

LAMPIRAN A
LISTING PROGRAM

1. Listing Program Database Warna Kulit Sampel

```
Private Sub Form_Load()  
Dim u, v As Single  
Dim n, m As Single  
Dim z, x1, y1 As Single  
  
Picture2.AutoRedraw = True  
Picture3.AutoRedraw = True  
Picture4.AutoRedraw = True  
  
maksCb = 255  
minCb = -15  
maksCr = 255  
minCr = -15  
  
Picture2.Cls  
Picture3.Cls  
Picture4.Cls  
  
'Membuat Sumbu Koordinat  
u = Picture2.ScaleWidth/(maksCr - minCr) * (0 - minCr)  
v = Picture2.ScaleHeight/(maksCb - minCb) * (maksCb - 0)  
Picture2.Line (u, 0)-(u, Picture2.ScaleHeight)  
Picture2.Line (0, v)-(Picture2.ScaleWidth, v)  
  
u = Picture3.ScaleWidth/(maksCr - minCr) * (0 - minCr)  
v = Picture3.ScaleHeight/(maksCb - minCb) * (maksCb - 0)  
Picture3.Line (u, 0)-(u, Picture3.ScaleHeight)  
Picture3.Line (0, v)-(Picture3.ScaleWidth, v)  
  
u = Picture4.ScaleWidth/(maksCr - minCr) * (0 - minCr)  
v = Picture4.ScaleHeight/(maksCb - minCb) * (maksCb - 0)  
Picture4.Line (u, 0)-(u, Picture4.ScaleHeight)  
Picture4.Line (0, v)-(Picture4.ScaleWidth, v)  
  
'membuat titik2 koordinat (0,0)  
n = Int(minCr)  
m = Int(minCb)  
For y1 = m To maksCb Step 30  
For z = n To maksCr Step 30  
x1 = Picture2.ScaleWidth/(maksCr - minCr) * (0 - minCr)  
v = Picture2.ScaleHeight/(maksCb - minCb) * (maksCb - 0)  
Picture2.Circle (x1, v), 2, RGB(0, 0, 255)  
x1 = Picture3.ScaleWidth/(maksCr - minCr) * (0 - minCr)  
v = Picture3.ScaleHeight/(maksCb - minCb) * (maksCb - 0)  
Picture3.Circle (x1, v), 2, RGB(0, 255, 0)
```

```

x1 = Picture4.ScaleWidth/(maksCr - minCr) * (0 - minCr)
v = Picture4.ScaleHeight/(maksCb - minCb) * (maksCb - 0)
Picture4.Circle (x1, v), 2, RGB(255, 0, 0)

Next z
Next y1

'membuat tulisan koordinat
n = Int(minCr)
For z = n To maksCr Step 30
x1 = Picture2.ScaleWidth/(maksCr - minCr) * (z - minCr)
v = Picture2.ScaleHeight/(maksCb - minCb) * (maksCb - 0)
Picture2.Circle (x1, v), 1, RGB(0, 0, 255)
Picture2.CurrentX = x1
Picture2.CurrentY = v
Picture2.Print z

x1 = Picture3.ScaleWidth/(maksCr - minCr) * (z - minCr)
v = Picture3.ScaleHeight/(maksCb - minCb) * (maksCb - 0)
Picture3.Circle (x1, v), 1, RGB(0, 255, 0)
Picture3.CurrentX = x1
Picture3.CurrentY = v
Picture3.Print z

x1 = Picture4.ScaleWidth/(maksCr - minCr) * (z - minCr)
v = Picture4.ScaleHeight/(maksCb - minCb) * (maksCb - 0)
Picture4.Circle (x1, v), 1, RGB(255, 0, 0)
Picture4.CurrentX = x1
Picture4.CurrentY = v
Picture4.Print z
Next z

m = Int(minCb)
For y1 = m To maksCb Step 30
x1 = Picture2.ScaleWidth/(maksCr - minCr) * (0 - minCr)
v = Picture2.ScaleHeight/(maksCb - minCb) * (maksCb - y1)
Picture2.Circle (x1, v), 1, RGB(0, 0, 255)
Picture2.CurrentX = x1
Picture2.CurrentY = v
Picture2.Print y1

x1 = Picture3.ScaleWidth/(maksCr - minCr) * (0 - minCr)
v = Picture3.ScaleHeight/(maksCb - minCb) * (maksCb - y1)
Picture3.Circle (x1, v), 1, RGB(0, 255, 0)
Picture3.CurrentX = x1
Picture3.CurrentY = v
Picture3.Print y1

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x1 = Picture4.ScaleWidth/(maksCr - minCr) * (0 - minCr)
v = Picture4.ScaleHeight/(maksCb - minCb) * (maksCb - y1)
Picture4.Circle (x1, v), 1, RGB(255, 0, 0)
Picture4.CurrentX = x1
Picture4.CurrentY = v
Picture4.Print y1
Next y1
End Sub

Private Sub cmdProses_Click()
Open "CrCb_1.txt" For Output As #1
Picture1.AutoRedraw = True
Picture1.Cls

n = File1.ListCount
For i = 1 To n
    File1.ListIndex = i - 1

    Text1.Text = Dir1.Path + "\" + File1.List(File1.ListIndex)
    Text1.Refresh
    Picture1.Picture = LoadPicture(Text1.Text)
