LAMPIRAN A
LIST PROGRAM VISUAL BASIC

PENGAMBILAN DATA REFERENSI

```
Dim fDraw As New FastDrawing
Dim ImageData() As Byte

Dim hData1(0 To 255) As Single
Dim hData2(0 To 255) As Single
Dim hData3(0 To 255) As Single
Dim hData4(0 To 255) As Single
Dim hData5(0 To 255) As Single
Dim hAve(0 To 255) As Single
Dim batasBawah, batasAtas As Integer

'nilai iMax dan iMin menunjukkan batas bawah dan batas intensitas
dari citra warna kulit
'nilai index array menyatakan citra:
'0=citra ke 1
'1=citra ke 2
'2=citra ke 3
'3=citra ke 4
'4=citra ke 5
Dim iMax(0 To 4) As Single
Dim iMin(0 To 4) As Single


Private Declare Function SendMessage Lib "USER32" Alias
"SendMessageA" (ByVal hwnd As Long, ByVal wMsg As Long, ByVal
wParam As Long, lParam As Any) As Long
Private Declare Function capCreateCaptureWindow Lib
"avicap32.dll" Alias "capCreateCaptureWindowA" (ByVal
lpszWindowName As String, ByVal dwStyle As Long, ByVal x As Long,
ByVal y As Long, ByVal nWidth As Long, ByVal nHeight As Long,
ByVal hwndParent As Long, ByVal nID As Long) As Long
Private mCapHwnd As Long
Private Const CONNECT As Long = 1034
Private Const DISCONNECT As Long = 1035
Private Const GET_FRAME As Long = 1084
Private Const COPY As Long = 1054
Dim continue As Boolean
```

```
Sub START()
mCapHwnd = capCreateCaptureWindow("WebcamCapture", 0, 0, 0, 320,
240, Me.hwnd, 0)
DoEvents
```

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```
SendMessage mCapHwnd, CONNECT, 0, 0
End Sub
```

```vb
Sub GetData()
For i = 1 To 5
namafile = App.Path + "\" + Text1.Text + Str(i) + ".jpg"
'inisialisasi
xMax = 0
yMax = 0
xMin = 240
yMin = 320
Max = 0
Min = 0
Select Case i
Case 1
picInput1.Picture = LoadPicture(namafile)
For x = 1 To picInput1.Width 'Step 15
For y = 1 To picInput1.Height 'Step 15
warna = picInput1.Point(x, y)
R = warna And RGB(255, 0, 0)
G = Int((warna And RGB(0, 255, 0)) / 256)
B = Int(((warna And RGB(0, 0, 255)) / 256) / 256)

'cari nilai maksimum dan minimum
If R > G Then
Max = R
Min = G
Else
Max = G
Min = R
End If

If B > Max Then
Max = B
ElseIf B < Min Then
Min = B
End If

'lakukan EDSR
If R > 95 And G > 40 And B > 20 And (Max - Min) > 15 And Abs(R -
G) > 15 And R > G And R > B Then
Rb = R
Gb = G
Bb = B
If xMax < x Then xMax = x
```

```vb
If yMax < y Then yMax = y
If xMin > x Then xMin = x
If yMin > y Then yMin = y
Else
Rb = 0
Gb = 0
Bb = 0
End If


picOutput1.PSet (x, y), RGB(Rb, Gb, Bb)
Next y
Next x

picCrop1.PaintPicture         picOutput1.Image,        0,        0,
picCrop1.ScaleWidth, picCrop1.ScaleHeight, 80, 32, 161, 193


Case 2
picInput2.Picture = LoadPicture(namafile)
For x = 1 To picInput2.Width 'Step 15
For y = 1 To picInput2.Height 'Step 15
warna = picInput2.Point(x, y)
R = warna And RGB(255, 0, 0)
G = Int((warna And RGB(0, 255, 0)) / 256)
B = Int(((warna And RGB(0, 0, 255)) / 256) / 256)

'cari nilai maksimum dan minimum
If R > G Then
Max = R
Min = G
Else
Max = G
Min = R
End If


If B > Max Then
Max = B
ElseIf B < Min Then
Min = B
End If


'lakukan EDSR
If R > 95 And G > 40 And B > 20 And (Max - Min) > 15 And Abs(R -
G) > 15 And R > G And R > B Then
Rb = R
Gb = G
```

```
Bb = B
If xMax < x Then xMax = x
If yMax < y Then yMax = y
If xMin > x Then xMin = x
If yMin > y Then yMin = y
Else
Rb = 0
Gb = 0
Bb = 0
End If


picOutput2.PSet (x, y), RGB(Rb, Gb, Bb)
Next y
Next x

picCrop2.PaintPicture          picOutput2.Image,          0,          0,
picCrop2.ScaleWidth, picCrop2.ScaleHeight, 80, 32, 161, 193

Case 3
picInput3.Picture = LoadPicture(namafile)
For x = 1 To picInput3.Width 'Step 15
For y = 1 To picInput3.Height 'Step 15
warna = picInput3.Point(x, y)
R = warna And RGB(255, 0, 0)
G = Int((warna And RGB(0, 255, 0)) / 256)
B = Int(((warna And RGB(0, 0, 255)) / 256) / 256)

'cari nilai maksimum dan minimum
If R > G Then
Max = R
Min = G
Else
Max = G
Min = R
End If

If B > Max Then
Max = B
ElseIf B < Min Then
Min = B
End If

'lakukan EDSR
If R > 95 And G > 40 And B > 20 And (Max - Min) > 15 And Abs(R -
G) > 15 And R > G And R > B Then
```

```
Rb = R
Gb = G
Bb = B
If xMax < x Then xMax = x
If yMax < y Then yMax = y
If xMin > x Then xMin = x
If yMin > y Then yMin = y
Else
Rb = 0
Gb = 0
Bb = 0
End If


picOutput3.PSet (x, y), RGB(Rb, Gb, Bb)
Next y
Next x

picCrop3.PaintPicture        picOutput3.Image,        0,        0,
picCrop3.ScaleWidth, picCrop3.ScaleHeight, 80, 32, 161, 193


Case 4
picInput4.Picture = LoadPicture(namafile)
For x = 1 To picInput4.Width 'Step 15
For y = 1 To picInput4.Height 'Step 15
warna = picInput4.Point(x, y)
R = warna And RGB(255, 0, 0)
G = Int((warna And RGB(0, 255, 0)) / 256)
B = Int(((warna And RGB(0, 0, 255)) / 256) / 256)

'cari nilai maksimum dan minimum
If R > G Then
Max = R
Min = G
Else
Max = G
Min = R
End If

If B > Max Then
Max = B
ElseIf B < Min Then
Min = B
End If
```

```vb
'lakukan EDSR
If R > 95 And G > 40 And B > 20 And (Max - Min) > 15 And Abs(R -
G) > 15 And R > G And R > B Then
Rb = R
Gb = G
Bb = B
If xMax < x Then xMax = x
If yMax < y Then yMax = y
If xMin > x Then xMin = x
If yMin > y Then yMin = y
Else
Rb = 0
Gb = 0
Bb = 0
End If


picOutput4.PSet (x, y), RGB(Rb, Gb, Bb)
Next y
Next x

picCrop4.PaintPicture        picOutput4.Image,        0,        0,
picCrop4.ScaleWidth, picCrop4.ScaleHeight, 80, 32, 161, 193



