LAMPIRAN 1 : Program Fraktal Landscape

```
Program Landscape;

Uses CRT,Graph,Fractal;

var
       Triangle: array[1..3] of PointType;
         GraphDriver,GraphMode,a,i,j,k,l,m,level,row,col,key,ke
y1,y_max: integer;
         x,y,xz,yz: real;

Function Menu(kode: integer): integer;
Const
     Text1: array[0..5] of string [45] =
            (('Pengertian Fraktal Landscape'),
            ('Fraktal Landscape OAK CREEK CANYON'),
            ('Fraktal Landscape PIKE PEAK AT SUNRISE'),
            ('Fraktal Landscape EARTH VIEWED FROM THE MOON'),
            ('Programmer Fraktal Landscape'),
            ('Keluar'));
     Text2: array[0..5] of string [45] =
            (('Level 0'),('Level 1'),('Level 2'),('Level 3'),
            ('Level 4'),('Keluar ke Menu Utama'));
     Color: array[0..15] of integer =
(0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15);

Var
     i,k1: integer;
     ch1: char;
begin
     clrscr;
     k1:=0;
     Window(1,1,80,25);
     TextBackGround(3);

     if kode = 0 then
     begin
          Window(19,6,68,20);
          TextBackGround(4);
          Window(20,6,69,20);
          TextBackGround(3);
          Window(18,6,67,20);
          TextBackGround(0);
          l:=5;
          TextBackGround(0);
     end
     else
     begin
          Window(18,10,67,22);
          l:=5;
          TextBackGround(14);
          clrscr;
     end;

     {clrscr;}
     GotoXY(3,2);
     if kode = 0 then
     begin
          TextColor(14);
          Writeln('                SELAMAT DATANG   ');
          Writeln('            PROGRAM FRAKTAL LANDSCAPE');
          Write('
==============================================');
     end
     else
     begin
          TextColor(15);
          Writeln;
          Writeln('
==========================================');
          Writeln;
     end;

     repeat
          for i:=0 to 5 do
          begin
               if i = k1 then
               begin
                    if kode=0 then
                    begin
                         TextColor(14);
                         TextBackGround(4);
                    end
                    else
                    begin
                         TextColor(1);
                         TextBackGround(10);
                    end
               end
               else
               begin
                    if kode=0 then
                    begin
                         TextColor(15);
                         TextBackGround(0);
                    end
                    else
                    begin
                         TextColor(1);
                         TextBackGround(14);
                    end;
               end;
               GotoXY(4,i+5);
               if kode = 0 then
                  Write(Text1[i])
               else
                  Write(Text2[i]);
          end;
          ch1:=ReadKey;
          if ch1 = char(#00) then
          begin
               ch1:=ReadKey;
               case ch1 of
                    'P':
                    begin
                       if kode = 0 then
                       begin
                            if k1=5 then
                            k1:=0
                            else
                            inc(k1);
                       end
                       else
                       begin
                            if k1=5 then
                            k1:=0
                            else
                            inc(k1);
                       end;
                    end;
                    'H':
                    begin
                       if kode=0 then
                       begin
                            if k1=0 then
                            k1:=5
                            else
                            dec(k1);
                       end
                       else
                       begin
                            if k1=0 then
                            k1:=5
                            else
                            dec(k1);
                       end;
                    end;
               end;
          end;
