

## ภาคผนวก 2

### โมดูล ControlGraph

Attribute VB\_Name = "ControlGraph"

#### ภาคผนวก 2.1 โปรแกรมย่อย DrawGraph

```
Sub DrawSymbol(ByVal xp, yp As Double)
```

```
    Dim Xnow, Ynow As Double
```

```
    winGraph.DrawWidth = 1
```

```
    Select Case Symbol
```

```
    Case 0 ' Cross
```

```
        winGraph.Line (xp - 1.2, yp + 1.2)-(xp + 1.2, yp - 1.2), QBColor(ColorType)
```

```
        winGraph.Line (xp - 1.2, yp - 1.2)-(xp + 1.2, yp + 1.2), QBColor(ColorType)
```

```
    Case 1 ' Plus
```

```
        winGraph.Line (xp - 1.2, yp)-(xp + 1.2, yp), QBColor(ColorType)
```

```
        winGraph.Line (xp, yp + 1.5)-(xp, yp - 1.5), QBColor(ColorType)
```

```
    Case 2 'Light Circle
```

```
        winGraph.Circle (xp, yp), 0.7, QBColor(ColorType)
```

```
    Case 3 'Light Square
```

```
        winGraph.Line (xp - 1, yp - 1.2)-(xp - 1, yp + 1.2), QBColor(ColorType)
```

```
        winGraph.Line (xp - 1, yp + 1.2)-(xp + 1, yp + 1.2), QBColor(ColorType)
```

```
        winGraph.Line (xp + 1, yp + 1.2)-(xp + 1, yp - 1.2), QBColor(ColorType)
```

```
        winGraph.Line (xp + 1, yp - 1.2)-(xp - 1, yp - 1.2), QBColor(ColorType)
```

```
    Case 4 'Fill Square
```

```
        winGraph.Line (xp - 1#, yp + 1.2)-(xp + 1, yp - 1.2), QBColor(ColorType), BF
```

```
    Case 5 'Light Triangle
```

```
        winGraph.Line (xp, yp + 1.2)-(xp - 1.115, yp - 1.2), QBColor(ColorType)
```

```
        winGraph.Line -(xp + 1.115, yp - 1.2), QBColor(ColorType)
```

```
        winGraph.Line -(xp, yp + 1.2), QBColor(ColorType)
```

```
    End Select
```

```
End Sub
```

## ภาคผนวก 2.2 โปรแกรมย่อย PlotData

```
Sub PlotData()  
    ShowLegendText  
    If winParameter.chkPlotType(1).Value = 1 Then  
        For i% = 1 To NPoint  
            If (X(i%) >= Xmin) And (X(i%) <= Xmax) And (Y(i%) >= Ymin) And (Y(i%)  
                <= Ymax) Then  
                Call DrawSymbol(PlotX(X(i%)), PlotY(Y(i%)))  
                If winParameter.chkPlotType(2).Value = 1 Then  
                    winGraph.Print "(" + Str(X(i%)) + "," + Str(Y(i%)) + ")"  
                End If  
            End If  
        Next i%  
    End If  
End Sub
```

## ภาคผนวก 2.3 โปรแกรมย่อย Plotx

```
Function PlotX(ByVal xp As Double) As Double  
    Dim XX#  
    If xp < Xmin Then xp = Xmin  
    If xp > Xmax Then xp = Xmax  
    PlotX = (xp - Xmin) * 100 / (Xmax - Xmin)  
    Exit Function  
ErrorPlot:  
    If ModeThai = True Then  
        MsgBox ("ผิดพลาดเนื่องจากการเขียนกราฟ โปรดตรวจสอบข้อมูล")  
    Else  
        MsgBox (" Error Plot Graph, Please check Input Data")  
    End If  
End Function
```