Case 5
picInput5.Picture = LoadPicture(namafile)
For x = 1 To picInput5.Width 'Step 15
For y = 1 To picInput5.Height 'Step 15
warna = picInput5.Point(x, y)
R = warna And RGB(255, 0, 0)
G = Int((warna And RGB(0, 255, 0)) / 256)
B = Int(((warna And RGB(0, 0, 255)) / 256) / 256)

'cari nilai maksimum dan minimum
If R > G Then
Max = R
Min = G
Else
Max = G
Min = R
End If

If B > Max Then
Max = B
ElseIf B < Min Then
```

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```vb
        Min = B
        End If

        'lakukan EDSR
        If R > 95 And G > 40 And B > 20 And (Max - Min) > 15 And Abs(R -
        G) > 15 And R > G And R > B Then
        Rb = R
        Gb = G
        Bb = B
        If xMax < x Then xMax = x
        If yMax < y Then yMax = y
        If xMin > x Then xMin = x
        If yMin > y Then yMin = y
        Else
        Rb = 0
        Gb = 0
        Bb = 0
        End If

        picOutput5.PSet (x, y), RGB(Rb, Gb, Bb)
        Next y
        Next x

        picCrop5.PaintPicture        picOutput5.Image,        0,        0,
        picCrop5.ScaleWidth, picCrop5.ScaleHeight, 80, 32, 161, 193

        End Select
        Next i
        DrawHistogram

        End Sub
```

```vb
        Sub DrawHistogram()
        'menggambar histogram muka menggunakan fastdrawing supaya cepat
        'looping untuk pemrosesan dari image 1 sampai image 5
        For a = 1 To 5
        Select Case a
        Case 1 'pemrosesan image 1

        lebarfoto = fDraw.GetImageWidth(picCrop1)
        tinggifoto = fDraw.GetImageHeight(picCrop1)
        fDraw.GetImageData2D picCrop1, ImageData()

        'inisialisasi nilai awal data histogram
        For i = 0 To 255
```

```vb
hData1(i) = 0
Next i

'Mengambil data2 pixel
For x = 0 To lebarfoto - 1
QuickX = x * 3
For y = 0 To tinggifoto - 1
R = ImageData(QuickX + 2, y)
G = ImageData(QuickX + 1, y)
B = ImageData(QuickX, y)
L = (R + G + B) \ 3
hData1(L) = hData1(L) + 1
ImageData(QuickX + 2, y) = L
ImageData(QuickX + 1, y) = L
ImageData(QuickX, y) = L
Next y
Next x

iMax(0) = 0
For i = 1 To 255
If hData1(i) > 0 Then iMax(0) = i
Next i

iMin(0) = 0
For i = 255 To 1 Step -1
If hData1(i) > 0 Then iMin(0) = i
Next i


Case 2 'pemrosesan image 2

lebarfoto = fDraw.GetImageWidth(picCrop2)
tinggifoto = fDraw.GetImageHeight(picCrop2)
fDraw.GetImageData2D picCrop2, ImageData()

'inisialisasi nilai awal data histogram
For i = 0 To 255
hData2(i) = 0
Next i

'Mengambil data2 pixel
For x = 0 To lebarfoto - 1
QuickX = x * 3
For y = 0 To tinggifoto - 1
R = ImageData(QuickX + 2, y)
```

```
G = ImageData(QuickX + 1, y)
B = ImageData(QuickX, y)
L = (R + G + B) \ 3
hData2(L) = hData2(L) + 1
Next y
Next x

iMax(1) = 0
For i = 1 To 255
If hData2(i) > 0 Then iMax(1) = i
Next i

iMin(1) = 0
For i = 255 To 1 Step -1
If hData2(i) > 0 Then iMin(1) = i
Next i


Case 3 'pemrosesan image 3

lebarfoto = fDraw.GetImageWidth(picCrop3)
tinggifoto = fDraw.GetImageHeight(picCrop3)
fDraw.GetImageData2D picCrop3, ImageData()

'inisialisasi nilai awal data histogram
For i = 0 To 255
hData3(i) = 0
Next i

'Mengambil data2 pixel
For x = 0 To lebarfoto - 1
QuickX = x * 3
For y = 0 To tinggifoto - 1
R = ImageData(QuickX + 2, y)
G = ImageData(QuickX + 1, y)
B = ImageData(QuickX, y)
L = (R + G + B) \ 3
hData3(L) = hData3(L) + 1
Next y
Next x

iMax(2) = 0
For i = 1 To 255
If hData3(i) > 0 Then iMax(2) = i
Next i
```

```
iMin(2) = 0
For i = 255 To 1 Step -1
If hData3(i) > 0 Then iMin(2) = i
Next i


Case 4 'pemrosesan image 4

lebarfoto = fDraw.GetImageWidth(picCrop4)
tinggifoto = fDraw.GetImageHeight(picCrop4)
fDraw.GetImageData2D picCrop4, ImageData()

'inisialisasi nilai awal data histogram
For i = 0 To 255
hData4(i) = 0
Next i

'Mengambil data2 pixel
For x = 0 To lebarfoto - 1
QuickX = x * 3
For y = 0 To tinggifoto - 1
R = ImageData(QuickX + 2, y)
G = ImageData(QuickX + 1, y)
B = ImageData(QuickX, y)
L = (R + G + B) \ 3
hData4(L) = hData4(L) + 1
Next y
Next x

iMax(3) = 0
For i = 1 To 255
If hData4(i) > 0 Then iMax(3) = i
Next i

iMin(3) = 0
For i = 255 To 1 Step -1
If hData4(i) > 0 Then iMin(3) = i
Next i


Case 5 'pemrosesan image 5

lebarfoto = fDraw.GetImageWidth(picCrop5)
tinggifoto = fDraw.GetImageHeight(picCrop5)
```

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```
fDraw.GetImageData2D picCrop5, ImageData()

'inisialisasi nilai awal data histogram
For i = 0 To 255
hData5(i) = 0
Next i

'Mengambil data2 pixel
For x = 0 To lebarfoto - 1
QuickX = x * 3
For y = 0 To tinggifoto - 1
R = ImageData(QuickX + 2, y)
G = ImageData(QuickX + 1, y)
B = ImageData(QuickX, y)
L = (R + G + B) \ 3
hData5(L) = hData5(L) + 1
Next y
Next x

iMax(4) = 0
For i = 1 To 255
If hData5(i) > 0 Then iMax(4) = i
Next i

iMin(4) = 0
For i = 255 To 1 Step -1
If hData5(i) > 0 Then iMin(4) = i
Next i

End Select
Next a

'HISTOGRAM AVERAGING
'mencari batas bawah dan batas atas untuk perhitungan rata-rata
'nilai batas bawah dan batas atas harus ada di dalam semua citra
'oleh karena itu, dilakukan sorting sederhana untuk batas bawah
'dan batas atas.
batasBawah = 0
If iMin(0) > iMin(1) Then batasBawah = iMin(0)
If batasBawah < iMin(2) Then batasBawah = iMin(2)
If batasBawah < iMin(3) Then batasBawah = iMin(3)
If batasBawah < iMin(4) Then batasBawah = iMin(4)

batasAtas = 255
If iMax(0) < iMax(1) Then batasAtas = iMax(0)
```

```vbnet
If batasAtas > iMax(2) Then batasAtas = iMax(2)
If batasAtas > iMax(3) Then batasAtas = iMax(3)
If batasAtas > iMax(4) Then batasAtas = iMax(4)

'menghitung rata2 data histogram
hMaxa = 0
For x = batasBawah To batasAtas
hAve(x) = (hData1(x) + hData2(x) + hData3(x) + hData4(x) +
hData5(x)) \ 5
Next x