    Picture1.Refresh

W = Picture1.ScaleWidth
x = Picture1.ScaleHeight

For brs = 1 To W
    For klm = 1 To x

        warna = Picture1.Point(brs, klm)
        r = warna And RGB(255, 0, 0)
        g = Int((warna And RGB(0, 255, 0)) / 256)
        b = Int(Int((warna And RGB(0, 0, 255)) / 256) / 256)

        Y = 0.299 * r + 0.587 * g + 0.114 * b
        Cb = -0.169 * r - 0.331 * g + 0.5 * b + 128
        Cr = 0.5 * r - 0.419 * g - 0.081 * b + 128
        Write #1, Cr, Cb

    Next klm
Next brs
Next i
Close #1

MsgBox ("Selesai")
End Sub

Private Sub cmdGambar_Click()
Dim Cr, Cb As Single

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```

Dim r1, r2, r3, alfa1, alfa2, alfa3 As Single
Dim rataR1, rataR2, rataR3, rataAlfa1, rataAlfa2, rataAlfa3 As
Single
Dim Cr1, Cb1, Cr2, Cb2, Cr3, Cb3 As Single
Dim s1, s2, s3, p1, p2, p3 As Single

maksCb = 255
minCb = -15
maksCr = 255
minCr = -15

s1 = 0
p1 = 0
s2 = 0
p2 = 0
s3 = 0
p3 = 0

'distribusi warna RAS Kaukasoid
Open "CrCb_K.txt" For Input As #1
While Not EOF(1)
Input #1, Cr, Cb
c = c + 1

    r1 = Sqr((Cr ^ 2) + (Cb ^ 2))
    s1 = s1 + r1
    alfa1 = Atn(Cb / Cr)
    p1 = p1 + alfa1
u = Picture2.ScaleWidth/(maksCr - minCr) * (Cr - minCr)
v = Picture2.ScaleHeight/(maksCb - minCb) * (maksCb - Cb)
Picture2.PSet (u, v), RGB(0, 0, 255)
Wend
Close #1
rataR1 = s1 / c
rataAlfa1 = p1 / c

Open "Sentroid.txt" For Append As #2
Cr1 = Abs(rataR1 * Cos(rataAlfa1))
Cb1 = Abs(rataR1 * Sin(rataAlfa1))

Write #2, Cr1, Cb1
u = Picture2.ScaleWidth/(maksCr - minCr) * (Cr1 - minCr)
v = Picture2.ScaleHeight/(maksCb - minCb) * (maksCb - Cb1)
Picture2.Circle (u, v), 2, RGB(0, 0, 0)
Close #2

'distribusi warna RAS Mongoloid
Open "CrCb_M.txt" For Input As #1
While Not EOF(1)

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Input #1, Cr, Cb
d = d + 1

    r2 = Sqr(Cr ^ 2 + Cb ^ 2)
    s2 = s2 + r2
    alfa2 = Atn(Cb / Cr)
    p2 = p2 + alfa2
u = Picture3.ScaleWidth/(maksCr - minCr) * (Cr - minCr)
v = Picture3.ScaleHeight/(maksCb - minCb) * (maksCb - Cb)
Picture3.PSet (u, v), RGB(0, 255, 0)
Wend
Close #1

rataR2 = (s2 / d)
rataAlfa2 = (p2 / d)

Open "Sentroid.txt" For Append As #2
Cr2 = rataR2 * Cos(rataAlfa2)
Cb2 = rataR2 * Sin(rataAlfa2)

Write #2, Cr2, Cb2
u = Picture3.ScaleWidth/(maksCr - minCr) * (Cr2 - minCr)
v = Picture3.ScaleHeight/(maksCb - minCb) * (maksCb - Cb2)
Picture3.Circle (u, v), 2, RGB(0, 0, 0)
Close #2

'distribusi warna RAS Negroid
Open "CrCb_N.txt" For Input As #1
While Not EOF(1)
Input #1, Cr, Cb
e = e + 1
    r3 = Sqr(Cr ^ 2 + Cb ^ 2)
    s3 = s3 + r3
    alfa3 = Atn(Cb / Cr)
    p3 = p3 + alfa3
u = Picture4.ScaleWidth/(maksCr - minCr) * (Cr - minCr)
v = Picture4.ScaleHeight/(maksCb - minCb) * (maksCb - Cb)
Picture4.PSet (u, v), RGB(255, 0, 0)
Wend
Close #1

rataR3 = (s3 / e)
rataAlfa3 = (p3 / e)

Open "Sentroid.txt" For Append As #2
Cr3 = rataR3 * Cos(rataAlfa3)
Cb3 = rataR3 * Sin(rataAlfa3)

Write #2, Cr3, Cb3

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```
u = Picture4.ScaleWidth/(maksCr - minCr) * (Cr3 - minCr)
v = Picture4.ScaleHeight/(maksCb - minCb) * (maksCb-Cb3)
Picture4.Circle (u, v), 2, RGB(0, 0, 0)
Close #2

MsgBox ("Selesai")
End Sub

Private Sub cmdKeluar_Click()
Unload Me
End Sub

Private Sub Dir1_Change()
File1.Path = Dir1.Path
End Sub

Private Sub Drive1_Change()
Dir1.Path = Drive1.Drive
End Sub

Private Sub File1_Click()
Text1.Text = Dir1.Path + "\" + File1.List(File1.ListIndex)
Picture1.Picture = LoadPicture(Text1.Text)
End Sub
```

