **Analyze the problem below and develop the IPO chart — be sure to explain use of control structure and include all required formulae.**
3. **At the end of your assignment kindly submit information as to the contribution of each group member.**
4. **The RUBRIC is at the end of the document, kindly reference it while developing your solution.**

Part 1A

Mr. Phillips is a small business owner who owns a barbershop called “Phillip’s Barbershop”. The barbershop contains three (3) stations for cutting hair which he sub-contracts to three (3) barbers.

Customers are required to give the following information when requesting a service: customer name, service needed, and station number. Mr. Phillips collects 5% of the daily sales amount plus a fixed amount of \$500.00 (per day) from each station as rent. He wants a digital system to help manage his daily operations so he can closely monitor the revenue generated from the Barbershop.

The barbershop opens at 9:00 AM each day. Assume that each station takes a total of 30 minutes to complete a customer’s requested service and all appointments are kept, design a simulation of Mr. Phillip’s Barbershop that accepts the above stated information as input and continues accepting inputs until the total minutes of 720 or exactly 9:00 PM is reached. The table below shows the services Phillip’s Barbershop offers:

Table Showing Phillip's Barbershop Services

<i>Service</i>	<i>Cost (\$)</i>
Men's Haircut	1000.00
Men's Head Shave	1300.00
Children's Haircut	600.00
Children Head Shave	900.00
Beard/Mustache Lineup	650.00
Eyebrow Shave	400.00

Note: barber's commission = station earnings - (5% of station's earnings + 500)

Ensure proper validation and appropriate error messages for the following:

1. Customer name (at least three characters long)
2. Service selected (from table above)
3. Station number

Show as output for each customer an attractive user-friendly display of:

- a. Customer name
- b. Service selected
- c. Station number
- d. Cost

Once the system reaches 720 minutes (about 12 hours) it is assumed that the barbershop is closed for business. At this point display the following in a neatly formatted order:

1. Total sales per station for the day
2. Total customers per station for the day
3. Commission per station for the day (station's earnings - rent amount)
4. Total day's sales
5. Total customers for the day
6. Total revenue for the day (commission plus total rent for the day)

RUBRIC

<u>Deliverable</u>	Marks
1. IPO – Chart – Section A	
· Correctly identified inputs	5
· Use of appropriate variable / constant names	4
· Identified appropriate control structures	6
· Gave appropriate explanation of use of control structures	8
· Identified all calculations	5
· Formulae correct	6
· Identified all output	6
Total	40