

Unit 12 Software Development

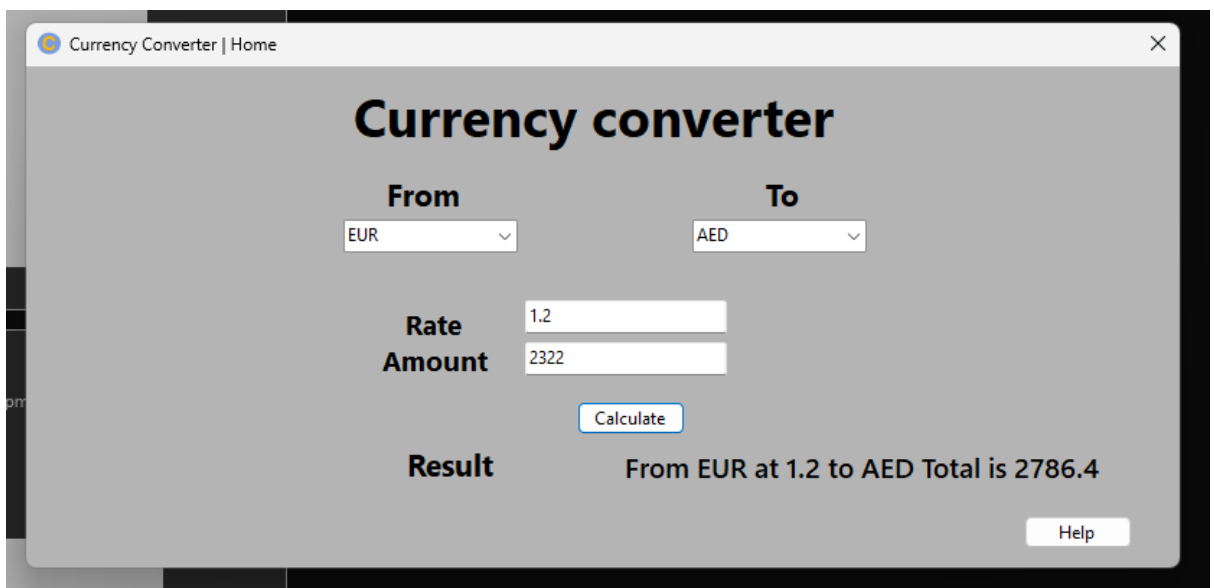
Assignment 3 Template

P4 Develop a program for a given brief which includes:

