

# L3 Year 1 Computing Labs: Basic Python Assignment

## Introduction:

The College tourism course have, for the last few years, used a simple python script to teach students how to operate a *Bureau de Change* for currency conversions between GBP (£) and a range of other currencies from around the world.

Unfortunately, during routine maintenance of the system, the python program was deleted with no backup or github repository being available. However, a copy of the very first version was found but it does not contain much.

Your task is to follow the steps below and recreate this program for continued use.

(Top tip...read this document fully before starting)

## Tasks

Having accepted the assignment from the github classroom link on the L3Y1 labs moodle page complete the following.

### Task 1:

(Python week 5: Lists and Dictionaries)

Run the code as it is and inspect the output. Not a lot happens.

First add your details to the top of the source code.

Update the dictionary *exchangeRate{}* with the following details:

"USD":1.40,

"EUR":1.14,

"BRL":4.77,

"JPY":151.05,

"TRY":5.68

This will set up the required exchange rate values.

Update the variables with the following values:

```
baseTransactionFee = 0.035 #percentage transaction fee for up to 300GBP
staffDiscountRate = 0.05   #percentage discount rate to apply to staff discounts
staffMember = False        #Initial status of staff member discount
transactionFee = 0
```

Now commit your work with the tag *task 1 complete*.

## Task 2:

(Python week 1: Output, variables and input | Python week 3: Selection)

The function `get_amount_to_convert()` needs to be completed.

- It should ask the user for an amount in GBP they would like to convert
- If the amount is not a numerical value it should output that a numerical value is expected and ask for a correct value to be input.
- Otherwise it should return `float(amountToConvert)`

Test your work by running the script. If it works then the value that is entered should be displayed in the text at the bottom of the screen.

Once working, commit your work with the tag *task 2 complete*.

## Task 3:

(Python week 1: Output, variables and input | Python week 3: Selection | Python Week 5: List and Dictionaries)

The function `get_currency_to_convert_to()` will be the next to be fixed.

- It should display a list of available currencies and the current conversion rate
- Ask the user to choose one.
- If the inputted value is not in the `exchangeRate` dictionary, then the user should be informed that it cannot be found in the dictionary and be asked to enter a valid value.
- Otherwise it should return `currencyToConvertTo`

Test your work by running the script. If it works then the value that is entered should be displayed in the text at the bottom of the screen.

Once working, commit your work with the tag *task 3 complete*.

#### Task 4:

(Python week 1: Output, variables and input | Python week 3: Selection | Python Week 5: List and Dictionaries)

The function `is_staff_member()` now needs to be working.

Your code:

- Should ask the user if a staff discount is to be applied and expect a Y or N as an answer.
- If the answer is yes:

It should display how much discount will be applied (not the actual amount...just the percentage)

It should then return True

- If the answer is no:

It should inform the user that no discount will be applied.

It should then return False

- If any other value is entered then the code should reject it, inform the user why and then ask the question again.

Test your work by running the script. If it works then then if the answer is Y there will be text informing about the staff discount displayed in the text at the bottom of the screen.

Once working, commit your code with the tag *task 4 complete*

## Task 5

(Python week 1: Output, variables and input | Python week 2: Simple Maths| Python week 3: Selection | Python Week 5: List and Dictionaries)

The function *convert\_currency(currencyToConvertTo,amountToConvert)* is next.

It takes the arguments *currencyToConvertTo* and *amountToConvert* which are produced by other functions and uses them to calculate the actual conversion.

Your code should:

- Retrieve the conversion value from the *exchangeRate{}* dictionary by using the key *currencyToConvertTo*
- Then multiply *convertedAmount* by the conversion value
- And then return *convertedAmount*

Test your work by running the script. If the output at the bottom of the screen displays the correct conversion, then it's working. For example, if you convert GBP 10 to USD then 14 USD should be displayed.

Once working, commit your code with the tag *task 5 complete*.

## Task 6

(Python week 1: Output, variables and input | Python week 2: Simple Math| Python week 3: Selection)

The next function to repair *work\_out\_the\_fee(transactionFee,amountToConvert)*.

Taking the *transactionFee* and *amountToConvert* create some code that will:

- Multiply the *amountToConvert* by 0.015 and add it to the *transactionFee* if the *amountToConvert* is greater than 2000
- Multiply the *amountToConvert* by 0.02 and add it to the *transactionFee* if the *amountToConvert* is greater than or equal to 1000
- Multiply the *amountToConvert* by 0.025 and add it to the *transactionFee* if the *amountToConvert* is greater than or equal to 750
- Multiply the *amountToConvert* by 0.03 and add it to the *transactionFee* if the *amountToConvert* is greater than or equal to 300
- Multiply the *amountToConvert* by 0.035 and add it to the *transactionFee* if the *amountToConvert* is less than 300
- Return the calculated *transactionFee*

Test your work by running the script. If the output at the bottom of the screen displays the correct transaction fee, then it's working.

Once working, commit your code with the tag *task 6 complete*.

## Task 7

(Python week 2: Simple Math)

The final task to fix is `work_out_total_cost(transactionFee,amountToConvert)`.

This works out the total cost of the conversion.

Create code that:

- Returns *totalCost* which is the result of *transactionFee* being added to *amountToConvert*

Test your work by running the script. If the output at the bottom of the screen displays the correct total, then it's working.

Once working, commit your work with the tag *task 7 complete*.

## Notes

Try to attempt the tasks in order.

Take your time and remember the KISS principle: **Keep It Simple Student**. This means not trying to produce a complicated answer....sometimes the simple solution is the best :)

Don't be scared to use online resources such as: <https://www.w3schools.com/python/default.asp>

Try all the tasks.

If something's not working, commit it and go have a cup of tea (other beverages acceptable) and come back to it. You'll be surprised how many times the error will jump out at you after a cup of tea.

There is nothing in this assignment that you have not covered in the weekly sessions so don't be worried.