

Streamlining your code

Chapter 4 - Consolidate event handlers

[StPendl](#) Oct 29, 2011

The next thing is to introduce one event handler for all the radio buttons to further simplify our code.

The best way to introduce a single event handler for multiple controls is by using a subroutine, which receives the handle of the control as the first argument.

Parsing the passed handle allows us to determine, which control we have to apply our actions on.

To keep track of the current value of our four bands we introduce four global variables:

```
GLOBAL Band1value, Band2value, Band3value, Band4value
```

In a second attempt we replace all the individual set event handlers by our unified subroutine and a dummy event handler for the reset action.

```
    radiobutton #w.Blackr1 , "", SetBandValue,[none] ,75, 45,20,20
'Black=0
    radiobutton #w.Brownr1 , "", SetBandValue,[none] ,75, 85,20,20
'Brown=1
    radiobutton #w.Redr1 , "", SetBandValue,[none] ,75,125,20,20
'Red=2
    radiobutton #w.Oranger1 , "", SetBandValue,[none] ,75,165,20,20
'Orange=3
    radiobutton #w.Yellowr1 , "", SetBandValue,[none] ,75,205,20,20
'Yellow=4
    radiobutton #w.Greenr1 , "", SetBandValue,[none] ,75,245,20,20
'Green=5
    radiobutton #w.Bluer1 , "", SetBandValue,[none] ,75,285,20,20
'Blue=6
    radiobutton #w.Violetr1 , "", SetBandValue,[none] ,75,325,20,20
'Violet=7
    radiobutton #w.Grayr1 , "", SetBandValue,[none] ,75,365,20,20
'Gray=8
    radiobutton #w.Whiter1 , "", SetBandValue,[none] ,75,405,20,20
'White=9

' and so forth
```

We want to utilize the unified event handler for the fourth band too, so we need to change the extension to

follow the same naming convention.

```
    radiobutton #w.Golldr4    , "", SetBandValue,[none] ,385, 45,20,20
'Gold=5%
    radiobutton #w.Silverr4  , "", SetBandValue,[none] ,385, 85,20,20
'Silver=10%
    radiobutton #w.Noner4    , "", SetBandValue,[none] ,385,125,20,20
'None=20%
```

Now we can replace the four [Band...] event handlers by our single subroutine with heavy use of SELECT..CASE blocks:

```
[none]
    WAIT
```

```
[quit]
    close #w
    END
```

```
SUB SetBandValue Handle$
' parse handle of calling control
Band = val(Right$(Handle$, 1))
ColorName$ = Mid$(Handle$, 4, Len(Handle$)-5)

' get position of color
FOR i = 1 to 10
    if Colors$(i,1) = ColorName$ then exit for
    if i < 4 then if Tolerances$(i,1) = ColorName$ then exit for
NEXT

' if we had no match exit
If i = 11 Then Exit Sub

' calculate the values
Select Case Band
    Case 1
        Band1value = (i-1) * 10

    Case 2
        Band2value = i-1

    Case 3
        Band3value = 10 ^ (i-1)
```

```
        Case 4
        Band4value = i*5
        if Band4value = 15 then Band4value = 20

        Case Else
        Exit Sub
    End Select

    ' get the band color
    Select Case Band
        Case 1, 2, 3
        ColorValue$ = Colors$(i,2)

        Case 4
        ColorValue$ = Tolerances$(i,2)

        Case Else
        Exit Sub
    End Select

    GBhandle$ = "#w.Band"; Band
    #GBhandle$ "cls;down;fill "; ColorValue$; ";flush"

    vv=(Band1value+Band2value)*Band3value

    Select Case
        Case vv>=1000000
        #w.0hm "Resistance Value=";vv/1000000;" M Ohm"

        Case vv>=1000
        #w.0hm "Resistance Value=";vv/1000;" K Ohm"

        Case Else
        #w.0hm "Resistance Value=";vv;" Ohm"
    End Select

    if Band4value>0 then #w.Tole
    "Tolerance Value =" ; "  +/-  ";Band4value;"%"
    END SUB
```