1. User interface with input and output

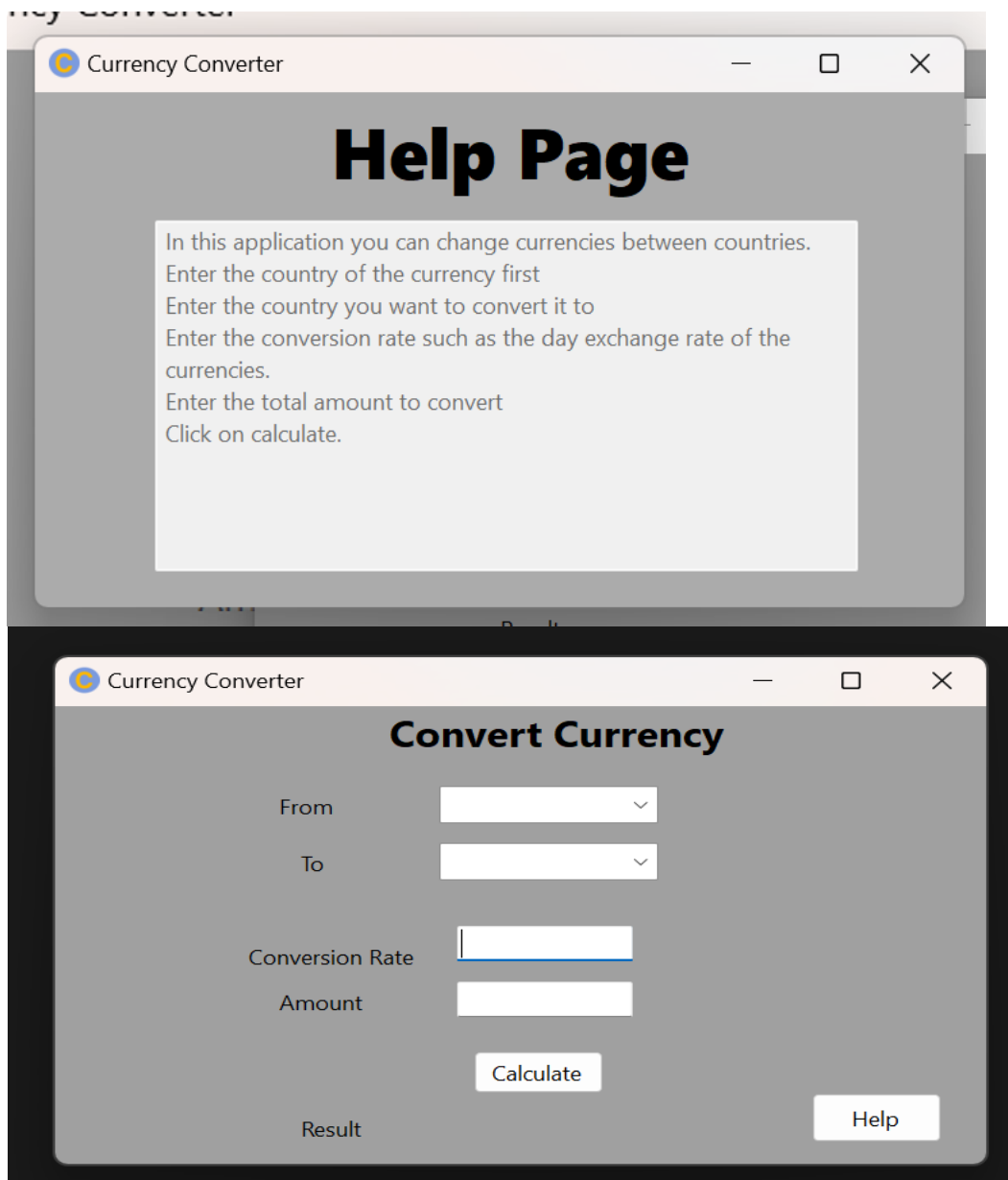
input – currency, exchange rate

output – the amount output as the result



The screenshot shows a web application window titled "Currency Converter | Home". The main heading is "Currency converter". Below the heading, there are two dropdown menus labeled "From" and "To". The "From" dropdown is set to "EUR" and the "To" dropdown is set to "AED". Below these, there are two input fields: "Rate" with the value "1.2" and "Amount" with the value "2322". A "Calculate" button is positioned below the "Amount" field. Below the button, the "Result" is displayed as "From EUR at 1.2 to AED Total is 2786.4". A "Help" button is located in the bottom right corner of the application area.

Field	Value
From	EUR
To	AED
Rate	1.2
Amount	2322
Result	From EUR at 1.2 to AED Total is 2786.4



2. Constructs and techniques for the program

2.1. Declaring Variables – defining the exchange rate to be used somewhere else in the program

```
Dim conversionRate As Double = Convert.ToDouble(Conversion.Text)

Dim totalAmount As Double = Convert.ToDouble(amount.Text)

Dim convertTotal As Double = conversionRate * totalAmount
```

2.2. Sequence – conversion rate and total defined and are multiplied together ,and a result is displayed , here the conversion amount (rate) and amount are taken and is then converted. Then only the results.txt is updated to show the result

```
Private Sub calculate_Click(sender As Object, e As EventArgs) Handles calculate.Click
    Dim conversionRate As Double = Convert.ToDouble(conversion.Text)

    Dim totalAmount As Double = Convert.ToDouble(amount.Text)

    Dim convertTotal As Double = conversionRate * totalAmount

    result.Text = " From " & from_Currency.Text & " at " & conversionRate & " to " & to_Currency.Text & " Total is " & convertTotal

End Sub
```

