Sub main()

Application.Calculation = xlCalculationAutomatic

calculateAnalysisResult

calculateFinalResult

End Sub

Function calculateAnalysisResult()

Application.ScreenUpdating = False

Worksheets("Analysis Result").Range("A2:Z6557").ClearContents

Application.ScreenUpdating = True

'Declaration of Variables

Dim counterYear As Integer

Dim counterMonth As Integer

Dim rowIndex As Integer

Dim rowIndexStress As Integer

'Initialization of Variables

rowIndex = 2

rowIndexStress = 9

'First Month

Cells(rowIndex, 1) = 1

Cells(rowIndex, 2) = Cells(rowIndex, 1).Value / 12

Cells(rowIndex, 3) = Sheets("Input").Range("F8").Value

Cells(rowIndex, 4) = 57000 / 7.5 \* Cells(rowIndex, 3) / 1000

Cells(rowIndex, 5) = Sheets("Stress").Cells(rowIndexStress, 38).Value

Cells(rowIndex, 6) = Sheets("Stress").Cells(rowIndexStress, 39).Value \* Cells(rowIndex, 4).Value / 5000

Cells(rowIndex, 7) = Cells(rowIndex, 5).Value + Cells(rowIndex, 6).Value

Cells(rowIndex, 8) = Cells(rowIndex, 7).Value / Cells(rowIndex, 3).Value

Cells(rowIndex, 9) = 11800 \* Cells(rowIndex, 8).Value ^ fatigue(Sheets("Input").Range("F19").Value)

Cells(rowIndex, 10) = lane(Sheets("Input").Range("C24").Value) \* Sheets("Input").Range("C25").Value \* 1000000 / 12 / Sheets("Input").Range("C18").Value

Cells(rowIndex, 11) = Cells(rowIndex, 10).Value / Cells(rowIndex, 9).Value

Cells(rowIndex, 12) = Cells(rowIndex, 11).Value

Cells(rowIndex, 13) = 18.985 / (1 + 5 \* Cells(rowIndex, 12).Value ^ -1.1)

'For Rest of Months

For counterYear = 1 To Sheets("Input").Range("C18").Value

If counterYear <> 1 Then

rowIndexStress = 8

End If

For counterMonth = 1 To 12

If counterYear = 1 And counterMonth = 1 Then

'If First Year than Omit Calculation of First Month, Already Done

Else

'Else Run for All 12 Months of Year

rowIndex = rowIndex + 1

rowIndexStress = rowIndexStress + 1

Cells(rowIndex, 1) = Cells(rowIndex - 1, 1) + 1

Cells(rowIndex, 2) = Cells(rowIndex, 1).Value / 12

Cells(rowIndex, 3) = Sheets("Input").Range("F8").Value \* ((30 \* Cells(rowIndex, 1).Value / (4 + 0.85 \* 30 \* Cells(rowIndex, 1).Value))) ^ 0.5

Cells(rowIndex, 4) = 57000 / 7.5 \* Cells(rowIndex, 3) / 1000

Cells(rowIndex, 5) = Sheets("Stress").Cells(rowIndexStress, 38).Value

Cells(rowIndex, 6) = Sheets("Stress").Cells(rowIndexStress, 39).Value \* Cells(rowIndex, 4) / 5000

Cells(rowIndex, 7) = Cells(rowIndex, 5).Value + Cells(rowIndex, 6).Value

Cells(rowIndex, 8) = Cells(rowIndex, 7).Value / Cells(rowIndex, 3).Value

Cells(rowIndex, 9) = 11800 \* Cells(rowIndex, 8).Value ^ fatigue(Sheets("Input").Range("F19").Value)

Cells(rowIndex, 10) = Cells(rowIndex - 1, 10).Value

Cells(rowIndex, 11) = Cells(rowIndex, 10).Value / Cells(rowIndex, 9).Value

Cells(rowIndex, 12) = Cells(rowIndex - 1, 12).Value + Cells(rowIndex, 11).Value

Cells(rowIndex, 13) = 18.985 / (1 + 5 \* Cells(rowIndex, 12).Value ^ -1.1)

If rowIndexStress = 13 Then

rowIndexStress = 1

End If

End If

Next counterMonth

Next counterYear

End Function

Function calculateFinalResult()

Application.ScreenUpdating = False

Worksheets("Final Result").Range("A2:Z6557").ClearContents

Application.ScreenUpdating = True

'Write Header

Worksheets("Final Result").Range("B3") = " INPUT DATA"

Worksheets("Final Result").Range("B28") = " CRCP PERFORMANCE"

Worksheets("Final Result").Range("B30") = " Number of Punchouts per Mile"

'Copy Input Data

Application.ScreenUpdating = False

Worksheets("Final Result").Range("A5:F25") = Worksheets("Input").Range("A5:F25").Value

Worksheets("Final Result").Range("C30") = Worksheets("Analysis Result").Cells(12 \* Worksheets("Input").Range("C18").Value + 1, 13).Value

Worksheets("Final Result").Range("C31") = Worksheets("Analysis Result").Cells(12 \* Worksheets("Input").Range("C18").Value + 1, 13).Value

If Worksheets("Final Result").Range("C30") <= Worksheets("Input").Range("C19").Value Then

Worksheets("Final Result").Range("C30").Interior.Color = RGB(0, 255, 0)

Else

Worksheets("Final Result").Range("C30").Interior.Color = RGB(255, 0, 0)

End If

If Worksheets("Final Result").Range("C31") <= Worksheets("Input").Range("C19").Value Then

Worksheets("Final Result").Range("C31").Interior.Color = RGB(0, 255, 0)

Else

Worksheets("Final Result").Range("C31").Interior.Color = RGB(255, 0, 0)

End If

Sheets("Final Result").Activate

End Function

Function lane(n) As Double

If n <= 2 Then

lane = 1

ElseIf n >= 4 Then

lane = 0.6

Else

lane = 0.7

End If

End Function

Function fatigue(k) As Double

If k < 200 Then

fatigue = k \* 0.0221 - 15.97

ElseIf k < 300 Then

fatigue = k \* 0.0164 - 14.83

ElseIf k < 500 Then

fatigue = k \* 0.0038 - 11.05

ElseIf k < 1000 Then

fatigue = k \* 0.00033 - 9.31

Else

fatigue = k \* 0.00071 - 9.69

End If

End Function