**Task 3**

**Decomposition**

Currency Converter

Allow for other currencies to be converted

Make ease of use/intuitive inputs

Display available currencies

Input Initial Currency

Input Desired conversion

UI/UX

Multiply given amount by conversion rate

Obtain most recent conversion rate

Calculation

Inputs

**Flowchart**

Menu()

OUTPUT ‘Conversion Rates to GBP and from GBP’

OUTPUT ‘Currencies:

1 – GBP (Pounds)

2 – EUR (Euros)

3 – AUD (Australian Dollar)

4 – JPY (Yen)

End

Output()

Currency = [‘GBP’, ‘EUR’, ‘AUD’, ‘JPY’]

Format amount and new\_amount to 2 decimal places

OUTPUT amount ‘in’ currency[c\_from-1]’is‘ new\_amount ’in’ currency[c\_to-1]

End

INPUT c\_from = ‘Enter the currency you are converting from (1-4): ‘

Call Menu()

Import Most recent conversion rates from Task3\_data

Start

NO

YES

Is c\_from == ‘1’?

INPUT c\_to = ‘Enter the currency you are converting to (1-4): ‘

INPUT amount = ‘Enter amount of your currency you would like to convert: ‘

INPUT amount = ‘Enter amount of your currency you would like to convert: ‘

YES

Is c\_from == ‘2’?

Rate = EUR – GBP in table

Find conversion rate from Task3\_data based on c\_from and c\_to

NO

YES

Is c\_from == ‘3’?

Rate = AUD – GBP in table

NO

Rate = JPY – GBP in table

End

YES

NO

Is choice == ‘y’?

OUTPUT choice = ‘Would you like to convert another currency? (Y/N): ’

Call Output()

New\_amount = amount \* rate

**Explanation**

Following the Flowchart, the first two flowcharts are functions that are created for use in the rest of the program. In the first named Menu(), the function simply displays all available currencies in an easy to read manner, with their three letter acronym and in brackets what they may also be known as, such as GBP and Pounds. They are also given a number each, to make user inputs easier as they simply need to only enter the corresponding number to their desired currency, rather than its whole name. The second function named Output() is used at the end of the program to display the converted currency – using an array it selects the names to be displayed for both currencies, and then it formats the initial amount and new\_amount to 2 decimal places.

In the main Flowchart, it first imports all the information from the Excel file so it can used the conversion rates, and then calls Menu(). It asks for a user input for the currency they are trying to convert – if it is pounds, then it allows them to enter a second currency, but if it is anything else it will default select pounds as the convert to currency. These values are saved as ‘c\_from’ and ‘c\_to’ where ‘c’ means currency. It then asks for the amount under the variable name ‘amount’.

It saves the value for the associated rates under the variable ‘rate’, e.g. if a user wants to convert Euros to Pounds it should select the value ‘0.905752’ from the Excel file. It then multiplies the values for ‘amount’ and ‘rate’, and this is stored under the variable ‘new\_amount’.

It then calls the Output() function in order to display this info to the user, showing the amount and currency they entered and what the equivalent is in the currency it has been converted to. It then asks the user if they would like to use the process again, whether they decide to use a new currency or amount, and will either loop round to the beginning or end the program. Similarly to how a currency is selected, the choice only requires a Y or an N for an answer.