2.3. Selection – here is where you can choose from different number of currency , here is picking the the currency to convert to

```
Private Sub From_currency_SelectedIndexChanged(sender As Object, e As EventArgs) Handles from_Currency.SelectedIndexChanged
    If from_Currency.SelectedItem IsNot Nothing AndAlso to_Currency.SelectedItem IsNot Nothing Then
        If from_Currency.SelectedItem.ToString().Equals(to_Currency.SelectedItem.ToString()) Then
            MessageBox.Show("You cannot select the same item as in ComboBox 1 ")
            from_Currency.SelectedIndex = -1
        End If
    End If
End Sub

Private Sub to_Currency_SelectedIndexChanged(sender As Object, e As EventArgs) Handles to_Currency.SelectedIndexChanged
    If to_Currency.SelectedItem IsNot Nothing AndAlso to_Currency.SelectedItem IsNot Nothing Then
        If from_Currency.SelectedItem.ToString().Equals(to_Currency.SelectedItem.ToString()) Then
            MessageBox.Show("You cannot select the same item as in ComboBox 2 ")
            from_Currency.SelectedIndex = -1
        End If
    End If
End Sub
```

2.4. Assignments – this is not only a variable , its also assigned to a float (1.2)

```
Dim USD_rate = 1.2
```

3. Commentary throughout the code (Screenshots of commented code)

```
Public Class Form1
    'gonna check if the textbox has letters
    Function checkLetters()
    End Function

    'define the items
    Private Sub Form1_Load(sender As Object, e As EventArgs) Handles MyBase.Load
        from_Currency.Items.Add("USD")
        from_Currency.Items.Add("EUR")
        from_Currency.Items.Add("GBP")

        to_Currency.Items.Add("USD")
        to_Currency.Items.Add("EUR")
        to_Currency.Items.Add("GBP")
    End Sub

    'calculates and displays the result
    Private Sub calculate_Click(sender As Object, e As EventArgs) Handles calculate.Click
        Dim conversionRate As Double = Convert.ToDouble(conversion.Text)
        Dim totalAmount As Double = Convert.ToDouble(amount.Text)
        Dim convertTotal As Double = conversionRate * totalAmount
        result.Text = "From " & from_Currency.Text & " at " & conversionRate & " to " & to_Currency.Text & " Total is " & convertTotal
    End Sub

    'checks if the items are the same in the 2 combo boxes
    Private Sub From_currency_SelectedIndexChanged(sender As Object, e As EventArgs) Handles from_Currency.SelectedIndexChanged
        If from_Currency.SelectedItem IsNot Nothing AndAlso to_Currency.SelectedItem IsNot Nothing Then
            If from_Currency.SelectedItem.ToString().Equals(to_Currency.SelectedItem.ToString()) Then
                MessageBox.Show("You cannot select the same item as in ComboBox 1 ")
                from_Currency.SelectedIndex = -1
            End If
        End If
    End Sub

    Private Sub to_Currency_SelectedIndexChanged(sender As Object, e As EventArgs) Handles to_Currency.SelectedIndexChanged
        If to_Currency.SelectedItem IsNot Nothing AndAlso to_Currency.SelectedItem IsNot Nothing Then
            If from_Currency.SelectedItem.ToString().Equals(to_Currency.SelectedItem.ToString()) Then
                MessageBox.Show("You cannot select the same item as in ComboBox 2 ")
                from_Currency.SelectedIndex = -1
            End If
        End If
    End Sub

    'shows the help page
    Private Sub help_Click(sender As Object, e As EventArgs) Handles help.Click
        Dim help As New help()
        help.Show()
    End Sub
End Class
```

P5 Test the program for functionality using the test plan and against the original requirement and repair any faults:

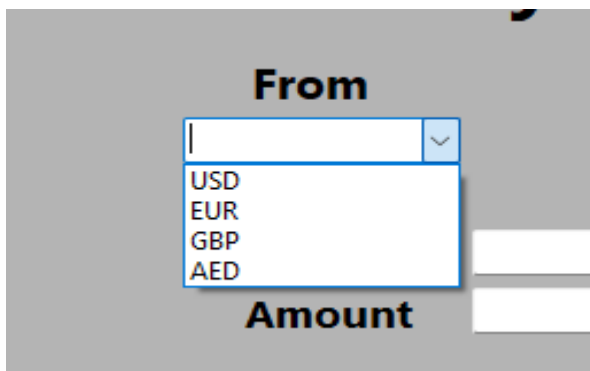
1. Test Plan

Test number	Testing to see if...	Test data (if applicable)	Expected outcome	Actual Outcome	Corrective action
1	Home screen loads		Loads home screen	Loads , shows result	N/A
2	help screen/button		Click button on home screen to access help screen	Loads and shows help screen	N/A
3.	Enter currency rate	Random numbers / letters	Takes the rate and * by amount	Takes the rate and * by amount	N/A
4	Same currency in combo box		Not allow it	Clears the combo box if the same currency is selected	N/A
5	Display currency	The calculation output f	Display result and override the current text	Shows the result	N/A

M3 Develop a functional program that meets the given brief.