'menghitung nilai maksimum
hMaxa = 0
For x = batasBawah To batasAtas
If hAve(x) > hMaxa Then hMaxa = hAve(x)
Next x


ListAve.Clear
For x = batasBawah To batasAtas
ListAve.AddItem (Str(x) + "     " + Str(hAve(x)))
Next x

End Sub
```

```vbnet
Private Sub cmdAve_Click()
GetData
cmdCSV.Enabled = True
End Sub
Private Sub cmdCSV_Click()
'membuka file inisialisasi tadi, lalu menuliskan data2 yang sudah
ada di dalam array hAve
Open App.Path + "\" + Text1.Text + ".csv" For Output As #1
For i = batasBawah To batasAtas
Write #1, i, hAve(i)
Next i

Close #1
End Sub
```

```vbnet
Private Sub cmdStart_Click()
cmdCapture.Enabled = True
cmdStop.Enabled = True
Text1.Enabled = True
cmdAve.Enabled = True
```

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```
cmdSave.Enabled = True
cmdStart.Enabled = False
cmdCSV.Enabled = False

START
continue = True
Do While continue
SendMessage mCapHwnd, GET_FRAME, 0, 0
SendMessage mCapHwnd, COPY, 0, 0
picCamera.Picture = Clipboard.GetData
imCamera.Picture = picCamera.Picture

Dim ImageData() As Byte
Dim R As Long, G As Long, B As Long
Dim Rb As Long, Gb As Long, Bb As Long
Dim lebarFot As Long, tinggiFot As Long
Dim QuickX As Long

lebarFot = fDraw.GetImageWidth(picCamera)
tinggiFot = fDraw.GetImageHeight(picCamera)
fDraw.GetImageData2D picCamera, ImageData()

For x = 0 To lebarFot - 1
QuickX = x * 3
For y = 0 To tinggiFot - 1
R = ImageData(QuickX + 2, y)
G = ImageData(QuickX + 1, y)
B = ImageData(QuickX, y)

'cari nilai max
If R > G Then
Max = R
Min = G
Else
Max = G
Min = R
End If

If B > Max Then
Max = B
ElseIf B < Min Then
Min = B
End If
```

```vb
'lakukan EDSR
If R > 95 And G > 40 And B > 20 And (Max - Min) > 15 And Abs(R -
G) > 15 And R > G And R > B Then
Rb = R
Gb = G
Bb = B
Else
Rb = 0
Gb = 0
Bb = 0
End If
ImageData(QuickX + 2, y) = Rb
ImageData(QuickX + 1, y) = Gb
ImageData(QuickX, y) = Bb
Next y
Next x

fDraw.SetImageData2D picEDSR, lebarFot, tinggiFot, ImageData(),
False

imEDSR.Picture = picEDSR.Picture
Loop
End Sub
```

```vb
Private Sub cmdStop_Click()
continue = False
SendMessage mCapHwnd, DISCONNECT, 0, 0
cmdCapture.Enabled = False
cmdStop.Enabled = False
cmdSave.Enabled = False
cmdStart.Enabled = True
cmdCSV.Enabled = False
End Sub
```

```vb
Private Sub cmdCapture_Click()
Dim ImageData() As Byte
Dim R, G, B As Long
Dim lebarCam As Long, tinggiCam As Long

lebarCam = fDraw.GetImageWidth(picCamera)
tinggiCam = fDraw.GetImageHeight(picCamera)
fDraw.GetImageData2D picCamera, ImageData(), False

For x = 0 To lebarCam - 1
QuickX = x * 3
```

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```vb
For y = 0 To tinggiCam - 1
R = ImageData(QuickX + 2, y)
G = ImageData(QuickX + 1, y)
B = ImageData(QuickX, y)

ImageData(QuickX + 2, y) = R
ImageData(QuickX + 1, y) = G
ImageData(QuickX, y) = B
Next y
Next x

fDraw.SetImageData2D    picCapture,    lebarCam,    tinggiCam,
ImageData(), False
imCapture.Picture = picCapture.Picture
End Sub
```

```vb
Private Sub cmdSave_Click()
CommonDialog1.InitDir = App.Path
CommonDialog1.FileName = Text1.Text
CommonDialog1.Filter = "Pictures (*.jpg)|*.jpg"
CommonDialog1.ShowSave
SavePicture picCapture.Picture, CommonDialog1.FileName
End Sub
```

```vb
Private Sub Form_Load()
cmdCapture.Enabled = False
cmdStop.Enabled = False
cmdSave.Enabled = False
cmdCSV.Enabled = False
End Sub
```

```vb
Private Sub Form_Terminate()
continue = False
SendMessage mCapHwnd, DISCONNECT, 0, 0
End Sub
```

VERIFIKASI REALTIME

```vb
Dim fDraw As New FastDrawing
Dim ImageData() As Byte

Dim hDataCam(0 To 255) As Single
Dim hAve(0 To 255) As Single
Dim batasBawah, batasAtas As Integer
Dim TotalAve As Long
Dim pz(0 To 255), ps(0 To 255) As Single

Private Declare Function SendMessage Lib "USER32" Alias
"SendMessageA" (ByVal hwnd As Long, ByVal wMsg As Long, ByVal
wParam As Long, lParam As Any) As Long
Private Declare Function capCreateCaptureWindow Lib
"avicap32.dll" Alias "capCreateCaptureWindowA" (ByVal
lpszWindowName As String, ByVal dwStyle As Long, ByVal x As Long,
ByVal y As Long, ByVal nWidth As Long, ByVal nHeight As Long,
ByVal hwndParent As Long, ByVal nID As Long) As Long
Private mCapHwnd As Long
Private Const CONNECT As Long = 1034
Private Const DISCONNECT As Long = 1035
Private Const GET_FRAME As Long = 1084
Private Const COPY As Long = 1054
Dim continue As Boolean

Dim threshold As Integer
```

```vb
Sub START()
mCapHwnd = capCreateCaptureWindow("WebcamCapture", 0, 0, 0, 320,
240, Me.hwnd, 0)
DoEvents
SendMessage mCapHwnd, CONNECT, 0, 0
End Sub
```

```vb
Sub cmdStart_Click()
START
continue = True
Do While continue
SendMessage mCapHwnd, GET_FRAME, 0, 0
SendMessage mCapHwnd, COPY, 0, 0
picCam.Picture = Clipboard.GetData
```

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```
imCam.Picture = picCam.Picture

Dim ImageData() As Byte
Dim R As Long, G As Long, B As Long
Dim Rb As Long, Gb As Long, Bb As Long
Dim lebarFot As Long, tinggiFot As Long
Dim QuickX As Long

lebarFot = fDraw.GetImageWidth(picCam)
tinggiFot = fDraw.GetImageHeight(picCam)
fDraw.GetImageData2D picCam, ImageData()

For x = 0 To lebarFot - 1
QuickX = x * 3
For y = 0 To tinggiFot - 1
R = ImageData(QuickX + 2, y)
G = ImageData(QuickX + 1, y)
B = ImageData(QuickX, y)

'cari nilai max
If R > G Then
Max = R
Min = G
Else
Max = G
Min = R
End If

If B > Max Then
Max = B
ElseIf B < Min Then
Min = B
End If

'lakukan EDSR
If R > 95 And G > 40 And B > 20 And (Max - Min) > 15 And Abs(R -
G) > 15 And R > G And R > B Then
Rb = R
Gb = G
Bb = B

Else
Rb = 0
Gb = 0
Bb = 0
```