The complete code now looks like this.

```
'Resistor Calculator.bas
'Author: salaion Yahoo! Group
```

```
'Date: 27.11.10
'
' List of Colors at http://en.wikipedia.org/wiki/List\_of\_colors
'
' 27.11.10 00:18:50 - Initial as posted

' 27.11.10 00:21:40 - added array for colors and reduced redundant code for color boxes

' 27.11.10 00:34:07 - replaced duplicate command strings by variables
' 27.11.10 02:22:16 - consolidated event handler

nomainwin
WindowWidth = 850:WindowHeight = 600
UpperLeftX=int( (DisplayWidth- WindowWidth) /2)
UpperLeftY=int( (DisplayHeight- WindowHeight) /2)
BackgroundColor$ = "green"

GLOBAL Band1value, Band2value, Band3value, Band4value

dim Colors$(10,2), Tolerances$(3,2)

[Colors]
DATA "Black",    "  0  0  0"
DATA "Brown",    "170 100 20"
DATA "Red",      "255  0  0"
DATA "Orange",   "255 180  0"
DATA "Yellow",   "255 255  0"
DATA "Green",    " 45 157 40"
DATA "Blue",     "  0  0 255"
DATA "Violet",   "170  0 180"
DATA "Gray",     "127 127 127"
DATA "White",    "255 255 255"

[Tolerances]
DATA "Gold",     "212 175 55"
DATA "Silver",   "200 200 250"
DATA "None",     " 21 228 255"

'Fill the arrays
RESTORE [Colors]

FOR i = 1 to 10
    READ ColorName$, ColorValue$
    Colors$(i,1) = ColorName$
    Colors$(i,2) = ColorValue$
```

```
NEXT

RESTORE [Tolerances]

FOR i = 1 to 3
    READ ColorName$, ColorValue$
    Tolerances$(i,1) = ColorName$
    Tolerances$(i,2) = ColorValue$
NEXT

STATICTEXT #w.Ohm, "" , 500, 200, 300, 20
STATICTEXT #w.Tole, "" , 500, 230, 300, 20

STATICTEXT #w,Colors$( 1,1), 10, 42, 50, 20
STATICTEXT #w,Colors$( 2,1), 10, 82, 50, 20
STATICTEXT #w,Colors$( 3,1), 10, 122, 50, 20
STATICTEXT #w,Colors$( 4,1), 10, 162, 50, 20
STATICTEXT #w,Colors$( 5,1), 10, 202, 50, 20
STATICTEXT #w,Colors$( 6,1), 10, 242, 50, 20
STATICTEXT #w,Colors$( 7,1), 10, 282, 50, 20
STATICTEXT #w,Colors$( 8,1), 10, 322, 50, 20
STATICTEXT #w,Colors$( 9,1), 10, 362, 50, 20
STATICTEXT #w,Colors$(10,1), 10, 402, 50, 20

STATICTEXT #w,Tolerances$(1,1), 470, 42, 50, 20
STATICTEXT #w,Tolerances$(2,1), 470, 82, 50, 20
STATICTEXT #w,Tolerances$(3,1), 470, 122, 50, 20

STATICTEXT #w,"K=Kilo " , 500, 300,100, 20
STATICTEXT #w,"M=Mega " , 500, 330,100, 20
STATICTEXT #w,
"Light Blue is The Default Color of Resistance " , 500, 360,400, 20

'Band1
groupbox #w.FirstDigit, "First Digit", 70,10,80,430
radiobutton #w.Blackr1 , "", SetBandValue,[none] ,75, 45,20,20
'Black=0
radiobutton #w.Brownr1 , "", SetBandValue,[none] ,75, 85,20,20
'Brown=1
radiobutton #w.Redr1 , "", SetBandValue,[none] ,75,125,20,20
'Red=2
radiobutton #w.Oranger1 , "", SetBandValue,[none] ,75,165,20,20
'Orange=3
radiobutton #w.Yellowr1 , "", SetBandValue,[none] ,75,205,20,20
'Yellow=4
```

```
    radiobutton #w.Greenr1 , "", SetBandValue,[none] ,75,245,20,20
'Green=5
    radiobutton #w.Bluer1 , "", SetBandValue,[none] ,75,285,20,20
'Blue=6
    radiobutton #w.Violetr1 , "", SetBandValue,[none] ,75,325,20,20
'Violet=7
    radiobutton #w.Grayr1 , "", SetBandValue,[none] ,75,365,20,20
'Gray=8
    radiobutton #w.Whiter1 , "", SetBandValue,[none] ,75,405,20,20
'White=9

    'Band2
    groupbox #w.SecondtDigit, "Second Digit", 180,10,80,430
    radiobutton #w.Blackr2 , "", SetBandValue,[none] ,185, 45,20,20
'Black=0
    radiobutton #w.Brownr2 , "", SetBandValue,[none] ,185, 85,20,20