The program should allow the users to do the following:

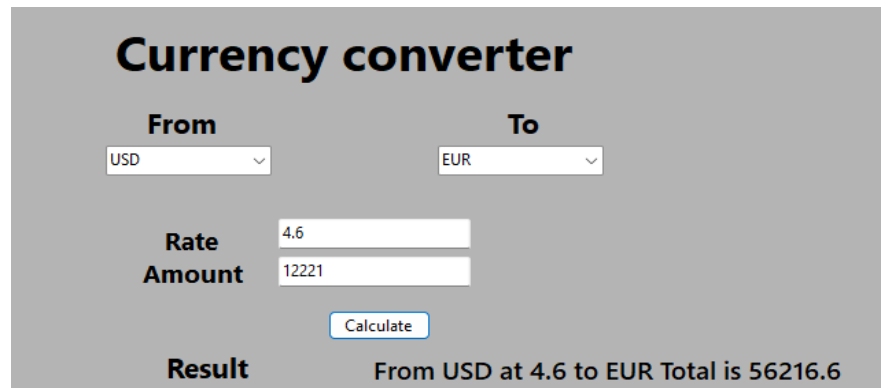
- Enter the amount in British Pounds and calculate the equivalent amount in foreign currency.
- Enter the amount in foreign currency and calculate the equivalent in British pounds.
- The amount in the desired currency should be displayed.
- The minimum number of currencies to be converted should be at least 4: GBP, EUR, USD and a fourth currency of your choice.



From

USD
EUR
GBP
AED

Amount



Currency converter

From USD **To** EUR

Rate 4.6
Amount 12221

Calculate

Result From USD at 4.6 to EUR Total is 56216.6

```
Public Class Form1

    Private Sub Form1_Load(sender As Object, e As EventArgs) Handles MyBase.Load
        from_Currency.Items.Add("USD")
        from_Currency.Items.Add("EUR")
        from_Currency.Items.Add("GBP")
        from_Currency.Items.Add("AED")

        to_Currency.Items.Add("USD")
        to_Currency.Items.Add("EUR")
        to_Currency.Items.Add("GBP")
        to_Currency.Items.Add("AED")
    End Sub
    ' the conversion is calculated and output
    Private Sub calculate_Click(sender As Object, e As EventArgs) Handles calculate.Click
        Dim conversionRate As Double = Convert.ToDouble(Conversion.Text)

        Dim totalAmount As Double = Convert.ToDouble(amount.Text)

        Dim convertTotal As Double = conversionRate * totalAmount

        showResult.Text = " From " & from_Currency.Text & " at " & conversionRate & " to " & to_Currency.Text & " Total is " & convertTotal

    Private Sub calculate_Click(sender As Object, e As EventArgs) Handles calculate.Click
        Dim conversionRate As Double = Convert.ToDouble(conversion.Text)

        Dim totalAmount As Double = Convert.ToDouble(amount.Text)

        Dim convertTotal As Double = conversionRate * totalAmount

        result.Text = " From " & from_Currency.Text & " at " & conversionRate & " to " & to_Currency.Text & " Total is " & convertTotal

    End Sub
    'checks if the from and to currencies are the SAME
    Private Sub From_currency_SelectedIndexChanged(sender As Object, e As EventArgs) Handles from_Currency.SelectedIndexChanged
        If from_Currency.SelectedItem IsNot Nothing AndAlso to_Currency.SelectedItem IsNot Nothing Then
            If from_Currency.SelectedItem.ToString().Equals(to_Currency.SelectedItem.ToString()) Then
                MessageBox.Show("You cannot select the same item as in ComboBox 1 ")
                from_Currency.SelectedIndex = -1
            End If
        End If
    End Sub

    Private Sub to_Currency_SelectedIndexChanged(sender As Object, e As EventArgs) Handles to_Currency.SelectedIndexChanged
        If to_Currency.SelectedItem IsNot Nothing AndAlso to_Currency.SelectedItem IsNot Nothing Then
            If from_Currency.SelectedItem.ToString().Equals(to_Currency.SelectedItem.ToString()) Then
                MessageBox.Show("You cannot select the same item as in ComboBox 2 ")
                from_Currency.SelectedIndex = -1
            End If
        End If
    End Sub
    ' shows the help page
    Private Sub help_Click(sender As Object, e As EventArgs) Handles help.Click
        Dim help As New help()
        help.Show()
    End Sub

End Class

End Class
```