#### ภาคผนวก 2.4 โปรแกรมย่อย PlotY

```
Function PlotY(ByVal yp As Double) As Double
    Dim y1#, ymin1#, ymax1#
    On Error GoTo ErrorPlot
    If yp < Ymin Then yp = Ymin
    If yp > Ymax Then yp = Ymax
    PlotY = (yp - Ymin) * 100 / (Ymax - Ymin)
    If GType = 1 Then
        If yp <= 0 Then y1 = Log(Ymin) Else y1 = Log(yp) / Log(10)
        ymin1 = Log(Ymin) / Log(10)
        ymax1 = Log(Ymax) / Log(10)
        PlotY = (y1 - ymin1) * 100 / (ymax1 - ymin1)
    End If
    Exit Function
ErrorPlot:
    If ModeThai = True Then
        MsgBox ("ค่าพารามิเตอร์ไม่เหมาะสม !")
        Exit Function
    Else
        MsgBox (" Error Plot Graph, Please check Input Data")
        Exit Function
    End If
End Function
```

#### ภาคผนวก 2.5 โปรแกรมย่อย PlotYfit

```
Sub plotYfit()
    Dim PXVal#, PYVal#, Xold#, Yold#, Xstep#
    Dim IBegin%, IFinal%
    PXVal = Xmin
    IBegin = Int(PlotX(Xmin) + 1)
    Xstep = ((Xmax - Xmin) / 100#)
    IFinal = 100
```

```
If ((NType = 2) Or (NType = 3) Or (NType = 5)) And (Xmin <= 0) Then
    PXVal = 0.1
    IBegin = Int(PlotX(Xmin + PXVal) + 1)
End If
winGraph.DrawWidth = 1
If Style = 0 Then
    winGraph.DrawStyle = 0
Else
    winGraph.DrawStyle = 2
End If
Xold = PXVal
Yold = calYfit(PXVal)
For i% = IBegin To IFinal
    PXVal = PXVal + Xstep
    PYVal = calYfit(PXVal)
    If PXVal < Xmax And PXVal > Xmin And PYVal > Ymin And PYVal < Ymax Then
        winGraph.Line (PlotX(Xold), PlotY(Yold))-(PlotX(PXVal), PlotY(PYVal)), QBColor(0)
    End If
    Xold = PXVal
    Yold = PYVal
Next i%
End Sub
```