2. Listing Program Pengklasifikasian Ras Manusia

```
Private Sub cmdProses_Click()  
Open "CrCb_Uji.txt" For Output As #1  
Picture1.AutoRedraw = True  
Picture1.Cls  
  
W = Picture1.ScaleWidth  
X = Picture1.ScaleHeight  
  
For brs = 1 To W  
For klm = 1 To X  
warna = Picture1.Point(brs, klm)  
  
r = warna And RGB(255, 0, 0)  
g = Int((warna And RGB(0, 255, 0)) / 256)  
b = Int(Int((warna And RGB(0, 0, 255)) / 256) / 256)  
  
Y = 0.299 * r + 0.587 * g + 0.114 * b  
Cb = -0.169 * r - 0.331 * g + 0.5 * b + 128  
Cr = 0.5 * r - 0.419 * g - 0.081 * b + 128  
  
Write #1, Cr, Cb  
  
Next klm  
Next brs  
  
Close #1  
  
MsgBox ("SELESAI")  
End Sub  
  
Private Sub cmdRas_Click()  
Dim BatasAtas, BatasBawah, data As Integer  
Dim maksK, maksM, maksN As Integer  
Dim ketemu As Boolean  
Dim i, j As Integer  
Dim dataK(5000) As String  
Dim dataM(5000) As String  
Dim dataN(5000) As String  
Dim Uji As String  
Dim tengah As Single  
  
'ambil database RAS Kaukasoid  
Open "CrCb_KI.txt" For Input As #2  
i = 1  
While Not EOF(2)  
Line Input #2, dataK(i)  
i = i + 1
```



```

Wend
Close #2
maksK = i - 1

'ambil database sampe uji
Open "CrCb_Uji.txt" For Input As #1
cocok_K = 0
While Not EOF(1)
    Line Input #1, Uji
    data = data + 1

    BatasAtas = maksK
    BatasBawah = 1
    ketemu = False
    While (ketemu = False)
        tengah = (Int(BatasAtas + BatasBawah) / 2)
        If dataK(tengah) = Uji Then
            ketemu = True
            cocok_K = cocok_K + 1
            Text2.Text = cocok_K
            Text2.Refresh
        Else
            If (dataK(tengah) > Uji) Then
                BatasAtas = tengah + 1
            Else
                BatasBawah = tengah - 1
            End If
        End If
    End While

'scanning data jika tersisa 3 data
If (Abs(BatasBawah - BatasAtas) <= 3) Then
    For j = BatasBawah To BatasAtas
        If dataK(j) = Uji Then
            ketemu = True
            cocok_K = cocok_K + 1
            Text2.Text = cocok_K
            Text2.Refresh
        End If
    Next j
    GoTo keluarK 'tidak ada yang cocok
End If
End If
Wend
keluarK:
Wend
Close #1

'cari persentase RAS Kaukasoid
persen = (Text2.Text) / data * 100
Text5.Text = (persen)