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```vb
End If
ImageData(QuickX + 2, y) = Rb
ImageData(QuickX + 1, y) = Gb
ImageData(QuickX, y) = Bb
Next y
Next x

fDraw.SetImageData2D      picEDSRCam,      lebarFot,      tinggiFot,
ImageData(), False

imEDSRCam.Picture = picEDSRCam.Picture
Loop
End Sub
```

```vb
Private Sub cmdCapture_Click()
'========================INPUT DATA REFERENSI
Dim hAve(255) As Integer
Open App.Path + "\" + textNRP.Text + ".csv" For Input As #1
Input #1, NRP, threshold
labelThres.Caption = threshold

While Not EOF(1)
Input #1, Index, nilai
hAve(Index) = nilai
Wend
Close (1)


'cari batas atas dan bawah dari array buat looping nantinya
For i = 0 To 255
If hAve(i) > 0 Then batasAtas = i
Next i

For i = 255 To 0 Step -1
If hAve(i) > 0 Then batasBawah = i
Next i

'menampilkan nilai array hAve di listAve serta menghitung total
data histogram rata2
listAve.Clear
TotalAve = 0
listAve.AddItem ("i        hAve(i)")
For i = batasBawah To batasAtas
listAve.AddItem (Str(i) + "       " + Str(hAve(i)))
TotalAve = TotalAve + hAve(i)
```

```
Next i


'menggambar histogram rata2
hMaxAve = 0
For x = batasBawah To batasAtas
If hAve(x) > hMaxAve Then hMaxAve = hAve(x)
Next x

graphHistAve.Cls
tHeight = graphHistAve.ScaleHeight - 2
For x = batasBawah To batasAtas
y = tHeight - (hAve(x) / hMaxAve) * tHeight
graphHistAve.Line (x, tHeight)-(x, y)
Next x


'========================CROPPING FOTO SESUAI BOUNDING BOX
picCropCam.PaintPicture        picEDSRCam.Picture,        0,        0,
picCropCam.ScaleWidth, picCropCam.ScaleHeight, 80, 32, 161, 193
imCropCam.Picture = picCropCam.Picture


'=============================HISTOGRAM SPECIFICATION
'kita perlu tau histogram dari citra masukan
lebarfoto = fDraw.GetImageWidth(picCropCam)
tinggifoto = fDraw.GetImageHeight(picCropCam)
fDraw.GetImageData2D picCropCam, ImageData()

'inisialisasi nilai awal data histogram
For i = 0 To 255
hDataCam(i) = 0
Next i

'Mengambil data2 pixel
For x = 0 To lebarfoto - 1
QuickX = x * 3
For y = 0 To tinggifoto - 1
R = ImageData(QuickX + 2, y)
G = ImageData(QuickX + 1, y)
B = ImageData(QuickX, y)
L = (R + G + B) \ 3
hDataCam(L) = hDataCam(L) + 1
Next y
Next x

'menghitung total pixel input camera
TotalCam = 0
```

```vb
For i = batasBawah To batasAtas
TotalCam = TotalCam + hDataCam(i)
Next i

'menghitung probabilitas tiap intensitas
For i = batasBawah To batasAtas
pz(i) = hDataCam(i) / TotalCam
ps(i) = hAve(i) / TotalAve
Next i

Dim v(255), s(255) As Single
For i = batasBawah To batasAtas
v(i) = 0
s(i) = 0
Next i

v(batasBawah) = pz(batasBawah)
s(batasBawah) = ps(batasBawah)
For i = batasBawah + 1 To batasAtas
v(i) = v(i - 1) + pz(i)
s(i) = s(i - 1) + ps(i)
Next i

Dim zb(255) As Single
For i = batasAtas To batasBawah Step -1          'transformasi
For j = batasAtas To batasBawah Step -1
If v(i) < s(j) Then
zb(i) = j
End If
Next j
Next i

'inisialisasi nilai awal data histogram
Dim hSpec(255) As Single
For i = batasBawah To batasAtas
hSpec(i) = 0
Next i

lebarFot = fDraw.GetImageWidth(picCropCam)
tinggiFot = fDraw.GetImageHeight(picCropCam)
For x = 0 To lebarFot - 1
QuickX = x * 3
For y = 0 To tinggiFot - 1
R = ImageData(QuickX + 2, y)
G = ImageData(QuickX + 1, y)
```

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```
B = ImageData(QuickX, y)
L = (R + G + B) \ 3
gScale = zb(L)
hSpec(gScale) = hSpec(gScale) + 1
ImageData(QuickX + 2, y) = gScale
ImageData(QuickX + 1, y) = gScale
ImageData(QuickX, y) = gScale
Next y
Next x


fDraw.SetImageData2D                                    picHistSpec,
fDraw.GetImageWidth(picCropCam),
fDraw.GetImageHeight(picCropCam), ImageData(), False
imInput.Picture = picHistSpec.Picture


'menggambar histogram ekualisasi dan membuat listbox di listSpec
hMaxSpec = 0: posisi = 0
For x = batasBawah To batasAtas
If hSpec(x) > hMaxSpec Then hMaxSpec = hSpec(x): posisi = x
Next x


graphHistSpec.Cls
listSpec.Clear
listSpec.AddItem ("i        hSpec(i)")
tHeight = graphHistSpec.ScaleHeight - 2
For x = batasBawah To batasAtas
y = tHeight - (hSpec(x) / hMaxSpec) * tHeight
graphHistSpec.Line (x, tHeight)-(x, y)
listSpec.AddItem (Str(x) + "      " + Str(hSpec(x)))
Next x
Call cmdKurangi_Click

End Sub
```

```
Private Sub cmdKurangi_Click()

picRef.Cls
picRef.Picture = LoadPicture(App.Path + "\Crop " + textNRP.Text +
".jpg")

imRef.Picture = picRef.Picture
Compare
End Sub
```

```
Sub Compare()
'Membandingkan Citra Sebelum dan Sesudah Hist Match
dGSMax = 0
picBanding.Cls
picBanding.Width = picRef.Width
picBanding.Height = picRef.Height
variabel = 0

For x = 1 To picBanding.Width
For y = 1 To picBanding.Height
warnainput = picHistSpec.Point(x, y)
Ri = warnainput And RGB(255, 0, 0)
Gi = Int((warnainput And RGB(0, 255, 0)) / 256)
Bi = Int(((warnainput And RGB(0, 0, 255)) / 256) / 256)
Gsi = (Ri + Gi + Bi) \ 3

warnaref = picRef.Point(x, y)
Rr = warnaref And RGB(255, 0, 0)
Gr = Int((warnaref And RGB(0, 255, 0)) / 256)
Br = Int(((warnaref And RGB(0, 0, 255)) / 256) / 256)
Gsr = (Rr + Gr + Br) \ 3

variabel = variabel + (Gsi - Gsr) ^ 2
dGS = Abs(Gsi - Gsr)

If dGS > dGSMax Then
dGSMax = dGS
xMax = x
yMax = y
End If

If dGS > 75 Then
dGS = 255
Else
dGS = 0
End If

picBanding.PSet (x, y), RGB(dGS, dGS, dGS)
Next y
Next x

MSE = Round((Sqr(1 / (picBanding.Width * picBanding.Height) *
variabel)), 4)
labelMSE.Caption = MSE
```

```vb
If MSE <= threshold Then labelHasil.Caption = "CORRECT!"
If MSE > threshold Then labelHasil.Caption = "WRONG!"

imBanding.Picture = picBanding.Image

End Sub
```

```vb
Private Sub cmdStop_Click()
continue = False
SendMessage mCapHwnd, DISCONNECT, 0, 0
End Sub
'button browse untuk membandingkan citra
Private Sub Command1_Click()

CommonDialog1.ShowOpen
If Len(CommonDialog1.FileName) <> 0 Then
fname = CommonDialog1.FileName
End If

picCropCam.Picture = LoadPicture(fname)
Call cmdCapture_Click
Call cmdKurangi_Click
End Sub
```

```vb
Private Sub textNRP_KeyPress(KeyAscii As Integer)
If  Len(textNRP.Text)  >  0  And  KeyAscii  =  13  Then  Call
cmdStart_Click
End Sub
```