          until ch1=char($0D);
          Window(1,1,80,25);
          menu:=k1;
     end;

Procedure Info;
Const
     TextLand: array[0..8] of string [80] =
     (('  '),
     ('  '),
     ('            PENGERTIAN FRAKTAL LANDSCAPE'),
('=============================================================='),
     ('  '),
     ('Fraktal Landscape adalah jenis visual fraktal yang '),
     ('memperlihatkan suatu permukaan ataupun pemandangan dari
'),
     ('sebuah obyek alami, misalnya pegunungan, bukit ataupun
'),
     ('permukaan bumi lainnya')};
     TextOak: array[0..8] of string [80] =
     (('  '),
     ('  '),
     ('          FRAKTAL LANDSCAPE OAK CREEK CANYON'),
('=============================================================='),
     ('  '),
     ('Fraktal landscape ini memvisualisasikan suatu pemandangan
'),
     ('sebuah lembah atau ngarai di dekat Sedona, Arizona,
Amerika'),
     ('Serikat, yang sering disebut sebagai Oak Creek Canyon
atau'),
     ('Lembah Oak Creek'));
     TextPike: array[0..8] of string [80] =
     (('  '),
     ('  '),
     ('        FRAKTAL LANDSCAPE PIKES PEAK AT SUNRISE'),
('=============================================================='),
     ('  '),
     ('Fraktal landscape pemandangan saat matahari terbit dari
'),
     ('beberapa puncak gunung di dekat Colorado, Amerika
Serikat,'),
     ('dan sering disebut dengan puncak Pike atau Pikes Peak'),
     ('  '));
     TextEarth: array[0..8] of string [80] =
```

```
      (('  '),
      ('  '),
      ('     FRAKTAL LANDSCAPE EARTH VIEWED FROM THE MOON'),

('============================================================'),
      ('  '),
      ('Sebuah visualisasi yang indah dari pemandangan bumi
yang'),
      ('dilihat dari bulan, dengan berjuta bintang dan sebuah
benda'),
      ('angkasa yang menghiasinya'),
      ('  '));
      TextFBI: array[0..8] of string [80] =
      (('  '),
      ('  '),
      ('           PROGRAMMER FRAKTAL LANDSCAPE 2003'),

('============================================================'),
      ('  '),
      ('   NAMA PEMBUAT PROGRAM    : Febrian Widiarto'),
      ('   NOMOR INDUK MAHASISWA   : J2A 096 023'),
      ('   TEMPAT & TANGGAL LAHIR : Semarang, 9 Februari 1978'),
      ('  '));
var
   ch2: char;
begin
{     if key>5 then
      begin
           TextBackGround(0);
           clrscr;
           Window(14,4,69,14);
           TextBackGround(1);
           clrscr;
           TextColor(14);j:=8;
      end
      else}
      begin
           TextBackGround(0);
           clrscr;
           Window(10,4,75,15);
           TextBackGround(1);
           clrscr;
           TextColor(14);j:=9;
      end;
      for i:=0 to j do
      begin
           GotoXY(3,i+2);
           if key=0 then write(TextLand[i]);
           if key=1 then write(TextOak[i]);
           if key=2 then write(TextPike[i]);
           if key=3 then write(TextEarth[i]);
           if key=4 then write(TextFBI[i]);
      end;
      ch2:=ReadKey;
      if (key=1) or (key=2) or (key=3) then
         key1:=menu(1);
end;
```

```
procedure generate(x1: integer; y1: integer; x2: integer; y2:
integer; x3: integer;
        y3: integer; level: integer; color1: integer; color2:
integer);forward;

procedure node(x1: integer; y1: integer; x2: integer; y2:
integer; x3: integer;
        y3: integer; x4: integer; y4: integer; x5: integer; y5:
integer; x6: integer;
        y6: integer; level: integer; color1: integer; color2:
integer);
begin
        if level<>0 then
        begin
        generate(x1,y1,x4,y4,x6,y6,level-1,color1,color2);
        generate(x6,y6,x5,y5,x3,y3,level-1,color1,color2);
        generate(x4,y4,x2,y2,x5,y5,level-1,color1,color2);
        generate(x4,y4,x4,y4,x6,y6,level-1,color1,color2);
        end;
end;

procedure midpoint(x: real; y: real);
var
          r,w: real;
          seed: longint;

begin
          seed := Round(350*y + x);
          RandSeed := seed;
          r := 0.33333 + Random/3.0;
          w := 0.015 + Random/50.0;
        if Random < 0.5 then
                  w := -w;
          xz := r*x - (w + 0.05)*y;