```

```

'ambil database RAS Mongoloid
Open "CrCb_MI.txt" For Input As #3
    i = 1
    While Not EOF(3)
        Line Input #3, dataM(i)
        i = i + 1
    Wend
Close #3
maksM = i - 1

'ambil database sampe uji
Open "CrCb_Uji.txt" For Input As #1
cocok_M = 0
While Not EOF(1)
    Line Input #1, Uji

    BatasAtas = maksM
    BatasBawah = 1
    ketemu = False
    While (ketemu = False)
        tengah = (Int(BatasAtas + BatasBawah) / 2)
        If dataM(tengah) = Uji Then
            ketemu = True
            cocok_M = cocok_M + 1
            Text3.Text = cocok_M
            Text3.Refresh
        Else
            If (dataM(tengah) > Uji) Then
                BatasAtas = tengah + 1
            Else
                BatasBawah = tengah - 1
            End If
        End If
    End While

'scanning data jika tersisa 3 data
If (Abs(BatasBawah - BatasAtas) <= 3) Then
    For j = BatasBawah To BatasAtas
        If dataM(j) = Uji Then
            ketemu = True
            cocok_M = cocok_M + 1
            Text3.Text = cocok_M
            Text3.Refresh
        End If
    Next j
    GoTo keluarM 'tidak ada yang cocok
End If
End If
Wend
keluarM:
Wend

```

```

Close #1

'cari persentase RAS Kaukasoid
persen = (Text3.Text) / data * 100
Text6.Text = (persen)

'ambil database RAS Negroid
Open "CrCb_NI.txt" For Input As #4
  i = 1
  While Not EOF(4)
    Line Input #4, dataN(i)
    i = i + 1
  Wend
Close #4
maksN = i - 1

'ambil database sampe uji
Open "CrCb_Uji.txt" For Input As #1
cocok_N = 0
While Not EOF(1)
  Line Input #1, Uji

  BatasAtas = maksN
  BatasBawah = 1
  ketemu = False
  While (ketemu = False)
    tengah = (Int(BatasAtas + BatasBawah) / 2)
    If dataN(tengah) = Uji Then
      ketemu = True
      cocok_N = cocok_N + 1
      Text4.Text = cocok_N
      Text4.Refresh
    Else
      If (dataN(tengah) > Uji) Then
        BatasAtas = tengah + 1
      Else
        BatasBawah = tengah - 1
      End If
    End If
  End While

'scanning data jika tersisa 3 data
If (Abs(BatasBawah - BatasAtas) <= 3) Then
  For j = BatasBawah To BatasAtas
    If dataN(j) = Uji Then
      ketemu = True
      cocok_N = cocok_N + 1
      Text4.Text = cocok_N
      Text4.Refresh
    End If
  Next j