LAMPIRAN B
TAMPILAN VISUAL BASIC

PENGAMBILAN DATA REFERENSI
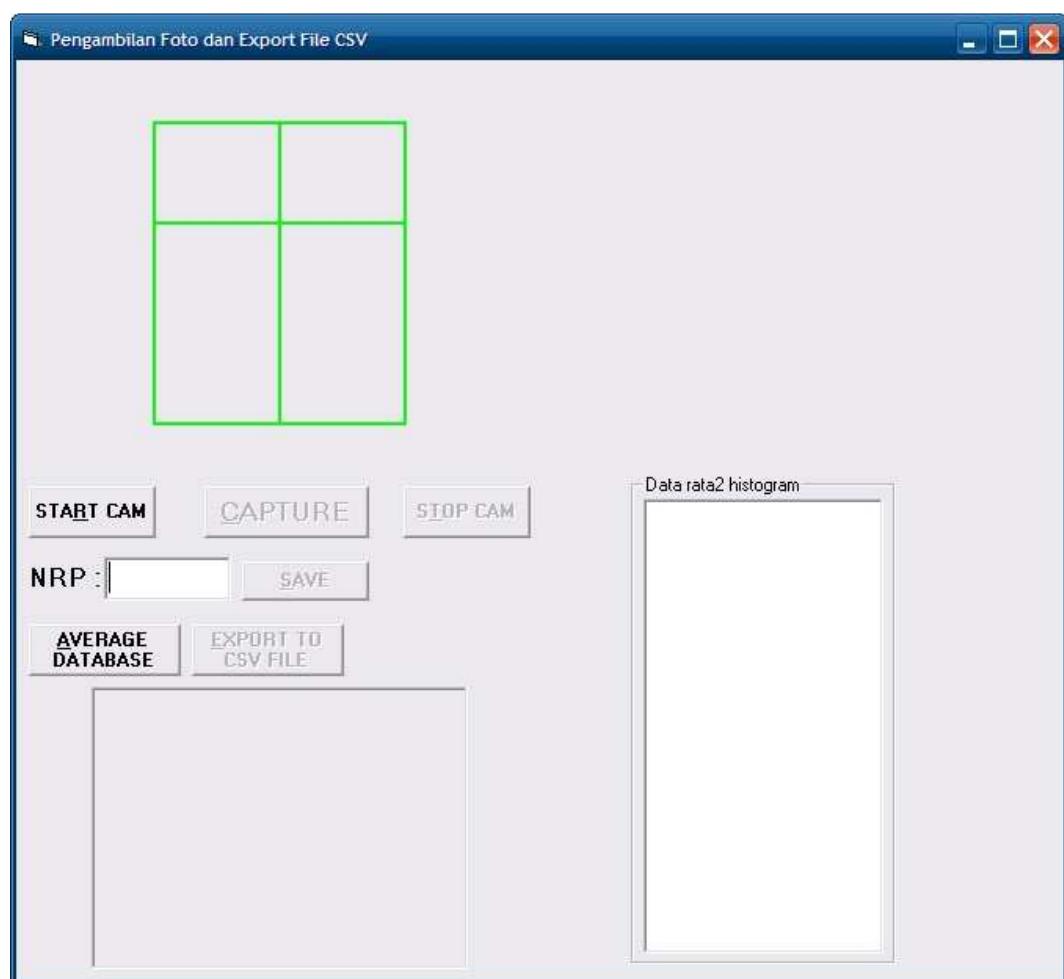
VERIFIKASI SECARA REALTIME
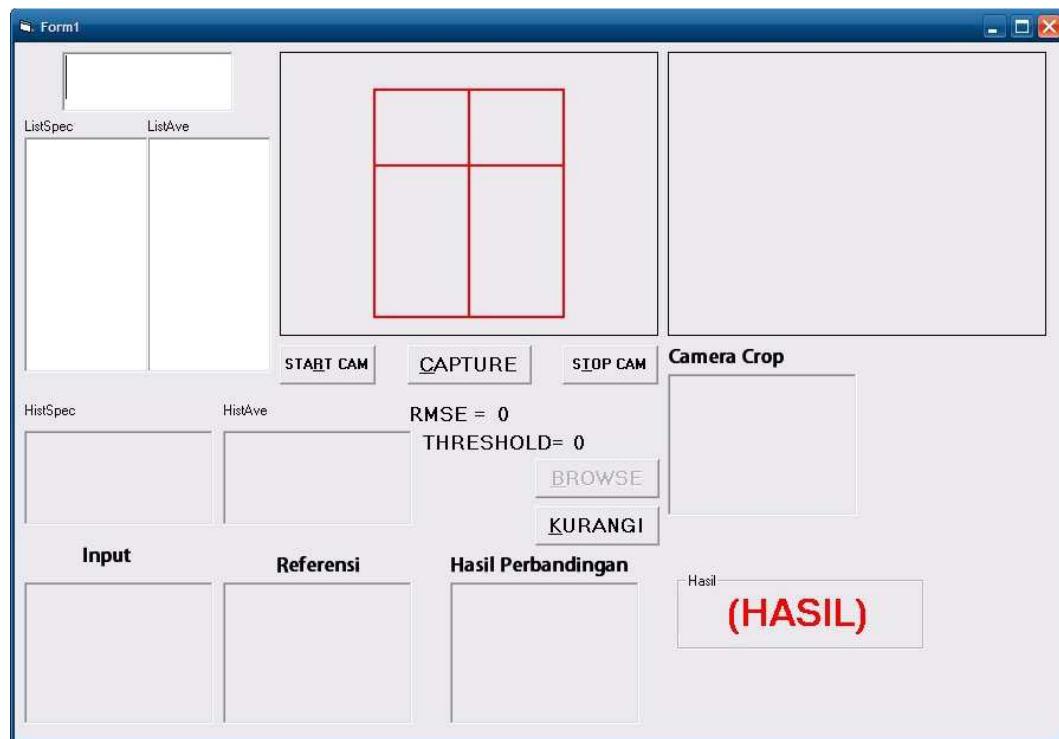
LAMPIRAN C
HASIL DATA PENGAMATAN