          yz := r*y + (w + 0.05)*x;
end;

procedure plot_triangle(x1: integer; y1: integer; x2: integer;
y2: integer;
          x3: integer; y3: integer; color1: integer; color2:
integer);
var
        ytt,color,a: integer;
        zt: real;
begin
        if y1 > y2 then
           ytt := y1
        else
           ytt := y2;
        if ytt < y3 then
           ytt := y3;
           zt := ABS(ytt/y_max);
        if Random <= zt then
                  color := color1
          else
                  color := color2;
        Triangle[1].x := x1 + 320;
          Triangle[1].y := 175 - (longint(93*y1) div 128);
          Triangle[2].x := x2 + 320;
          Triangle[2].y := 175 - (longint(93*y2) div 128);
          Triangle[3].x := x3 + 320;
          Triangle[3].y := 175 - (longint(93*y3) div 128);
          SetColor(color);
          SetFillStyle(1,color);
          FillPoly(3,Triangle);
end;

procedure generate(x1: integer; y1: integer; x2: integer; y2:
integer; x3: integer;
        y3: integer; level: integer; color1: integer; color2:
integer);
var
        x4,x5,x6,y4,y5,y6: integer;
begin
        x := x2 - x1;
        y := y2 - y1;
        midpoint(x,y);
        x4 := x1 + Round(xz);
        y4 := y1 + Round(yz);
        x := x3 - x1;
        y := y3 - y1;
        midpoint(x,y);
        x6 := x1 + Round(xz);
        y6 := y1 + Round(yz);
        x := x3 - x2;
        y := y3 - y2;
        midpoint(x,y);
        x5 := x2 + Round(xz);
        y5 := y2 + Round(yz);
        if level=0 then
           begin
                plot_triangle(x1,y1,x4,y4,x6,y6,color1,color2);
                plot_triangle(x2,y2,x4,y4,x5,y5,color1,color2);
                plot_triangle(x3,y3,x5,y5,x6,y6,color1,color2);
                plot_triangle(x4,y4,x5,y5,x6,y6,color1,color2);
           end
           else
           begin
                plot_triangle(x1,y1,x4,y4,x6,y6,color1,color2);
                plot_triangle(x2,y2,x4,y4,x5,y5,color1,color2);
                plot_triangle(x3,y3,x5,y5,x6,y6,color1,color2);
                plot_triangle(x4,y4,x5,y5,x6,y6,color1,color2);

node(x1,y1,x2,y2,x3,y3,x4,y4,x5,y5,x6,y6,level,color1,color2);de
lay(1);
           end
end;

procedure gen_quad(x1: integer; y1: integer; x2: integer; y2:
integer;
          x3: integer; y3: integer; x4: integer; y4: integer;
level: integer;
          color1: integer; color2: integer);
begin
        generate(x1,y1,x2,y2,x3,y3,level,color1,color2);
        generate(x1,y1,x4,y4,x3,y3,level,color1,color2);
end;

procedure cactus(x1: integer; y1: integer; scale: integer;
level: integer;
          color1: integer; color2: integer);
begin

gen_quad(x1,y1,x1,y1+21*scale,x1+2*scale,y1+22*scale,x1+2*scale,
            y1,level,color1,color2);

gen_quad(x1+2*scale,y1,x1+2*scale,y1+22*scale,x1+3*scale,
            y1+21*scale,x1+3*scale,y1,level,color1,color2);

gen_quad(x1,y1+9*scale,x1+7*scale,y1+9*scale,x1+7*scale,y1+12*sc
ale,
            x1,y1+12*scale,0,color1,color2);

gen_quad(x1,y1+9*scale,x1+6*scale,y1+9*scale,x1+7*scale,y1+12*sc
ale,
            x1,y1+12*scale,level,color1,color2);
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gen_quad(x1+7*scale,y1+9*scale,x1+7*scale,y1+16*scale,x1+9*scale
,
y1+17*scale,x1+9*scale,y1+9*scale,level,color1,color2);

gen_quad(x1+9*scale,y1+9*scale,x1+9*scale,y1+16*scale,x1+10*scal
e,
y1+17*scale,x1+10*scale,y1+10*scale,level,color1,color2);
        gen_quad(x1,y1+7*scale,x1-6*scale,y1+7*scale,x1-
6*scale,y1+10*scale,
                x1,y1+10*scale,0,color1,color2);
        gen_quad(x1,y1+7*scale,x1-6*scale,y1+7*scale,x1-
6*scale,y1+10*scale,
                x1,y1+10*scale,level,color1,color2);
        gen_quad(x1-7*scale,y1+8*scale,x1-
7*scale,y1+12*scale,x1-6*scale,
                y1+13*scale,x1-
6*scale,y1+7*scale,level,color1,color2);
        gen_quad(x1-6*scale,y1+7*scale,x1-
6*scale,y1+13*scale,x1-4*scale,
                y1+12*scale,x1-
4*scale,y1+7*scale,level,color1,color2);
end;

Procedure Oak;
const
        color_set: array[0..15] of integer
=(27,1,6,10,4,5,2,7,56,57,58,59,4,61,
                        62,63);