### ภาคผนวก 2.1 โปรแกรมย่อย SetAxis

```
Sub SetAxis()
    Dim ival, IOrder, Blog, Flog, Slog As Double
    Dim chkThick As Boolean
    Dim Xmajor, Xminor, Xnow As Double
    Dim Ymajor, Yminor, Ynow As Double
    chkThick = True
    Xmin = Val(winParameter.txtXmin.Text)
    Xmax = Val(winParameter.txtXmax.Text)
```

```
Xmajor = Val(winParameter.txtXMajor.Text)
Xminor = Val(winParameter.txtXMinor.Text)
Ymin = Val(winParameter.txtYmin.Text)
Ymax = Val(winParameter.txtYmax.Text)
Ymajor = Val(winParameter.txtYMajor.Text)
Yminor = Val(winParameter.txtYMinor.Text)
LogCycle = Val(winParameter.cmbCycle.Text)
If GType = 1 Then
    ival = Int(Log(Ymax) / Log(10) + 0.99)
    IOrder = ival - LogCycle
    Ymax = 10 ^ (ival)
    Ymin = 10 ^ (IOrder)
    MsgBox (Str(ival) + " Ymin 1 =" + Str(Ymin) + "Ymax : " + Str(Ymax))
End If
winGraph.Scale (-40, 140)-(130, -50)
winGraph.DrawWidth = 1
winGraph.DrawStyle = 0
If GType = 1 Then
    If (Xmin > 0) Then
        winGraph.Line (PlotX(Xmin), PlotY(Ymin))-(PlotX(Xmax), PlotY(Ymin)), QBColor(1)
        winGraph.Line (PlotX(Xmin), PlotY(Ymin))-(PlotX(Xmin), PlotY(Ymax)), QBColor(1)
    Else
        winGraph.Line (PlotX(0), PlotY(Ymin))-(PlotX(Xmax), PlotY(Ymin)), QBColor(1)
        winGraph.Line (PlotX(0), PlotY(Ymin))-(PlotX(0), PlotY(Ymax)), QBColor(1)
    End If
Else
    If (Xmin > 0) And (Ymin > 0) Then
        winGraph.Line (PlotX(Xmin), PlotY(Ymin))-(PlotX(Xmax), PlotY(Ymin)),
            QBColor(1)
        winGraph.Line (PlotX(Xmin), PlotY(Ymin))-(PlotX(Xmin), PlotY(Ymax)),
```

```
    QBColor(1)
End If
If (Xmin > 0) And Ymin <= 0 Then
    winGraph.Line (PlotX(Xmin), PlotY(0))-(PlotX(Xmax), PlotY(0)), QBColor(1)
    winGraph.Line (PlotX(Xmin), PlotY(Ymin))-(PlotX(Xmin), PlotY(Ymax)), QBColor(1)
End If
If (Xmin <= 0) And Ymin > 0 Then
    winGraph.Line (PlotX(Xmin), PlotY(0))-(PlotX(Xmax), PlotY(0)), QBColor(1)
    winGraph.Line (PlotX(0), PlotY(Ymin))-(PlotX(0), PlotY(Ymax)), QBColor(1)
End If
If (Xmin <= 0) And (Ymin <= 0) Then
    winGraph.Line (PlotX(Xmin), PlotY(0))-(PlotX(Xmax), PlotY(0)), QBColor(1)
    winGraph.Line (PlotX(0), PlotY(Ymin))-(PlotX(0), PlotY(Ymax)), QBColor(1)
End If
If (Ymin > 0) Then
    Ynow = PlotY(Ymin)
Else
    Ynow = PlotY(0)
End If
End If
For ival = Xmin To Xmax Step Xmajor
    Xnow = PlotX(ival)
    If winParameter.chkShowGrid(1).Value = 1 Then
        winGraph.Line (Xnow, 0)-(Xnow, 100), QBColor(1)
    End If
    winGraph.Line (Xnow, Ynow + 4)-(Xnow, Ynow - 4), QBColor(1)
    winGraph.CurrentX = Xnow - 5
    winGraph.CurrentY = Ynow - 5
    winGraph.Print ival
Next ival
For ival = Xmin To Xmax Step Xminor
    Xnow = PlotX(ival)
```

```
winGraph.Line (Xnow, Ynow + 2)-(Xnow, Ynow - 2), QBColor(1)
Next ival
If (Xmin > 0) Then
    Xnow = PlotX(Xmin)
Else
    Xnow = PlotX(0)
End If
If (GType = 0) Then
    For ival = Ymin To Ymax Step Ymajor
        Ynow = PlotY(ival)
        If winParameter.chkShowGrid(0).Value = 1 Then
            winGraph.Line (0, Ynow)-(100, Ynow), QBColor(1)
        End If
        winGraph.Line (Xnow + 2, Ynow)-(Xnow - 2, Ynow), QBColor(1)
        winGraph.CurrentX = Xnow - 20
        winGraph.CurrentY = Ynow + 2
        winGraph.Print ival
    Next ival
    For ival = Ymin To Ymax Step Yminor
        Ynow = PlotY(ival)
        winGraph.Line (Xnow + 1, Ynow)-(Xnow - 1, Ynow), QBColor(1)
    Next ival
Else
    winGraph.CurrentX = Xnow - 20
    winGraph.CurrentY = PlotY(Ymin) + 2
    winGraph.Print "10^" + Str(IOrder)
    For i% = 1 To LogCycle
        Blog = Ymin * (10 ^ (i% - 1))
        Flog = Ymin * (10 ^ i%)
        Slog = Ymin * (10 ^ (i% - 1))
        IOrder = IOrder + 1
        For ival = Blog To Flog Step Slog
```

```
Ynow = PlotY(ival)
If winParameter.chkShowGrid(0).Value = 1 Then
    winGraph.Line (0, Ynow)-(100, Ynow), QBColor(1)
End If
winGraph.Line (Xnow + 2, Ynow)-(Xnow - 2, Ynow), QBColor(1)
Next ival
winGraph.CurrentX = Xnow - 20
winGraph.CurrentY = PlotY(Flog) + 2
winGraph.Print "10^" + Str(IColor)
Next i%
End If
End Sub
```

