Pearson

Higher Nationals in

Computing

Unit 1: Programming

Assignment Brief Number: 1

Scenario

Assuming you as an enthusiastic fresh programmer, you are assigned to produce a console application to address the following problem using Python programming language.

- The application should work after user authentication. You are allowed to use a text (.txt) file to store the username & password and use it for the purpose of authentication. To accomplish this, create a function to authenticate the user input against the stored credentials. Name your function file as **auth.py**

- The application should receive daily income and daily expense from the user and store it separately in two text files. Plan your logic accordingly to distinguish whether the received input is either income or expense and store it in the respective file. Name this python solution as **task101.py**

- Create another python file (name it as **summary.py**) to produce the summary of income and expense as follows

    - Number of Records in Income file
    - Total Income
    - Average Income
    - Number of Records in Expense file
    - Total Expense
    - Average Expense
    - Any difference by deducting expense from income.

Note: task101.py and summary.py should call the function you implemented in auth.py to perform the desired tasks.

Task 1	**Define basic algorithms to carry out an operation and outline the process of programming an application**
1	Based on the given scenario, you are required to I. Define what an algorithm is II. The process involved in building an application III. Write the algorithm to reflect the above scenario using pseudo code or flow chart Evaluate the implementation of an algorithm in a suitable language and the relationship between the written algorithm and the code variant.
Task 2	**Define characteristics of procedural, object-orientated and event-driven programming**
2.1	Give explanations of what procedural, object-orientated and event-driven paradigms are; their characteristics and the relationship between them.
2.2	Compare and contrast the procedural, object oriented and event driven paradigms based on your algorithms in **Task 1** ***Report***
Task 3	**Implement basic algorithms in code using an IDE**
3	Implement your solution as per the requirements specified in the scenario. **Note:** You're allowed to make any valid assumptions. If you make any, state them clearly in your report.
Task 4	**Determine the debugging process and explain the importance of a coding standard**
4.1	Explain the debugging process and explain the debugging facilities available in the IDE that you have used in **Task 3** to implement the algorithm.

4.2	In your report, you should I. Outline the coding standard you have used in your code in Task 3. II. Evaluate how the debugging process can be used to help develop more, secure, robust applications. III. Critically evaluate why a coding standard is necessary in a team as well as for the individual.