## The Brief

## **Automation Objectives**

Write a business automation program to:

- Extract and summarise data from the finance dashboard in the final round of business stimulation game in MAB module. Refer to PFB - Instructions to download CSV files for Integrated Group Project pdf to download the files.
- The automation will perform the tasks from the following csv files:
  - a. Profit & Loss csv: The program will compute the difference in the net profit column if net profit on the current day is lower than the previous day.
  - Cash-On-Hand csv: The program will compute the difference in Cash-on-Hand if the current day is lower than the previous day.
  - Overheads csv: The program will find the highest overhead category.
  - d. Write the computed amount from **a to c** to a text file and name it as summary\_report.txt.

Figure 1.0 included two scenarios to illustrate the automation objectives and the expected output in summary\_report.txt.

## **Files and Project Directory**

You should organise your program and csv files into the following folder structure:

### Folder: project\_group

cash\_on\_hand.py

overheads.py

| profit\_loss.py

#### — Folder: csv\_reports

Cash on Hand.csv

Overheads.csv

Profits and Loss.csv

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Dedicate each python file to achieve specific tasks. For example, the cash\_on\_hand.py should only contain codes that compute the difference in Cash-on-Hand, while overheads.py should only contain codes that find the highest overhead category.

Organizing code this way makes the overall program more manageable, easier to maintain and debug errors.

### **Coding Skills**

To complete the assignment successfully, you need to use only the programming topics learn from PFB, unless given the permission to do so.

The use of external modules not taught will severely affect the grade. External module refers to additional module installed with pip install command.

However, you may use any built-in functions or/and modules.

### **Standard Criteria**

The project will be evaluated based on:

- 1. Program Correctness
- 2. Code Readability
- 3. Code Elegance/ Efficiency
- 4. Code Documentation
- 5. Assignment Specification

#### **Bonus Marks**

Bonus marks will be awarded based on the group's ability to:

- 1. Collaborate on coding
- 2. Modularized the python files

#### **How to Collaborate?**

- As this is a group project, you are expected to collaborate with each other and each member is expected to contribute to the project. To collaborate coding better, you can make of use GitHub, a leading collaboration platform used by major tech companies and programmers worldwide.
- A set of instructional slides on how to collaborate on GitHub using Visual Studio Code are available. (Refer to Collaborate with GitHub.pdf)
- Each member should be assigned to work on a specific part of the program. For example, a team member can work on the cash\_on\_hand.py, while another member can work on the profit\_loss.py.

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## What is a modular program?

- 1. Modularization is the technique of splitting a large programming task into smaller, separate, and manageable subtasks.
- 2. To achieve modularization, you can further organized the code in each python file as a function.
- 3. A main python file (main.py) will import these functions, to coordinate and execute the functions.
- 4. In this way the overall program becomes even more manageable, easier to maintain and debug errors.
- 5. Refer to Figure 2.0 for an example of modularizing a complex program.

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#### Figure 1.0 Automation Objectives

#### SCENARIO 1

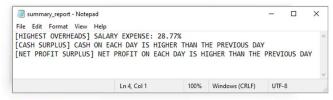
- 1. Salary Expense is the highest overheads in "Overheads.csv"
- 2. Each value on the current day is higher than the previous day in "Cash on Hand.csv" and "Profit & Loss.csv"

Category	Overheads
Salary Expense	28,77
Interest Expense	0.23
Rental Expense	20.64
Penalty Expense	12.88
Depreciation Expense	20.83
Human Resource Expense	16.66

Cash On Hand			
Day	Cash On Hand		
35	6823899		
36	6956180		
37	7683145		
38	8212180		
39	8379000		
40	8401292		

Day	Sales	Trading Profit	Operating Expense	Net Profit
35	24303924	8866269	2605990	6260279
36	24471890	8953446	2661675	6291771
37	25233785	9345165	2716605	6628560
38	25797345	9635457	2771130	6864327
39	26020982	9748900	2825655	6874707
40	26034115	9755787	2881080	6923245

#### Ouput: Summary report based on the scenario 1



#### SCENARIO 2

- 1. Depreciation Expense is the highest overheads in "Overheads.csv"
- 2. Value on day 36 is lower than day 35 and day 40 is lower than day 39 in "Cash on Hand.csv"
- 3. Value on day 38 is lower than day 37 in "Profit & Loss.csv"

Category	Overheads
Salary Expense	28.77
Interest Expense	0.23
Rental Expense	20.64
Penalty Expense	12.88
Depreciation Expense	40.83
Human Resource Expense	16.66



Profit & Loss. csv					
Day	Sales	Trading Profit	Operating Expense	Net Profit	
35	24303924	8866269	2605990	6260279	
36	24471890	8953446	2661675	6291771	
37	25233785	9345165	2716605	6864327	
38	25797345	9635457	2771130	6628560	
39	26020982	9748900	2825655	6874707	
40	26034115	9755787	2881080	6923245	

Output: Summary report based on scenario 2

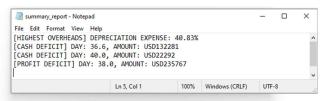


Figure 2.0 Modularizing the program