#### ภาคผนวก 2.6 โปรแกรมย่อย ShowGraph

```
Sub ShowGraphText()
    Dim GraphName, LegendName, XAxisName, YAxisName As String
    GraphName = winParameter.txtGraphName.Text
    LegendName = winParameter.txtLegend.Text
    XAxisName = winParameter.txtXAxis.Text
    YAxisName = winParameter.txtYAxis.Text
    winGraph.CurrentX = 30
    winGraph.CurrentY = 120
    If winParameter.optGraphName(1).Value = True Then
        winGraph.Print GraphName
    Else
        If ModeThai = True Then
            winGraph.Print " กราฟระหว่าง " & Xname & " and " & Yname & "."
        Else
            winGraph.Print " Graph Between " & Xname & " and " & Yname & "."
        End If
    End If
End Sub
winGraph.CurrentX = -20
```



```
winGraph.CurrentY = 120
If winParameter.chkYAxis(2).Value = 1 Then
    winGraph.Print Yname & "(" & Yunit & ")"
Else
    winGraph.Print YAxisName
End If
winGraph.CurrentX = 60
winGraph.CurrentY = -20
If winParameter.chkXAxis(2).Value = 1 Then
    winGraph.Print Xname & "(" & Xunit & ")"
Else
    winGraph.Print XAxisName
End If
End Sub
```

### ภาคผนวก 2.7 โปรแกรมย่อย ShowLegendText

```
Sub ShowLegendText()
    Dim Leg As String
    If winParameter.optGraphText(1).Value = True Then
        Leg = Yname + "(Unfitted)"
        Call DrawSymbol(102, 80)
        winGraph.CurrentX = 106
        winGraph.CurrentY = 82
        winGraph.Print Leg
        If ModeFited = True Then
            winGraph.Line (102, 70)-(107, 70), QBColor(ColorType)
            winGraph.CurrentX = 109
            winGraph.CurrentY = 70
            Leg = Yname + "(fitted)"
            winGraph.Print Leg
        End If
    End If
End Sub
```

```
If winParameter.optGraphText(2).Value = True Then
  Leg = winParameter.txtLegend.Text + "(Unfitted)"
  Call DrawSymbol(105, 80)
  winGraph.CurrentX = 106
  winGraph.CurrentY = 82
  winGraph.Print Leg
  If ModeFited = True Then
    winGraph.Line (102, 70)-(106, 70), QBColor(ColorType)
    winGraph.CurrentX = 108
    winGraph.CurrentY = 70
    Leg = winParameter.txtLegend.Text + "(fitted)"
    winGraph.Print Leg
  End If
End If
End Sub
```

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สำนักหอสมุด

### ภาคผนวก 3

## โปรแกรมย่อย ReadWriteFile

Attribute VB\_Name = "ReadWriteFile"

### ภาคผนวก 3.1 SaveFile

```
Sub SaveFile(n As String)
    Dim f As Integer
    f = FreeFile
    If n <> "" Then
        Open n For Output As f
        Print #f, NPoint
        Print #f, Xname
        Print #f, Xunit
        Print #f, Yname
        Print #f, Yunit
        For i% = 1 To NPoint + 5
            Print #f, X(i%), Y(i%), sigmaY(i%)
        Next i%
        Close #f
    End If
End Sub
```