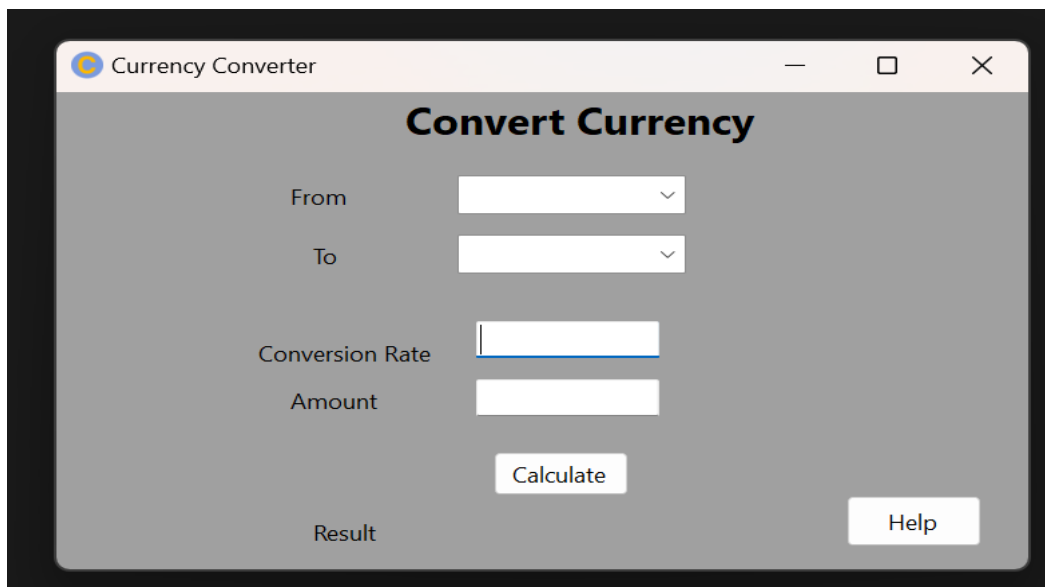
```
Public Class help

End Class
```

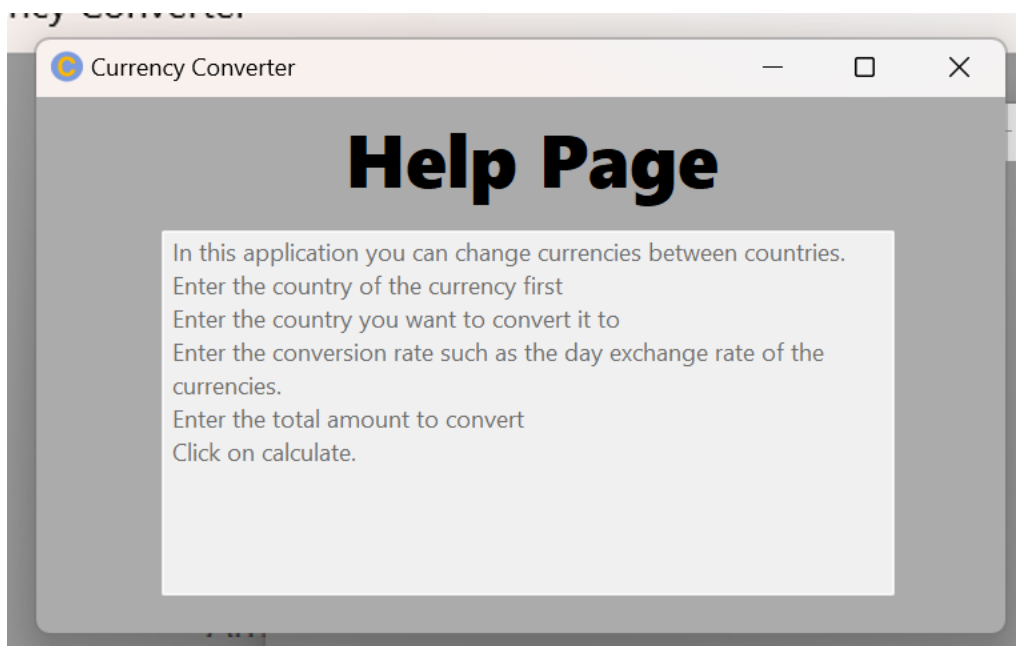
M4 Test the program using the test data, gathering feedback from others on the usability and the quality of the program, and use it to improve the software program. Repair any faults.