```

```

        GoTo keluarN 'tidak ada yang cocok
    End If
End If
Wend
keluarN:
Wend
Close #1

'cari persentase RAS Negroid
persen = (Text4.Text) / data * 100
Text7.Text = (persen)

'mencari RAS berdasarkan jumlah terbanyak
Text8.Refresh
If Val(Text5.Text) > Val(Text6.Text) And Val(Text5.Text) >
Val(Text7.Text) Then
    Text8.Text = "RAS KAUkasoid"
Else
If Val(Text6.Text) > Val(Text5.Text) And Val(Text6.Text) >
Val(Text7.Text) Then
    Text8.Text = "RAS MONGOLOID"
Else
If Val(Text7.Text) > Val(Text5.Text) And Val(Text7.Text) >
Val(Text6.Text) Then
    Text8.Text = "RAS NEGROID"
End If
End If
End If

'Mencari Centroid sample uji
Dim r, alfa, rataR, rataAlfa, s, p As Single
Dim aCr, aCb As Single
Dim Cr, Cb As Single
Dim u, v As Single
Dim selisih(3) As Single

Open "CrCb_Uji.txt" For Input As #1
s = 0
p = 0
While Not EOF(1)
Input #1, Cr, Cb
c = c + 1
    r = Sqr((Cr ^ 2) + (Cb ^ 2))
    s = s + r
    alfa = Atn(Cb / Cr)
    p = p + alfa
Wend
Close #1

```

```
rataR = s / c
rataAlfa = p / c
```

```
Open "Sentroid_Uji.txt" For Output As #2
Cr1 = Abs(rataR * Cos(rataAlfa))
Cb1 = Abs(rataR * Sin(rataAlfa))
Write #2, Cr1, Cb1
Close #2
```

```
'mencari jarak Centroid
```

```
Open "Sentroid.txt" For Input As #2
i = 0
While Not EOF(2)
Input #2, aCr, aCb
    u = Sqr(aCr ^ 2 + aCb ^ 2)
    i = i + 1
    Open "Sentroid_Uji.txt" For Input As #1
    While Not EOF(1)
    Input #1, Cr, Cb
        v = Sqr(Cr ^ 2 + Cb ^ 2)
        For j = 0 To i
            selisih(i) = Abs(Round(u - v))
            j = j + 1
        Next j
        Text9.Text = selisih(1)
        Text10.Text = selisih(2)
        Text11.Text = selisih(3)
    Wend
    Close #1
Wend
Close #2
```

```
'mencari RAS berdasarkan nilai Centroid terkecil
```

```
Text12.Refresh
If Val(Text9.Text) < Val(Text10.Text) And Val(Text9.Text) <
Val(Text11.Text) Then
    Text12.Text = "RAS KAUKASOID"
Else
If Val(Text10.Text) < Val(Text9.Text) And Val(Text10.Text) <
Val(Text11.Text) Then
    Text12.Text = "RAS MONGOLOID"
Else
If Val(Text11.Text) < Val(Text9.Text) And Val(Text11.Text) <
Val(Text10.Text) Then
    Text12.Text = "RAS NEGROID"
End If
End If
End If
```

```
MsgBox ("SELESAI")  
End Sub
```

```
Private Sub cmdKeluar_Click()  
Unload Me  
End Sub
```

```
Private Sub Dir1_Change()  
File1.FileName = Dir1.Path  
End Sub
```

```
Private Sub Drive1_Change()  
Dir1.Path = Drive1.Drive  
End Sub
```

```
Private Sub File1_Click()  
Text1.Text = Dir1.Path + "\" + File1.FileName  
Picture1.Picture = LoadPicture(Text1.Text)  
End Sub
```