### ภาคผนวก 3.2 PrintFile

```
Sub Printout()
    Dim xp%, yp%
    Printer.Scale (0, 0)-(100, 100)
    ' Printer.Fonts "Angsana New"
    xp = 10
    yp = 10
    Printer.CurrentY = yp - 5
    Printer.CurrentX = xp + 5
```

```
Printer.Print "Data File Name :" & FileName
For i% = 0 To NPoint
    winData.DataGrid.Row = i%
    For j% = 0 To winData.DataGrid.Cols - 1
        Printer.CurrentY = yp + i% * 2
        winData.DataGrid.Col = j%
        Printer.CurrentX = xp + j% * 15 - Len(winData.DataGrid.Text)
        Printer.Print winData.DataGrid.Text
    Next j%
Next i%
Printer.CurrentY = yp + NPoint * 2 + 4
Printer.CurrentX = xp + 5
Printer.Print "Fitted Equation : " & winData.txtEqOut.Text
Printer.CurrentY = yp + NPoint * 2 + 6
Printer.CurrentX = xp + 5
Printer.Print "Correlation : " & Str(Format(RMul, "000.####"))
End Sub
```

### ภาคผนวก 3.3 SaveParameter

```
Sub SaveParameter(n As String)
    Dim f, i As Integer
    f = FreeFile
    If n <> "" Then
        Open n For Output As f
        Print #f, NoDec
        Print #f, PcError
        Print #f, Mode
        If ModeThai = True Then i = 0
        If ModeThai = False Then i = 1
        Print #f, i
        Print #f, Symbol
        Print #f, LineStyle
    End If
End Sub
```

```
Print #f, GType
Print #f, ColorType
Print #f, LogCycle
Print #f, NOrder
For i = 0 To 3
    Print #f, winParameter.chkDataOut(i%).Value
Next i
For i% = 0 To 1
    Print #f, winParameter.chkShowGrid(i%).Value
Next i%
For i% = 0 To 2
    Print #f, winParameter.chkPlotType(i%).Value
Next i%
For i% = 0 To 2
    Print #f, winParameter.chkXaxis(i%).Value
Next i%
For i% = 0 To 2
    Print #f, winParameter.chkYAxis(i%).Value
Next i%
For i% = 0 To 1
    Print #f, winParameter.optGraphName(i%).Value
Next i%
Close #f
End If
End Sub
```

#### ภาคผนวก 3.4 ReadParameter

```
Sub ReadParameter(n As String)
```

```
    Dim f, ival As Integer
```

```
    Dim un As String
```

```
    f = FreeFile
```

```
    If n <> "" Then
```

Open n For Input As f

Input #f, NoDec

Input #f, PcError

Input #f, Mode

Input #f, ival

If ival = 0 Then ModeThai = True

If ival = 1 Then ModeThai = False

Input #f, Symbol

Input #f, LineStyle

Input #f, GType

Input #f, ColorType

Input #f, LogCycle

Input #f, NOrder

For i = 0 To 3

Input #f, ival: winParameter.chkDataOut(i).Value = ival

Next i

For i = 0 To 1

Input #f, ival: winParameter.chkShowGrid(i).Value = ival

Next i

For i = 0 To 2

Input #f, ival: winParameter.chkPlotType(i).Value = ival

Next i

For i = 0 To 2

Input #f, ival: winParameter.chkXaxis(i).Value = ival

Next i

For i = 0 To 2

Input #f, ival: winParameter.chkYAxis(i).Value = ival

Next i

For i = 0 To 1

Input #f, un: winParameter.optGraphName(i).Value = un

Next i

Close #f

```
End If  
End Sub
```

### ภาคผนวก 3.5 SteDataZero

```
Sub SetDataZero()  
    Xname = "": Xunit = ""  
    Yname = "": Yunit = ""  
    For i% = 1 To 50  
        X(i%) = 0#: Y(i%) = 0#: sigmaY(i%) = 0#  
    Next i%  
    NPoint = 0  
End Sub
```

### ภาคผนวก 3.6 ReadFile

```
Sub ReadFile(n As String)  
    Dim f, ii As Integer  
    Dim Xmax, Xmin, Ymin, Ymax As Double  
    f = FreeFile  
    If n <> "" Then  
        Open n For Input As f  
        Input #f, NPoint  
        Input #f, Xname  
        Input #f, Xunit  
        Input #f, Yname  
        Input #f, Yunit  
        For i% = 1 To NPoint  
            Input #f, X(i%), Y(i%), sigmaY(i%)  
        Next i%  
        Close #f  
        FindMinMax  
    End If  
End Sub
```