1. Use monkey feedback forms to gather feedback on (**Usability, Efficiency, Reliability and Maintainability**) of your program.

Before feedback was given



The screenshot shows a window titled "Currency Converter" with a light gray background. The title bar includes standard window controls (minimize, maximize, close). The main content area has the heading "Convert Currency" in bold. Below the heading are four input fields: "From" (a dropdown menu), "To" (a dropdown menu), "Conversion Rate" (a text input field), and "Amount" (a text input field). Below these fields is a "Calculate" button. At the bottom left, there is a "Result" label, and at the bottom right, there is a "Help" button.



The screenshot shows a window titled "Currency Converter" with a light gray background. The title bar includes standard window controls (minimize, maximize, close). The main content area has the heading "Help Page" in large, bold, black text. Below the heading is a white rectangular box containing the following text: "In this application you can change currencies between countries. Enter the country of the currency first Enter the country you want to convert it to Enter the conversion rate such as the day exchange rate of the currencies. Enter the total amount to convert Click on calculate."

Review: Currency converter feedback

People Questions

<

Respondent

1

Pramod Thotahewage

03:53

>

Time to complete

ⓘ ...

1. What do you think of the program *

Score / 0 pts ⓘ

Program is very good.

2. What can be improved *

Score / 0 pts ⓘ

Color's of the Buttons and Labels

3. What improvements could be made here

Score / 0 pts ⓘ

No answer provided.


4. Other comments

Score / 0 pts ⓘ

-

Review: Currency converter feedback

People Questions




Respondent


2

Abdullah Kothdiwala


00:50

Time to complete




 ...

1. What do you think of the program *

Score / 0 pts 


simple.

2. What can be improved *

Score / 0 pts 


maybe a background

3. What improvements could be made here

Score / 0 pts 

none apart from a background

4. Other comments

Score / 0 pts 

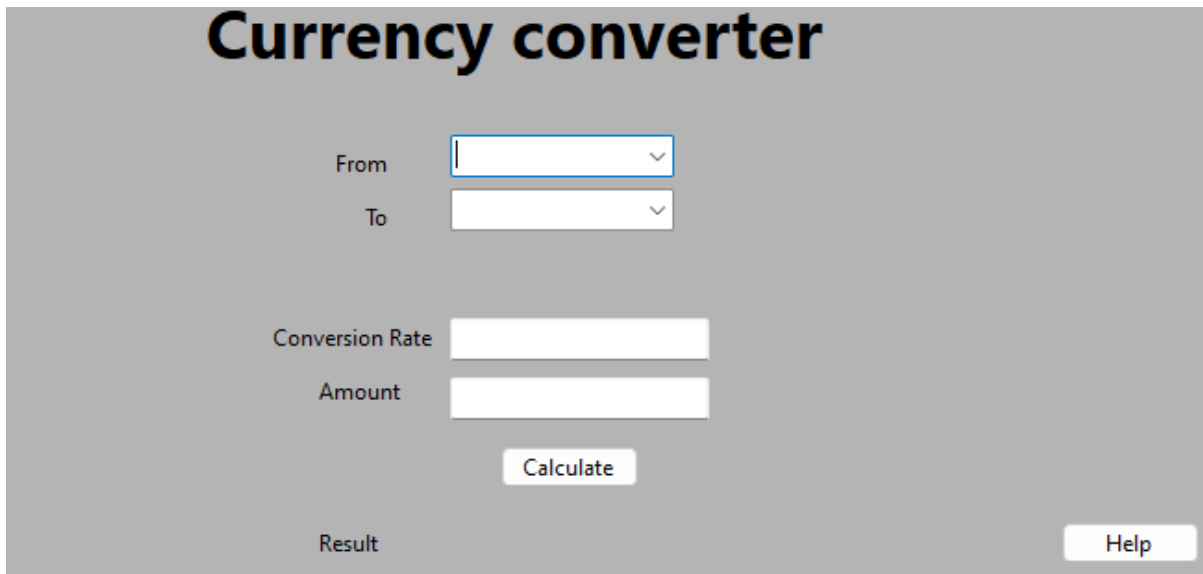
DECENT.