REFERENSI	INPUT	RMSE	REFERENSI	INPUT	RMSE
0722004	0722004	67.0223	0722015	0722004	99.7067
	0722015	121.3222		0722015	68.5537
	0722016	120.7645		0722016	85.6434
	0722065	119.2322		0722065	91.4324
	0722901	140.0477		0722901	92.1725
	0722902	124.7518		0722902	93.7127
	0722903	126.5401		0722903	89.6190
	0722904	123.4148		0722904	84.2414
	0722905	125.1822		0722905	96.9100
	0722906	125.8555		0722906	82.9809
	0722907	114.9337		0722907	97.3431
	0722908	97.9581		0722908	103.8494
	0722909	130.6570		0722909	95.6672
	0722910	118.7868		0722910	83.9626
	0722911	129.7436		0722911	96.9978
	0722912	115.6111		0722912	89.5361
	0722913	117.9549		0722913	93.5767
	0722914	96.3032		0722914	96.1340
	0722915	126.5169		0722915	93.9962
	0722916	140.7271		0722916	92.5249
	0722917	141.4498		0722917	103.9818
	0722918	123.2035		0722918	79.9498
	0722919	108.8849		0722919	87.8930
	0722920	114.8907		0722920	84.2618
	0722921	109.4714		0722921	99.6092
	0722922	114.6853		0722922	104.6709
	0722923	126.1799		0722923	91.3501
	0722924	128.9582		0722924	91.8731
	0722925	122.5629		0722925	79.7734
	0722926	116.4936		0722926	89.9473

REFERENSI	INPUT	RMSE	REFERENSI	INPUT	RMSE
0722016	0722004	107.2551	0722065	0722004	106.2257
	0722015	85.3076		0722015	94.8086
	0722016	67.4032		0722016	106.2655
	0722065	107.1841		0722065	69.1001
	0722901	98.0721		0722901	115.2617
	0722902	81.0254		0722902	107.0015
	0722903	82.9993		0722903	111.9100
	0722904	84.0279		0722904	104.0515
	0722905	103.9961		0722905	101.2920
	0722906	89.9843		0722906	101.0645
	0722907	101.4148		0722907	117.4801
	0722908	115.3334		0722908	107.7716
	0722909	98.9248		0722909	117.2518
	0722910	85.3790		0722910	97.6728
	0722911	93.0586		0722911	118.5510
	0722912	92.7579		0722912	114.1368
	0722913	103.1349		0722913	83.7100
	0722914	110.0171		0722914	93.3082
	0722915	93.3949		0722915	117.2651
	0722916	105.5864		0722916	110.0203
	0722917	114.5622		0722917	128.2952
	0722918	93.9930		0722918	101.2582
	0722919	90.2616		0722919	92.5344
	0722920	91.2409		0722920	107.9293
	0722921	113.0117		0722921	91.7110
	0722922	89.1516		0722922	121.2858
	0722923	99.3635		0722923	99.3635
	0722924	91.5532		0722924	91.5532
	0722925	88.1732		0722925	88.1732
	0722926	101.9264		0722926	101.9264

REFERENSI	INPUT	RMSE
0722901	0722004	125.4929
	0722015	102.7235
	0722016	104.9544
	0722065	118.7244
	0722901	81.6784
	0722902	95.2568
	0722903	103.9896
	0722904	99.5991
	0722905	110.1586
	0722906	100.3274
	0722907	109.4192
	0722908	127.6488
	0722909	102.7983
	0722910	98.8724
	0722911	113.2148
	0722912	102.9937
	0722913	117.6372
	0722914	124.4489
	0722915	100.6764
	0722916	91.6068
	0722917	113.3002
	0722918	94.7103
	0722919	112.8203
	0722920	101.4907
	0722921	116.1094
	0722922	115.8969
	0722923	104.9326
	0722924	103.4919
	0722925	96.0150
	0722926	96.0150

REFERENSI	INPUT	RMSE
0722902	0722004	112.3604
	0722015	91.9658
	0722016	88.0353
	0722065	114.4880
	0722901	92.7732
	0722902	76.0980
	0722903	89.4347
	0722904	89.0017
	0722905	106.5565
	0722906	93.6063
	0722907	104.1949
	0722908	118.6646
	0722909	97.6300
	0722910	87.4413
	0722911	102.2535
	0722912	97.8532
	0722913	108.3930
	0722914	114.6570
	0722915	93.8505
	0722916	99.7089
	0722917	114.5617
	0722918	90.3172
	0722919	96.4321
	0722920	92.9683
	0722921	110.9185
	0722922	98.3894
	0722923	102.6960
	0722924	94.9241
	0722925	91.1451
	0722926	104.0184

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REFERENSI	INPUT	RMSE
0722903	0722004	97.9630
	0722015	88.3053
	0722016	84.3464
	0722065	98.4111
	0722901	90.0096
	0722902	85.5377
	0722903	69.9212
	0722904	80.6981
	0722905	90.9534
	0722906	88.4556
	0722907	82.6151
	0722908	100.0831
	0722909	83.9345
	0722910	82.0065
	0722911	80.7020
	0722912	80.6032
	0722913	94.2330
	0722914	98.2077
	0722915	80.7250
	0722916	90.2849
	0722917	95.7509
	0722918	87.4357
	0722919	85.9242
	0722920	82.8645
	0722921	98.3922
	0722922	105.5798
	0722923	84.3751
	0722924	82.6564
	0722925	83.6138
	0722926	96.6184

REFERENSI	INPUT	RMSE
0722904	0722004	97.1657
	0722015	81.8049
	0722016	85.2423
	0722065	95.8239
	0722901	86.6148
	0722902	83.7766
	0722903	82.7368
	0722904	66.7382
	0722905	86.2916
	0722906	85.7529
	0722907	81.4360
	0722908	104.3658
	0722909	77.8347
	0722910	79.3367
	0722911	88.3109
	0722912	80.7980
	0722913	88.7982
	0722914	98.7294
	0722915	78.8275
	0722916	86.9714
	0722917	96.5361
	0722918	76.7676
	0722919	87.3191
	0722920	82.1219
	0722921	90.9668
	0722922	105.9445
	0722923	77.1274
	0722924	85.6364
	0722925	71.2613
	0722926	92.0528

REFERENSI	INPUT	RMSE
0722905	0722004	97.0525
	0722015	94.0709
	0722016	100.0427
	0722065	93.9034
	0722901	97.2770
	0722902	97.1083
	0722903	92.7822
	0722904	89.7541
	0722905	75.0215
	0722906	96.1183
	0722907	89.9069
	0722908	96.1726
	0722909	86.5601
	0722910	87.4063
	0722911	94.3118
	0722912	87.4276
	0722913	88.5249
	0722914	92.7152
	0722915	88.1980
	0722916	95.6756
	0722917	100.8981
	0722918	88.1895
	0722919	86.4614
	0722920	87.9997
	0722921	91.4478
	0722922	126.0687
	0722923	90.9046
	0722924	93.8440
	0722925	85.1579
	0722926	98.5258

REFERENSI	INPUT	RMSE
0722906	0722004	100.3604
	0722015	80.9676
	0722016	84.0358
	0722065	88.8073
	0722901	83.5766
	0722902	78.9244
	0722903	86.1660
	0722904	82.6178
	0722905	93.1406
	0722906	66.8497
	0722907	94.1344
	0722908	101.0643
	0722909	91.6649
	0722910	77.1105
	0722911	96.1372
	0722912	89.5145
	0722913	88.0787
	0722914	96.3011
	0722915	92.5700
	0722916	79.0670
	0722917	103.0716
	0722918	79.3488
	0722919	85.1640
	0722920	78.2738
	0722921	94.8564
	0722922	108.6897
	0722923	92.0212
	0722924	91.7615
	0722925	81.8220
	0722926	90.0501