          x1: array[0..25] of integer = (-330,-90,-
90,120,120,120,-160,-120,-120,
                        -80,-80,-50,-50,-
50,80,104,104,128,128,152,152,200,-470,-350,
                        -220,-200);
          y1: array[0..25] of integer = (-110,-110,-110,-110,-
110,-110,-10,-10,
                        -10,-10,-10,-10,-10,-
10,50,50,50,50,50,50,50,50,-300,-280,-280,
                        -280);
          x2: array[0..25] of integer = (-160,-160,0,0,80,200,-
160,-160,-120,-120,
                        -80,-80,-50,0,100,100,104,104,128,128,152,152,-
250,-60,80,230);
          y2: array[0..25] of integer =
(0,0,0,0,50,50,220,220,190,190,230,230,100,
                        180,180,180,200,205,215,215,160,160,-110,-140,-
130,-120);
          x3: array[0..25] of integer = (-90,0,120,80,200,340,-
120,-120,-80,-80,
                        -50,-
50,0,0,104,104,128,128,152,152,200,200,300,300,340,580);
          y3: array[0..25] of integer = (-110,0,-110,50,50,-
110,-10,220,-10,200,
                        -10,235,180,-10,50,200,50,210,50,220,50,140,-
300,-300,-300,-300);

begin
          GraphDriver := 4;
          GraphMode := EGAHi;
          InitGraph(graphDriver,GraphMode,'');
          SetColor(15);
        for i:=0 to 15 do
                        setEGApalette(i,color_set[i]);
        y_max := 480;
        for i:=0 to 21 do

generate(x1[i],y1[i],x2[i],y2[i],x3[i],y3[i],level,
                2,12);
        gen_quad(-330,-260,-330,-100,330,-100,330,-
260,level,14,14);
        cactus(-200,-120,2,level,2,6);
        cactus(-110,-130,3,level,2,6);
        cactus(0,-160,4,level,2,6);
        cactus(150,-200,6,level,2,6);
        readkey;readkey;CloseGraph;
end;

Procedure Pike;
const
        color_set: array[0..15] of integer
=(62,1,2,3,4,5,20,7,56,57,58,59,60,61,
                        62,63);
begin
          GraphDriver := 4;
          GraphMode := EGAHi;
          InitGraph(graphDriver,GraphMode,'');
          SetColor(15);
          for i:=0 to 15 do
                        setEGApalette(i,color_set[i]);
        y_max := 480;
          generate(-220,-240,120,100,500,-40,level,15,11);
          generate(-780,-200,0,30,420,-200,level,15,9);
          generate(-100,-250,240,40,500,-180,level,14,6);
          generate(-770,-175,-250,-75,600,-325,level,1,15);
          generate(-550,-270,-60,-140,400,-300,level,7,8);
          generate(-220,-280,80,-125,340,-300,level,12,15);
          generate(-200,-280,230,-150,580,-350,level,0,7);
        readkey;readkey;CloseGraph;
end;

Procedure Earth;
const
        color_set: array[0..15] of integer
=(0,1,2,3,4,5,20,7,56,57,58,59,60,61,
                        62,63);
          xa: array[0..32] of integer = (-82,-80,-90,-70,-50,-
30,-25,25,40,42,
                        20,35,40,50,60,60,-28,70, -
25,70,108,81,60,45,48,96,45,38,-8,0,
                        -20,-28,55);
          xb: array[0..32] of integer = (-70,-70,-80,-50,-
30,25,-25,40,65,65,
                        40,38,40,60,60,70,-28,90, -
20,105,92,70,56,48,54,100,38,46,12,
                        14,14,8,62);
          xc: array[0..32] of integer = (-70,-70,-80,-50,-
50,20,30,40,40,58,
                        40,37,50,50,70,75,20,90, -
40,95,83,70,45,60,60,54,106,65,12,
                        40,14,-8,95);
          xd: array[0..32] of integer = (-90,-80,-90,-70,-
30,20,20,25,50,50,
                        20,40,50,60,70,75,20,70, -
40,90,81,108,45,56,96,45,100,106,8,
                        44,0,-30,55);
          ya: array[0..32] of integer =
(52,52,76,80,76,38,10,80,90,55,50,3,
                        60,60,52,55,80,115, 38,109,76,80,-130,-124,-
90,-70,-60,-50,0,
                        -10,10,90,-100);
          yb: array[0..32] of integer =
(52,52,76,80,80,30,30,80,70,70,40,5,
                        8,52,38,38,20,120, 78,104,58,95,-124,-90,-
65,-60,-50,-25,0,
                        -10,10,80,-100);
          yc: array[0..32] of integer =
(60,80,80,55,56,38,10,90,80,70,3,-5,
                        60,20,38,40,20,106, 78,76,60,110,-124,-100,-
100,-65,-50,-25,
                        -18,-30,-18,75,-50);
          yd: array[0..32] of integer=