'Brown=1
    radiobutton #w.Redr2 , "", SetBandValue,[none] ,185,125,20,20
'Red=2
    radiobutton #w.Oranger2 , "", SetBandValue,[none] ,185,165,20,20
'Orange=3
    radiobutton #w.Yellowr2 , "", SetBandValue,[none] ,185,205,20,20
'Yellow=4
    radiobutton #w.Greenr2 , "", SetBandValue,[none] ,185,245,20,20
'Green=5
    radiobutton #w.Bluer2 , "", SetBandValue,[none] ,185,285,20,20
'Blue=6
    radiobutton #w.Violetr2 , "", SetBandValue,[none] ,185,325,20,20
'Violet=7
    radiobutton #w.Grayr2 , "", SetBandValue,[none] ,185,365,20,20
'Gray=8
    radiobutton #w.Whiter2 , "", SetBandValue,[none] ,185,405,20,20
'White=9

    'Band3
    groupbox #w.Multiplier, "Multiplier", 280,10,80,430
    radiobutton #w.Blackr3 , "", SetBandValue,[none] ,285, 45,20,20
'Black=0
    radiobutton #w.Brownr3 , "", SetBandValue,[none] ,285, 85,20,20
'Brown=1
    radiobutton #w.Redr3 , "", SetBandValue,[none] ,285,125,20,20
'Red=2
    radiobutton #w.Oranger3 , "", SetBandValue,[none] ,285,165,20,20
'Orange=3
    radiobutton #w.Yellowr3 , "", SetBandValue,[none] ,285,205,20,20
'Yellow=4
```

```
    radiobutton #w.Greenr3 , "", SetBandValue,[none] ,285,245,20,20
'Green=5
    radiobutton #w.Bluer3 , "", SetBandValue,[none] ,285,285,20,20
'Blue=6
    radiobutton #w.Violetr3 , "", SetBandValue,[none] ,285,325,20,20
'Violet=7
    radiobutton #w.Grayr3 , "", SetBandValue,[none] ,285,365,20,20
'Gray=8
    radiobutton #w.Whiter3 , "", SetBandValue,[none] ,285,405,20,20
'White=9

    'Band4
    groupbox #w.Tolerance, "Tolerance", 380,10,80,430
    radiobutton #w.Golldr4 , "", SetBandValue,[none] ,385, 45,20,20
'Gold=5%
    radiobutton #w.Silverr4 , "", SetBandValue,[none] ,385, 85,20,20
'Silver=10%
    radiobutton #w.Noner4 , "", SetBandValue,[none] ,385,125,20,20
'None=20%

    'Fram
    graphicbox #w.add, 530,60,292,30
'xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
    stylebits #w.add, 0,_WS_BORDER, 0,0

    graphicbox #w.up, 523,53,306,7
    stylebits #w.up, 0,_WS_BORDER, 0,0'

    graphicbox #w.down, 523,90,306,7
    stylebits #w.down, 0,_WS_BORDER, 0,0'

    graphicbox #w.side1, 523,53,7,44
    stylebits #w.side1, 0,_WS_BORDER, 0,0'

    graphicbox #w.adds2, 822,53,7,44
    stylebits #w.adds2, 0,_WS_BORDER, 0,0'

    'Band1
    graphicbox #w.Black1 , 100, 40,30,30
    graphicbox #w.Brown1 , 100, 80,30,30
    graphicbox #w.Red1 , 100,120,30,30
    graphicbox #w.Orange1, 100,160,30,30
    graphicbox #w.Yellow1, 100,200,30,30
    graphicbox #w.Green1 , 100,240,30,30
    graphicbox #w.Blue1 , 100,280,30,30
    graphicbox #w.Violet1, 100,320,30,30
```

```
graphicbox #w.Gray1 , 100,360,30,30
graphicbox #w.White1 , 100,400,30,30
```

```
'Band2
```

```
graphicbox #w.Black2 , 210, 40,30,30
graphicbox #w.Brown2 , 210, 80,30,30
graphicbox #w.Red2 , 210,120,30,30
graphicbox #w.Orange2, 210,160,30,30
graphicbox #w.Yellow2, 210,200,30,30
graphicbox #w.Green2 , 210,240,30,30
graphicbox #w.Blue2 , 210,280,30,30
graphicbox #w.Violet2, 210,320,30,30
graphicbox #w.Gray2 , 210,360,30,30
graphicbox #w.White2 , 210,400,30,30
```

```
'Band3
```

```
graphicbox #w.Black3 , 310, 40,30,30
graphicbox #w.Brown3 , 310, 80,30,30
graphicbox #w.Red3 , 310,120,30,30
graphicbox #w.Orange3, 310,160,30,30
graphicbox #w.Yellow3, 310,200,30,30
