## Assignment – Individual Assignment (20%)

## Module's Information:

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|---|---|---|
| **Module** | DCS2103 High Level Programming | |
| **Session** | APRIL 2023 | |
| **Programme** | DS | |
| **Lecturer** | **VIMALA DORAISAMY** | |
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| **Coursework Type** | **INDIVIDUAL** Assignment | |
| **Percentage** | 20% out of 100% | |
| **Hand-out Date** | **10/04/2023** | |
| **Due Date** | **21/05/2023** | |

## Student's Declaration:

***I declare that:***

- ***I understand what is meant by plagiarism***
- ***This lab is all my own work and I have acknowledged any use of the published or unpublished works of other people.***
- ***I hold a copy of this lab which I can produce if the original is lost or damaged***

**[Name/ID]** _____

**[Signature]**_____**[Date]** _____

## Learning Outcomes Assessed:

| | |
|---|---|
| CLO2 | Able to display the ability to adapt and combine standard algorithms to solve a given problem using Python |
| CLO3 | Able to display the ability to use Python in developing applications using library software and standard programming constructs. |

| **Assessment Criteria:** | | **Total Marks** | **Marks** |
|---|---|---|---|
| 1. | Program Execution & Correctness | **10** | |
| 2. | Output | **4** | |
| 3. | Input Validation | **4** | |
| 4. | Program Readability and Report | **2** | |
| | **Total** | **20** | |
| | | **Penalty** | |
| | | **Final Mark (20%)** | |

## Lecturer's Comments:

## Description of the Problem

A company has three tiers of sales staff, denoted by B (beginning), M (mid-level), and P (professional). Employees have been assigned a tier based on their past record.
Below is the monthly salary schedule for each tier. Let N represent the number of items sold

Tier B: The salary plus commission for items sold. If N > 9, then add $50 per item for items 10 through 15, and $75 per item for all items above 15. If N < 6, there will be a message "WARNING: Sales must improve."

Tier M: The base salary plus commission for items sold. If N > 14, then add $60 per item for items 15 through 20, and $100 per item for all items above 20. If N < 9, there will be a message, "Sales must improve in order to stay in Tier M.

Tier P: The base salary plus commission for items sold. If N > 19 then add $75 per item for items 20 through 25, and $125 per item for all items above 25. If N < 14, there will be a message that "Sales must improve to stay in Tier P".

Write a program that will:

- Ask the user to enter the employee's name.
- Ask the user to input a Tier. It should accept B, M, P, b, m, or p. In other words, the user may
- use either upper or lower case designations for the tier. Read the input.
- Ask the user to input the base salary for the employee, and read it as a double.
- Ask the user for the number of items sold, and read that value as an integer.
- Based on the tier, base salary, and number of items sold, compute and report the monthly pay.
- Print out the name, tier, number of items sold, and payment for the month. If a message is
- necessary print it.

A sample output might look like.

```
Employee: Mortimer Snerd
Monthly Base: 234.54
Tier: B
Employee: Mortimer Snerd
Items Sold: 12
Monthly Payment: 384.54

Employee: Effy Klinker
Monthly Base: 583.78
Tier: P
Employee: Effy Klinker
Items Sold: 13
Monthly Payment: 583.78

WARNING: Sales must improve to stay in Tier P
```

Give meaningful names to variables, and use proper indentation and whitespace. Follow Python's naming standards as specified in lecture.
Localize variables when possible; declare them in the smallest scope needed.
Include meaningful comment headers at the top of your program and at the start of each function.
Limit line lengths to 100 chars.
Consider to use somecustomized functions to reduce the code redundancy and promote the code reusability.

## Submission

- Upload a softcopy report in PDF format. The report should contain the following elements:
    - Simple illustration and explanation of your program with appropriate screenshots.
    - Test cases with appropriate test data.
- Upload the source code (**Sales_YourName.py**) to the Canvas.
- Late submission will cause mark deduction. 10% deduction for each subsequent day (e.g. Day 1-10%. Day 2-20%, Day 3-30%)

## Marking Rubric for Assignment 1

The assignment will be marked based on the following criteria. Include this sheet as the last page of your submission.

| Criteria | Poor | Average | Good | Expert | Allocated Marks |
|---|---|---|---|---|---|
| **Program Execution, Completeness & Correctness** | (0 – 4.9 marks)<br>Little coverage of assignments requirements with weak implementation | (5 – 6.9 marks)<br>Comply some of the assignment requirements with average or below average implementation | (7 – 8.4 marks)<br>Comply with the most of the assignment requirements with good implementation | (8.5 – 10 marks)<br>Fully comply with the assignment requirements with excellent implementation | |
| **Output** | (0 – 1.9 marks)<br>Weak/no output produced | (2 – 2.7 marks)<br>Poor/Average output produced | (2.8 – 3.2 marks)<br>Good output produced | (3.3 – 4 marks)<br>Excellent output produced | |
| **Validation** | (0 – 1.9 marks)<br>Weak mechanism & data type checking applied | (2 – 2.7 marks)<br>Poor & average mechanism & data type checking applied | (2.8 – 3.2 marks)<br>Good validation mechanism & data type checking applied | (3.3 – 4 marks)<br>Excellent validation mechanism & data type checking applied | |
| **Program Structure and Readability (e.g. alignment, naming convention, commenting code)**<br>**+**<br>**Evaluation Report** | (0 – 0.7 marks)<br>Weak or no program structure and commenting code provided<br>Weak report provided with major omissions. | (0.8 – 1.2 marks)<br>Average program structure and commenting code provided<br>Average report provided but some aspects are not elaborated well in product evaluation, process evaluation and design documents | (1.3 – 1.6 marks)<br>Good program structure and commenting code provided<br>Good evaluation report provided with minor omission in certain aspects. Good design documents produced. | (1.7 – 2.0 marks)<br>Excellent program structure and commenting code provided<br>Excellent evaluation report provided. Excellent design documents produced. | |