REFERENSI	INPUT	RMSE	REFERENSI	INPUT	RMSE
0722907	0722004	101.8809	0722908	0722004	91.0524
	0722015	104.7873		0722015	112.4439
	0722016	105.7703		0722016	119.9773
	0722065	110.3702		0722065	107.9282
	0722901	104.5448		0722901	126.7958
	0722902	103.1692		0722902	119.0018
	0722903	92.6914		0722903	116.8480
	0722904	91.9255		0722904	117.8525
	0722905	99.1116		0722905	109.4695
	0722906	102.5478		0722906	117.8481
	0722907	62.9795		0722907	113.8064
	0722908	107.5510		0722908	71.5976
	0722909	82.9589		0722909	119.1045
	0722910	93.5617		0722910	110.7069
	0722911	92.6972		0722911	115.3721
	0722912	86.6749		0722912	109.3467
	0722913	103.6630		0722913	107.8841
	0722914	106.3237		0722914	82.8133
	0722915	88.4116		0722915	116.9791
	0722916	102.9474		0722916	120.8896
	0722917	104.8550		0722917	113.2879
	0722918	96.9243		0722918	112.9155
	0722919	103.5247		0722919	102.1326
	0722920	96.5924		0722920	107.4810
	0722921	104.8691		0722921	99.3363
	0722922	111.0296		0722922	127.9455
	0722923	83.6871		0722923	118.9018
	0722924	96.5257		0722924	122.0769
	0722925	88.0303		0722925	116.2312
	0722926	109.8992		0722926	108.0787

REFERENSI	INPUT	RMSE
0722909	0722004	102.5516
	0722015	96.1301
	0722016	97.7793
	0722065	104.6634
	0722901	90.9204
	0722902	92.6205
	0722903	87.4707
	0722904	82.3326
	0722905	89.7404
	0722906	95.0716
	0722907	72.2168
	0722908	107.7415
	0722909	68.2275
	0722910	84.7591
	0722911	87.3903
	0722912	82.7637
	0722913	96.5608
	0722914	103.2329
	0722915	78.7106
	0722916	91.3005
	0722917	97.5633
	0722918	86.7472
	0722919	97.7889
	0722920	90.2766
	0722921	100.7028
	0722922	133.7252
	0722923	77.1151
	0722924	87.5158
	0722925	80.5411
	0722926	101.8575

REFERENSI	INPUT	RMSE
0722910	0722004	99.2846
	0722015	92.0017
	0722016	93.4676
	0722065	96.6293
	0722901	96.7953
	0722902	90.6588
	0722903	88.7847
	0722904	81.2958
	0722905	90.1600
	0722906	92.6889
	0722907	88.0343
	0722908	104.0275
	0722909	83.3726
	0722910	71.6057
	0722911	91.4873
	0722912	86.6407
	0722913	91.8147
	0722914	96.6508
	0722915	85.6284
	0722916	94.3400
	0722917	107.5940
	0722918	84.2596
	0722919	86.2459
	0722920	87.1263
	0722921	98.8680
	0722922	106.0744
	0722923	88.1963
	0722924	89.8460
	0722925	83.1472
	0722926	100.2437

REFERENSI	INPUT	RMSE	REFERENSI	INPUT	RMSE
0722911	0722004	102.9465	0722912	0722004	91.0167
	0722015	94.2353		0722015	86.9854
	0722016	92.4706		0722016	88.3514
	0722065	106.8258		0722065	97.8168
	0722901	98.3460		0722901	88.8549
	0722902	93.2114		0722902	87.3918
	0722903	84.5015		0722903	81.0299
	0722904	87.1105		0722904	81.7059
	0722905	95.1798		0722905	88.8914
	0722906	99.1771		0722906	87.2470
	0722907	86.9076		0722907	78.4170
	0722908	103.6449		0722908	93.3189
	0722909	85.9090		0722909	82.3874
	0722910	90.9774		0722910	84.4607
	0722911	69.0489		0722911	81.0748
	0722912	80.7354		0722912	65.9025
	0722913	103.0559		0722913	96.0058
	0722914	101.2943		0722914	93.1919
	0722915	85.3310		0722915	80.7409
	0722916	101.6836		0722916	89.5725
	0722917	95.4468		0722917	89.0480
	0722918	95.3849		0722918	84.8402
	0722919	94.5355		0722919	89.8720
	0722920	92.1063		0722920	81.0937
	0722921	107.3908		0722921	96.4112
	0722922	106.8994		0722922	104.2077
	0722923	85.1490		0722923	81.1420
	0722924	86.9454		0722924	82.3203
	0722925	88.4163		0722925	77.9849
	0722926	103.0701		0722926	82.3203

REFERENSI	INPUT	RMSE	REFERENSI	INPUT	RMSE
0722913	0722004	92.4891	0722914	0722004	82.9003
	0722015	92.8656		0722015	99.2426
	0722016	100.6757		0722016	105.9982
	0722065	84.1109		0722065	93.7453
	0722901	103.8211		0722901	116.7988
	0722902	97.0725		0722902	106.4930
	0722903	96.9994		0722903	107.5226
	0722904	89.0673		0722904	102.0991
	0722905	86.1934		0722905	99.0420
	0722906	94.5542		0722906	106.5818
	0722907	95.3132		0722907	104.7697
	0722908	92.1817		0722908	77.4273
	0722909	93.5928		0722909	108.3853
	0722910	85.0727		0722910	98.2699
	0722911	100.5196		0722911	104.1818
	0722912	96.4271		0722912	98.7188
	0722913	65.8431		0722913	91.8855
	0722914	82.1654		0722914	66.6086
	0722915	95.8315		0722915	107.6537
	0722916	97.3546		0722916	112.5335
	0722917	113.6486		0722917	111.2761
	0722918	86.6407		0722918	100.5218
	0722919	81.7095		0722919	88.9289
	0722920	92.6561		0722920	96.0413
	0722921	82.5994		0722921	86.7363
	0722922	123.4471		0722922	123.4471
	0722923	94.8980		0722923	107.7223
	0722924	101.8598		0722924	110.0851
	0722925	86.9336		0722925	101.4555
	0722926	91.7398		0722926	94.5531

REFERENSI	INPUT	RMSE
0722915	0722004	98.4574
	0722015	94.4510
	0722016	94.6677
	0722065	105.5718
	0722901	91.2550
	0722902	90.8965
	0722903	86.9281
	0722904	87.1729
	0722905	95.0817
	0722906	95.4070
	0722907	79.3782
	0722908	105.5165
	0722909	82.5464
	0722910	88.9353
	0722911	88.9700
	0722912	81.9275
	0722913	100.8448
	0722914	103.4349
	0722915	74.0891
	0722916	93.9511
	0722917	99.1870
	0722918	87.7526
	0722919	96.9645
	0722920	90.9483
	0722921	100.8552
	0722922	106.6395
	0722923	81.7231
	0722924	86.5472
	0722925	84.1991
	0722926	101.3530

REFERENSI	INPUT	RMSE
0722916	0722004	98.5413
	0722015	84.1793
	0722016	88.6378
	0722065	89.8245
	0722901	76.7922
	0722902	82.6717
	0722903	84.3437
	0722904	81.4137
	0722905	87.7347
	0722906	80.0345
	0722907	87.4275
	0722908	97.2571
	0722909	83.4294
	0722910	81.2583
	0722911	90.3690
	0722912	85.2023
	0722913	89.3833
	0722914	94.6015
	0722915	84.4151
	0722916	71.4122
	0722917	91.1015
	0722918	78.8445
	0722919	88.8800
	0722920	81.5907
	0722921	89.7329
	0722922	128.1468
	0722923	83.6611
	0722924	87.4567
	0722925	79.9618
	0722926	89.9961