graphicbox #w.Green3 , 310,240,30,30
graphicbox #w.Blue3 , 310,280,30,30
graphicbox #w.Violet3, 310,320,30,30
graphicbox #w.Gray3 , 310,360,30,30
graphicbox #w.White3 , 310,400,30,30
```

```
'Band4
```

```
graphicbox #w.Gold , 410, 40,30,30
graphicbox #w.Silver, 410, 80,30,30
graphicbox #w.None , 410,120,30,30
```

```
'Selected Bands of Body Resistance
```

```
graphicbox #w.Band1, 155,470,15,35
graphicbox #w.Band2, 185,470,15,35
graphicbox #w.Band3, 215,470,15,35
graphicbox #w.Band4, 255,470,15,35
```

```
stylebits #w.Band1, 0,_WS_BORDER,0,0
stylebits #w.Band2, 0,_WS_BORDER,0,0
stylebits #w.Band3, 0,_WS_BORDER,0,0
stylebits #w.Band4, 0,_WS_BORDER,0,0
```

```
'General Body Resistance
```

```
graphicbox #w.37, 130,470,168,35
stylebits #w.37, 0,_WS_BORDER,0,0
```

```
'Terminal Wires
graphicbox #w.42, 80,485,50,5
graphicbox #w.43, 300,485,50,5

open "Resistor Calculator" for window_nf as #w
#w "trapclose [quit]"
#w "font Times_New_Roman 13"

#w.add
"cls;down;fill yellow;font Times_New_Roman 16 bold;color red;backcolor
yellow"
#w.add "place 5 20;\Resistor Color Code of 4 Bands"
#w.add "flush"

CommandString$ = "cls;down;fill blue;flush"
#w.up CommandString$
#w.down CommandString$
#w.side1 CommandString$
#w.adds2 CommandString$

FOR Band = 1 to 3
  FOR Color = 1 to 10
    Handle$ = "#w."; Colors$(Color,1); Band

    #Handle$ "cls;down;fill "; Colors$(Color,2); ";flush"
  NEXT
NEXT

FOR Tolerance = 1 to 3
  Handle$ = "#w."; Tolerances$(Tolerance,1)

  #Handle$ "cls;down;fill "; Tolerances$(Tolerance,2); ";flush"
NEXT

'Color of Terminal Wires
CommandString$ = "cls; down; fill 127 127 127;flush"
#w.42 CommandString$
#w.43 CommandString$

'General Body Resistance Color
CommandString$ = "cls; down; fill 21 228 255;flush" 'light blue
#w.37 CommandString$

#w.Band1 CommandString$
#w.Band2 CommandString$
```

```
#w.Band3 CommandString$
#w.Band4 CommandString$
```

```
[none]
    WAIT
```

```
[quit]
    close #w
    END
```

```
SUB SetBandValue Handle$
    ' parse handle of calling control
    Band = val(Right$(Handle$, 1))
    ColorName$ = Mid$(Handle$, 4, Len(Handle$)-5)

    ' get position of color
    FOR i = 1 to 10
        if Colors$(i,1) = ColorName$ then exit for
        if i < 4 then if Tolerances$(i,1) = ColorName$ then exit for
    NEXT

    ' if we had no match exit
    If i = 11 Then Exit Sub

    Select Case Band
        Case 1
            Band1value = (i-1) * 10

        Case 2
            Band2value = i-1

        Case 3
            Band3value = 10 ^ (i-1)

        Case 4
            Band4value = i*5
            if Band4value = 15 then Band4value = 20

        Case Else
            Exit Sub
    End Select

    Select Case Band
        Case 1, 2, 3
            ColorValue$ = Colors$(i,2)
```

```
Case 4
ColorValue$ = Tolerances$(i,2)

Case Else
Exit Sub
End Select

GBhandle$ = "#w.Band"; Band
#GBhandle$ "cls;down;fill "; ColorValue$; ";flush"

vv=(Band1value+Band2value)*Band3value

Select Case
Case vv>=1000000
#w.0hm "Resistance Value=";vv/1000000;" M Ohm"

Case vv>=1000
#w.0hm "Resistance Value=";vv/1000;" K Ohm"

Case Else
#w.0hm "Resistance Value=";vv;" Ohm"
End Select

if Band4value>0 then #w.Tole
"Tolerance Value =" ";" + "/" - " ;Band4value;"%"
END SUB
```

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