2. Tutor Observation Form (to be provided by your tutor)

OBSERVATION RECORD

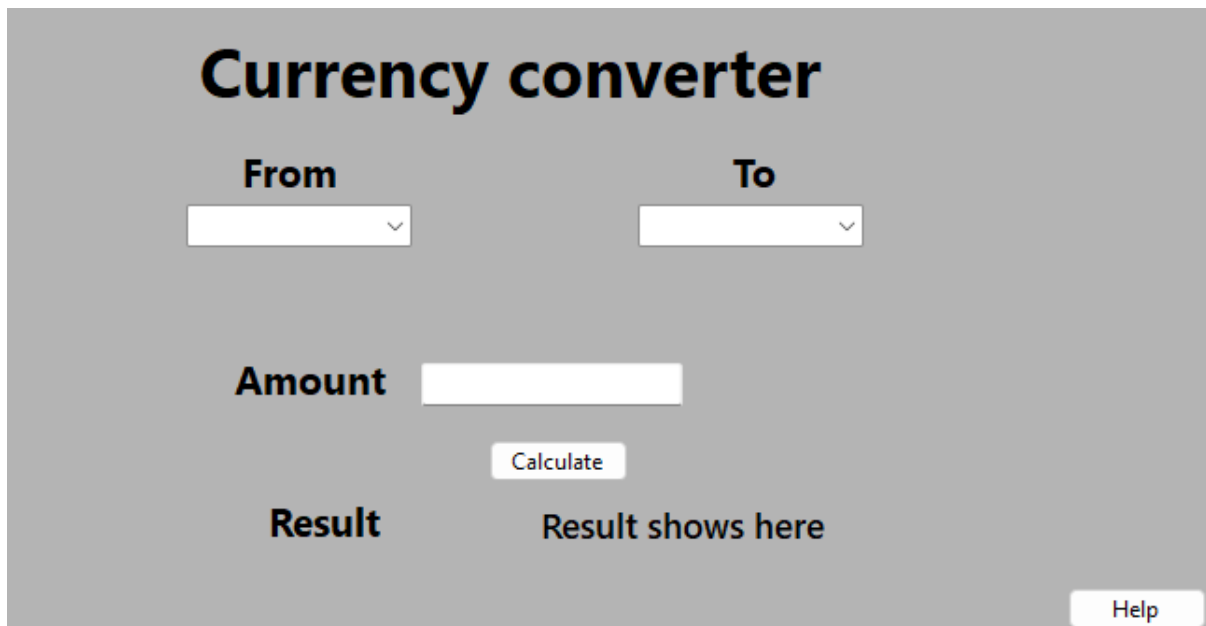
Learner name:	Rish Saddiq		
Qualification:	T Level Foundation -Group 1		
Unit number & title:	Unit 12 Software Development		
Description of activity undertaken			
Reviewing a software program created by the student as part of the assessment for Unit 12 Software development. The Assignment title is Assignment 3 Create a Software Program			
Assessment criteria			
P4, P5, M3, M4, D3			
How the activity meets the requirements of the assessment criteria			
<ol style="list-style-type: none"> 1) Usability: The program has 2 screens. Screen 1 is the home screen and screen 2 is the help screen. Screen 2 can be accessed with the help button on screen 1. 2) Efficiency: Program seemed to work perfectly, and the navigation was smooth with the different controls built into the interface. The program allows the user to amend the exchange rate. 3) Reliability: The program seemed to be reliable as the calculation was done in real time and was accurate. 4) Robustness: data validation allows only numerical values to be inputted. An error message appears on screen to warn the user that they have entered the wrong values. <p>Good quality program. Well done</p>			
Action Plan			
<p>Action Plan</p> <ol style="list-style-type: none"> 1) The font size of the labels on the interface could have been made bigger and in bold to increase the usability of the interface . 			
Learner name:	Rish Saddiq		
Learner signature:		Date:	02/02/2024
Assessor name:	Alya Ghulam		
Assessor signature:	<i>Alya Ghulam</i>	Date:	02/02/2024

before changes made



The screenshot shows a web form titled "Currency converter" on a grey background. The form includes a "From" label followed by a dropdown menu, a "To" label followed by another dropdown menu, a "Conversion Rate" label followed by a text input field, and an "Amount" label followed by another text input field. Below these fields is a "Calculate" button. At the bottom left is a "Result" label, and at the bottom right is a "Help" button.