LAMPIRAN B
CITRA KULIT REFERENSI DAN UJI

1. Ras Kaukasoid













2. Ras Mongoloid









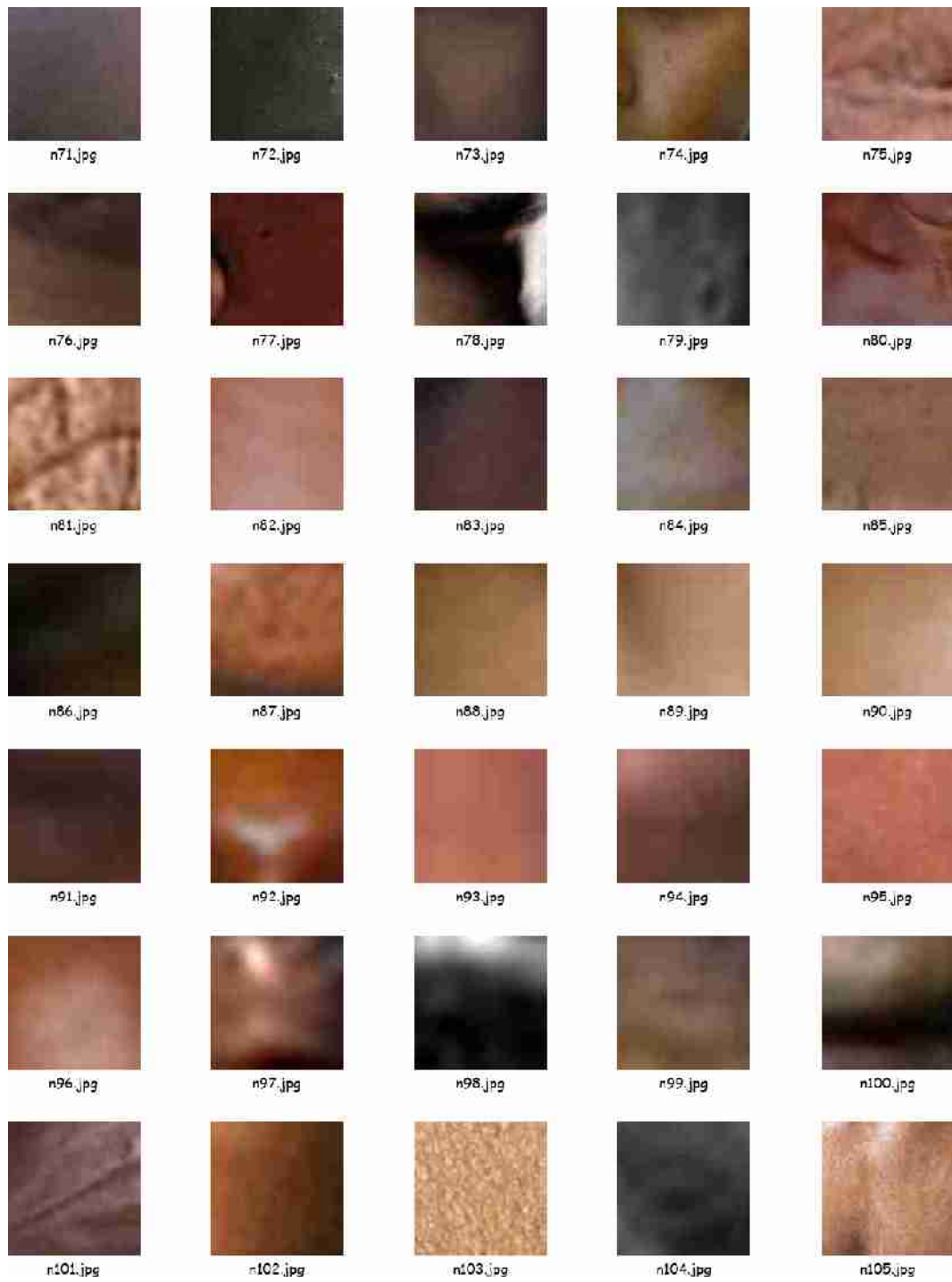




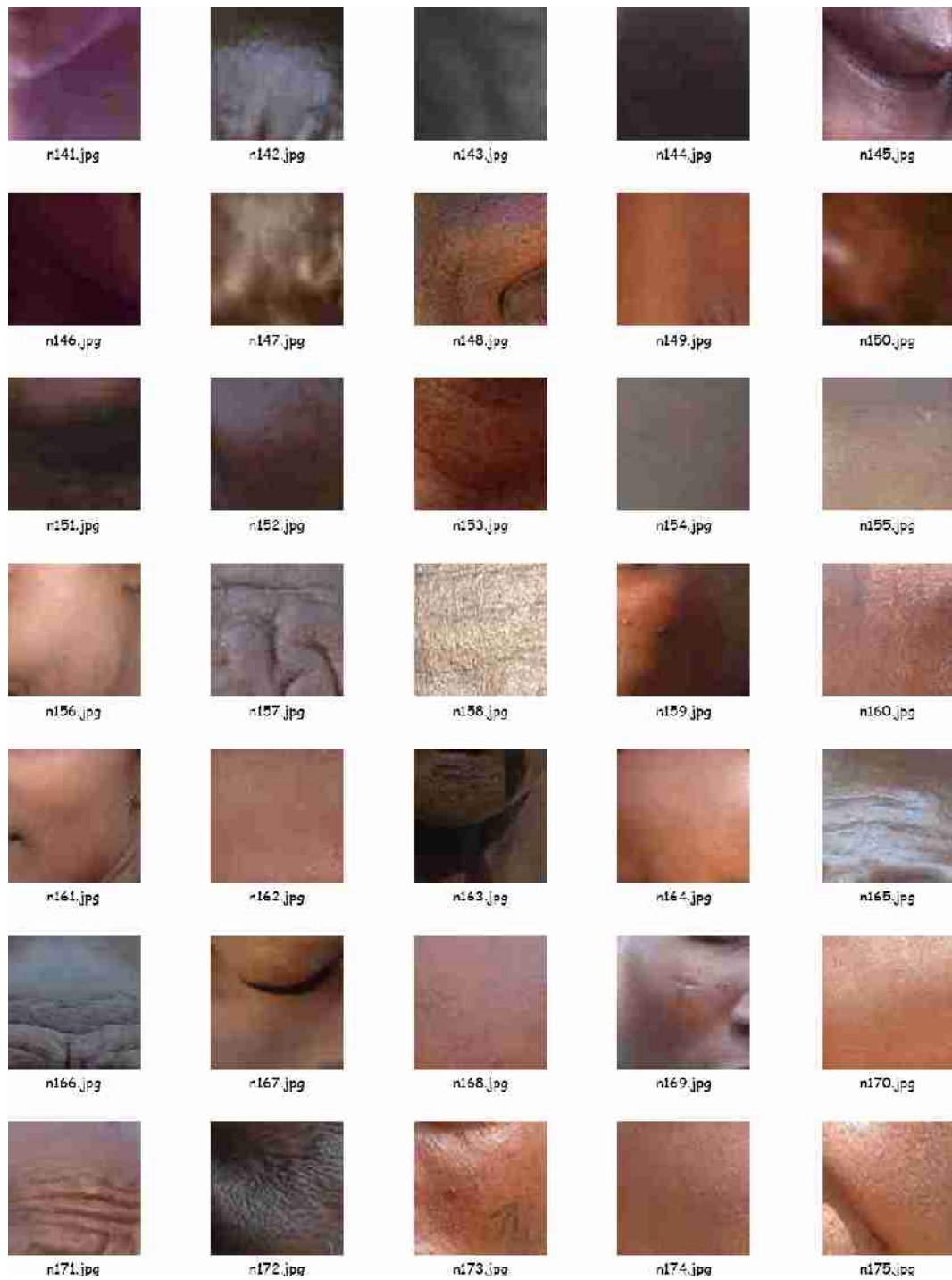
3. Ras Negroid













4. Citra Uji







uji71.jpg



uji72.jpg



uji73.jpg



uji74.jpg



uji75.jpg



uji76.jpg



uji77.jpg



uji78.jpg



uji79.jpg



uji80.jpg



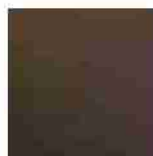
uji81.jpg



uji82.jpg



uji83.jpg



uji84.jpg



uji85.jpg



uji86.jpg



uji87.jpg



uji88.jpg



uji89.jpg



uji90.jpg