REFERENSI	INPUT	RMSE	REFERENSI	INPUT	RMSE
0722917	0722004	107.1092	0722918	0722004	92.5120
	0722015	97.1418		0722015	82.8276
	0722016	100.8235		0722016	90.5473
	0722065	108.0339		0722065	91.9436
	0722901	94.2313		0722901	85.3336
	0722902	97.3960		0722902	85.4472
	0722903	94.5353		0722903	87.2238
	0722904	93.0486		0722904	78.8428
	0722905	97.6606		0722905	86.8069
	0722906	99.9682		0722906	84.2619
	0722907	94.1506		0722907	85.7738
	0722908	101.0750		0722908	97.3814
	0722909	92.3407		0722909	82.2165
	0722910	98.6672		0722910	81.0099
	0722911	93.4291		0722911	93.8171
	0722912	88.2884		0722912	82.9909
	0722913	107.3669		0722913	88.4086
	0722914	103.5718		0722914	92.1176
	0722915	93.4408		0722915	81.9320
	0722916	96.0945		0722916	83.7587
	0722917	69.8452		0722917	95.9744
	0722918	95.2375		0722918	71.6268
	0722919	103.5628		0722919	86.5301
	0722920	92.2983		0722920	81.1736
	0722921	103.9724		0722921	84.3987
	0722922	128.2060		0722922	117.1318
	0722923	93.9680		0722923	82.8609
	0722924	94.0286		0722924	89.4086
	0722925	91.2759		0722925	76.7937
	0722926	100.4999		0722926	90.9322

REFERENSI	INPUT	RMSE	REFERENSI	INPUT	RMSE
0722919	0722004	86.3732	0722920	0722004	90.0274
	0722015	91.4913		0722015	87.1458
	0722016	93.8252		0722016	88.9394
	0722065	88.9699		0722065	93.4536
	0722901	102.3845		0722901	88.6435
	0722902	93.6712		0722902	86.4503
	0722903	93.3137		0722903	87.0586
	0722904	87.8532		0722904	79.7956
	0722905	84.0977		0722905	88.1870
	0722906	91.7128		0722906	82.6660
	0722907	97.6682		0722907	87.5353
	0722908	90.0672		0722908	93.3049
	0722909	97.4483		0722909	87.5228
	0722910	85.2437		0722910	83.5851
	0722911	96.1906		0722911	91.7918
	0722912	89.6128		0722912	78.7936
	0722913	84.6150		0722913	90.5389
	0722914	83.1767		0722914	89.0887
	0722915	95.4198		0722915	88.1846
	0722916	99.6405		0722916	85.0981
	0722917	110.4054		0722917	83.9970
	0722918	86.8617		0722918	79.6660
	0722919	66.2537		0722919	80.6090
	0722920	79.1028		0722920	68.2226
	0722921	84.1432		0722921	87.5880
	0722922	116.6656		0722922	116.3621
	0722923	100.3931		0722923	90.1369
	0722924	101.4997		0722924	95.7360
	0722925	89.6290		0722925	79.7782
	0722926	95.5497		0722926	92.3185

REFERENSI	INPUT	RMSE		REFERENSI	INPUT	RMSE
0722921	0722004	85.5082		0722922	0722004	117.9003
	0722015	95.5074			0722015	95.9905
	0722016	101.0889			0722016	102.5462
	0722065	90.1766			0722065	109.8586
	0722901	102.7809			0722901	99.2803
	0722902	97.9353			0722902	100.3199
	0722903	98.8522			0722903	86.8167
	0722904	93.1826			0722904	92.5153
	0722905	91.4199			0722905	101.2340
	0722906	96.3524			0722906	93.0423
	0722907	93.5582			0722907	94.1143
	0722908	88.2639			0722908	102.9847
	0722909	96.3435			0722909	95.5314
	0722910	89.7877			0722910	93.4526
	0722911	103.3207			0722911	90.8671
	0722912	95.2996			0722912	88.8807
	0722913	83.7993			0722913	104.3385
	0722914	82.4015			0722914	100.7134
	0722915	94.7669			0722915	87.5810
	0722916	96.1740			0722916	98.2700
	0722917	107.1630			0722917	101.4762
	0722918	86.9098			0722918	93.9676
	0722919	85.1950			0722919	97.2773
	0722920	89.5761			0722920	94.3768
	0722921	72.8250			0722921	102.8941
	0722922	129.0188			0722922	66.7968
	0722923	96.2218			0722923	106.5990
	0722924	101.9173			0722924	104.2115
	0722925	91.1552			0722925	97.1483
	0722926	92.2633			0722926	110.3945

REFERENSI	INPUT	RMSE		REFERENSI	INPUT	RMSE
0722923	0722004	118.3015		0722924	0722004	118.1199
	0722015	108.3565			0722015	108.4009
	0722016	114.9292			0722016	109.1704
	0722065	121.2854			0722065	125.7184
	0722901	114.6073			0722901	112.1886
	0722902	114.7944			0722902	109.5157
	0722903	109.2972			0722903	102.0285
	0722904	99.9215			0722904	102.8997
	0722905	114.3693			0722905	115.2903
	0722906	112.4820			0722906	111.7786
	0722907	87.0054			0722907	99.1069
	0722908	112.4820			0722908	130.7409
	0722909	93.4537			0722909	100.0547
	0722910	104.7325			0722910	105.4585
	0722911	107.6594			0722911	103.9256
	0722912	98.9057			0722912	91.2374
	0722913	118.2767			0722913	122.9245
	0722914	125.1617			0722914	126.2633
	0722915	99.5556			0722915	95.8786
	0722916	112.6392			0722916	117.7230
	0722917	120.7369			0722917	121.5666
	0722918	103.1759			0722918	107.9895
	0722919	120.9659			0722919	114.9940
	0722920	111.8320			0722920	108.6052
	0722921	120.3992			0722921	128.0816
	0722922	112.5645			0722922	106.9147
	0722923	74.7640			0722923	94.7540
	0722924	99.8214			0722924	83.1555
	0722925	93.2143			0722925	97.4520
	0722926	112.7089			0722926	118.1865

REFERENSI	INPUT	RMSE	REFERENSI	INPUT	RMSE
0722925	0722004	105.0454	0722926	0722004	105.8793
	0722015	89.7629		0722015	98.9029
	0722016	97.8746		0722016	108.8694
	0722065	104.5696		0722065	108.5467
	0722901	93.4946		0722901	117.7906
	0722902	93.4871		0722902	108.1286
	0722903	89.4721		0722903	115.6539
	0722904	77.8740		0722904	102.5123
	0722905	92.5315		0722905	113.6786
	0722906	90.8921		0722906	105.6748
	0722907	82.6953		0722907	119.4314
	0722908	110.0162		0722908	113.4858
	0722909	81.5208		0722909	117.6422
	0722910	84.6076		0722910	105.0138
	0722911	96.0835		0722911	122.0040
	0722912	79.5518		0722912	112.0790
	0722913	95.0363		0722913	104.5470
	0722914	103.2973		0722914	102.9054
	0722915	84.9691		0722915	118.6587
	0722916	91.0002		0722916	114.3460
	0722917	100.2140		0722917	126.2056
	0722918	81.7210		0722918	98.6610
	0722919	96.9440		0722919	103.7484
	0722920	84.7034		0722920	103.2319
	0722921	98.3125		0722921	106.3191
	0722922	103.0963		0722922	118.3477
	0722923	79.7131		0722923	107.4635
	0722924	90.9467		0722924	109.2682
	0722925	63.6437		0722925	96.7957
	0722926	97.8458		0722926	77.6371

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