After changes made



The screenshot shows the updated "Currency converter" form. The "From" and "To" labels are now bold and positioned above their respective dropdown menus. The "Amount" label is also bold and positioned above its text input field. The "Calculate" button remains in the center. Below the input fields, the "Result" label is bold, and the text "Result shows here" is displayed next to it. The "Help" button is still present at the bottom right.

Acted on the feedback given to me

D3 Refine the software program, taking account of the quality of the code and the user feedback.

You need to amend the program so that the user should be able to alter the exchange rates used to match the current rates. Evidence of code screenshots to be provided.

```
Public Class Form1

    Private Sub Form1_Load(sender As Object, e As EventArgs) Handles MyBase.Load
        from_Currency.Items.Add("USD")
        from_Currency.Items.Add("EUR")
        from_Currency.Items.Add("GBP")
        from_Currency.Items.Add("AED")

        to_Currency.Items.Add("USD")
        to_Currency.Items.Add("EUR")
        to_Currency.Items.Add("GBP")
        to_Currency.Items.Add("AED")
    End Sub

    ' the conversion is calculated and output
    Private Sub calculate_Click(sender As Object, e As EventArgs) Handles calculate.Click
        Dim conversionRate As Double = Convert.ToDouble(Conversion.Text)

        Dim totalAmount As Double = Convert.ToDouble(amount.Text)

        Dim convertTotal As Double = conversionRate * totalAmount

        showResult.Text = " From " & from_Currency.Text & " at " & conversionRate & " to " & to_Currency.Text & " Total is " & convertTotal

    Private Sub calculate_Click(sender As Object, e As EventArgs) Handles calculate.Click
        Dim conversionRate As Double = Convert.ToDouble(Conversion.Text)

        Dim totalAmount As Double = Convert.ToDouble(amount.Text)

        Dim convertTotal As Double = conversionRate * totalAmount

        result.Text = " From " & from_Currency.Text & " at " & conversionRate & " to " & to_Currency.Text & " Total is " & convertTotal

    End Sub

    'checks if the from and to currencies are the SAME
    Private Sub From_currency_SelectedIndexChanged(sender As Object, e As EventArgs) Handles from_Currency.SelectedIndexChanged
        If from_Currency.SelectedItem IsNot Nothing AndAlso to_Currency.SelectedItem IsNot Nothing Then
            If from_Currency.SelectedItem.ToString().Equals(to_Currency.SelectedItem.ToString()) Then
                MessageBox.Show("You cannot select the same item as in ComboBox 1 ")
                from_Currency.SelectedIndex = -1
            End If
        End If
    End Sub

    Private Sub to_Currency_SelectedIndexChanged(sender As Object, e As EventArgs) Handles to_Currency.SelectedIndexChanged
        If to_Currency.SelectedItem IsNot Nothing AndAlso from_Currency.SelectedItem IsNot Nothing Then
            If from_Currency.SelectedItem.ToString().Equals(to_Currency.SelectedItem.ToString()) Then
                MessageBox.Show("You cannot select the same item as in ComboBox 2 ")
                from_Currency.SelectedIndex = -1
            End If
        End If
    End Sub

    ' shows the help page
    Private Sub help_Click(sender As Object, e As EventArgs) Handles help.Click
        Dim help As New help()
        help.Show()
    End Sub

End Class

End Class
```

```
Public Class help

End Class
```

The image shows a web browser window with the title "Currency Converter | Home". The main heading is "Currency converter". Below this, there are two dropdown menus: "From" set to "EUR" and "To" set to "AED". Underneath, there are two input fields: "Rate" with the value "1.2" and "Amount" with the value "2322". A "Calculate" button is positioned below these fields. The "Result" section displays the text "From EUR at 1.2 to AED Total is 2786.4". A "Help" button is located in the bottom right corner of the application area.

Currency converter	
From	To
EUR	AED
Rate	1.2
Amount	2322
<button>Calculate</button>	
Result	From EUR at 1.2 to AED Total is 2786.4
<button>Help</button>	