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Public F As Integer, P As Integer, D As Integer, S As Double, _
  X As Double, tempCell As Range, StartedCollection As Boolean, _
  FF As Integer
Public Const n As Integer = 5
Public Const maxData As Integer = 10
Public Const FS As Integer = 2
Public Const SS As Integer = 12

Sub MacroSolveGeneric()
  Call MacroSolveGenericWrap(True, True)
End Sub

Sub MacroSolveGenericNoIterate()
  Call MacroSolveGenericWrap(True, False)
End Sub

Sub MacroSolveGenericWrap(Time, Iterate)
  Dim time1 As Double, time2 As Double
  time1 = Timer
  Dim TestString As String, TestArray() As String
  Dim Row As Integer, Result As Integer
  Row = 1
  Result = getResultRow()
  TestString = ActiveSheet.Cells(Row, 1).Text
  While TestString <> "END"
    If TestString = "" Then
      GoTo LoopNext
    End If
    TestArray = Split(TestString)
    If TestArray(0) = "Metric" Then
      Call SolveMatrix(Row, FS, Result, Iterate)
      Result = Result + 1
    End If
  LoopNext:
    Row = Row + 1
    TestString = ActiveSheet.Cells(Row, 1).Text
  Wend
  time2 = Timer
  If Time = True Then
    MsgBox "Time Taken " & Format(time2 - time1, "0.00 \s\ec")
  End If
End Sub

Sub SolveMatrix(Row, Col, Result, Iterate)
  Call InitMatrix(Row, Col, Result, Iterate)
  If Iterate = True Then
    Call IterateAndRound
  Else
    Call SolveOnce(Range(Cells(F, FS), Cells(F, n + 1)))
  End If
  Call CollectFactors(Row, Col, Result)
End Sub
Sub InitMatrix(Row, Col, Result, Iterate)

    P = Row + 1
    D = Row + 2
    F = Row + 3
    X = 1

Dim fCell(n) As Range

For I = 0 To (n - 1)
    Set fCell(I) = ActiveSheet.Cells(F, Col + I)
Next

Dim xCell As Range
Dim expformula As String
Dim formula As String

For I = 0 To (maxData - 1)
    If LTrim(ActiveSheet.Cells(Row, I + FS).Text) = "" Then
        GoTo FinishInit
    End If

    Set xCell = ActiveSheet.Cells(X, I + FS)

    'initialize formulas
    expformula = fCell(0).Address
    For J = 1 To (n - 1)
        expformula = expformula & "+" & fCell(J).Address & _
        "*(2^" & xCell.Address & "** & J & ")"
    Next

    formula = "=" & expformula & ""

    ActiveSheet.Cells(P, Col + I) = formula

    'initialise the error cell
    ActiveSheet.Cells(D, Col + I) = _
    "=" & ActiveSheet.Cells(P, Col + I).Address & _
    "-" & ActiveSheet.Cells(Row, Col + I).Address & "^2"
Next

FinishInit:

    'initialise all factors to 0 or 1 depending on algorithm
    For I = 0 To n - 1
        If RTrim(LTrim(ActiveSheet.Cells(F, Col + I).Text)) = "" And Iterate = False Then
            ActiveSheet.Cells(F, Col + I) = 0
        End If
        If RTrim(LTrim(ActiveSheet.Cells(F, Col + I).Text)) = "" And Iterate = True Then
            ActiveSheet.Cells(F, Col + I) = 1
        End If
    Next

    'initialise SS cell
    ActiveSheet.Cells(D, SS) = _
    "=sum" & ActiveSheet.Cells(D, Col).Address & _
    ":" & ActiveSheet.Cells(D, Col + (maxData - 1)).Address & ""

    'initialise results area
    Dim TestArray() As String
    TestArray = Split(ActiveSheet.Cells(Row, 1).Text)
    ActiveSheet.Cells(Result, 1) = _
    "Factors : " & TestArray(2) & " " & TestArray(3)

    StartedCollection = False

End Sub
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Sub SolveOnce(changeRange)
  SolverReset
  SolverOptions MaxTime:=100, iterations:=1000, Precision:=0.000001, _
    AssumeLinear:=False, StepThru:=False, Estimates:=1, Derivatives:=1, _
    SearchOption:=1, IntTolerance:=5, Scaling:=False, Convergence:=0.0001, _
    AssumeNonNeg:=False
  SolverAdd CellRef:=Range(Cells(F, FS), Cells(F, n + 1)), Relation:=3, _
    FormulaText:="0"
  SolverOk SetCell:=Cells(D, SS), MaxMinVal:=2, ValueOf:="0", _
    ByChange:=changeRange
  SolverSolve True
End Sub

Sub IterateAndRound()
  Dim iToRound  As Double
  For X = 0 To 0
    For c = n + (FS - 1) To FS Step -1
      Call SolveOnce(Range(Cells(F, FS), Cells(F, c)))
      iToRound = ActiveSheet.Cells(F, c).Value
      Cells(F, c).Select
      ActiveCell.FormulaR1C1 = Round(iToRound, 1)
    Next c
  Next X
End Sub

Public Function getResultRow() As Integer
  Dim Result As Integer
  Result = 1
  While ActiveSheet.Cells(Result, 1).Text <> "END"
    ' prepare for next iteration
    Result = Result + 1
  Wend
  Result = Result + 5
  getResultRow = Result
End Function

Sub CollectFactors(Row, Col, Result)
  For c = n To 1 Step -1
    cc = c + 1
    Cells(F, cc).Select
    If StartedCollection = False And ActiveSheet.Cells(F, cc).Value <> "0" Then
      ActiveSheet.Cells(Row, cc).FormulaR1C1 = ActiveCell.FormulaR1C1
    StartedCollection = True
    Else
      If StartedCollection = True Then
        ActiveSheet.Cells(Row, cc).FormulaR1C1 = ActiveCell.FormulaR1C1
      Else
        ActiveSheet.Cells(Row, cc).FormulaR1C1 = ""
      End If
    End If
  Next c
End Sub