(60,80,77,55,38,30,30,90,60,60,3,-4,
                        20,27,38,40,74,109, 43,76,80,76,-124,-124,-
70,-60,-60,-50,
                        -18,-30,-18,85,-50);
        j: array[0..18] of integer =
(75,200,300,350,400,425,500,100,175,
                325,375,460,30,260,500,425,150,250,90);
        k: array[0..18] of integer =
(260,290,270,290,260,270,275,270,300,
                290,275,260,290,270,295,290,280,300,295);
        l: array[0..18] of integer =
(5,5,5,5,5,5,5,12,12,12,12,12,18,22,
                22,30,22,16,30);
        m: array[0..18] of integer =
(2,2,2,2,2,2,2,7,7,7,7,7,7,10,10,10,
                9,5,7);

var
        x_center,y_center: integer;

begin
          GraphDriver := 4;
          GraphMode := EGAHi;
          InitGraph(graphDriver,GraphMode,'');
          SetColor(15);
          for i:=0 to 15 do
                        setEGApalette(i,color_set[i]);
          x_center := -140;
          y_center := 30;
          for i:=0 to 2000 do
          begin
                        row := Random(350);
                        col := Random(640);
                        PutPixel(col,row,15);
          end;
          SetFillStyle(1,11);
          SetColor(11);
          FillEllipse(210,155,152,106);
          y_max := 480;
          for i:=0 to 32 do

          gen_quad(xa[i]+x_center,ya[i]+y_center,xb[i]+x_center,

          yb[i]+y_center,xc[i]+x_center,yc[i]+y_center,xd[i]+

          x_center,yd[i]+y_center,level,15,15);
        generate(-410,-300,-250,-100,300,-300,level,7,15);
          generate(-350,-280,-60,-110,300,-300,level,7,15);
          generate(-220,-300,80,-100,340,-300,level,7,15);
          generate(-180,-300,140,-100,400,-300,level,7,15);
        SetFillStyle(1,3);
          SetColor(3);
        for i:=0 to 18 do
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            FillEllipse(j[i]+30,k[i],l[i],m[i]);
{Satelit}
        SetFillStyle(2,15);
        SetColor(15);
        Bar(446,100,462,130);
        SetFillStyle(1,12);
        SetColor(12);
        FillEllipse(442,100,8,15);
        SetFillStyle(1,15);
        SetColor(15);
        FillEllipse(440,100,5,15);
        SetLineStyle(0,0,ThickWidth);
        Line(454,100,450,75);
        Line(454,100,458,75);
        SetColor(12);
        Line(440,100,430,100);
        SetColor(15);
        FillEllipse(430,100,2,2);
          ReadKey;Readkey;CloseGraph;
end;

Procedure Tutup;
Var i: integer;
begin
     clrscr;
     GraphDriver:=4;
     GraphMode:=EGAHi;
     InitGraph(GraphDriver,GraphMode,'');
     repeat
          begin
               ClearDevice;
               SetBkColor(0);
               i:=Random(600);
               j:=Random(600);
               l:=l+1;m:=m+1;
               SetColor(Random(15));
               SetLineStyle(SolidLn,0,ThickWidth);
               Circle(i,j,Random(50));
               Circle(10+l,10+l,m);
               Circle(500-l,350-l,m);
               Circle(600-l,l,m);
               Circle(5+l,350-l,m);
               Circle(j,i,Random(50));
               Circle(i+100,j+100,Random(50));
               Circle(j+100,i+50,Random(50));
               if m=100 then m:=0;
               if l=400 then l:=0;
               SetColor(15);
               OutTextXY(200,330,'TERIMA KASIH - TERIMA KASIH -
TERIMA KASIH');
               delay(25);
          end;
     until KeyPressed;
     CloseGraph;
end;


{Program Utama}
Begin
     Clrscr;
     GraphDriver:=4;
     GraphMode:=EGAHi;
     InitGraph(GraphDriver,GraphMode,'');
     repeat
          begin
               ClearDevice;
               SetBkColor(0);
               i:=Random(600);
               j:=Random(600);
               l:=l+1;m:=m+1;
               SetColor(Random(15));
               SetLineStyle(SolidLn,0,ThickWidth);
               Circle(i,j,Random(50));
               Circle(10+l,10+l,m);
               Circle(500-l,350-l,m);
               Circle(600-l,l,m);
               Circle(5+l,350-l,m);
               Circle(j,i,Random(50));
               Circle(i+100,j+100,Random(50));
               Circle(j+100,i+50,Random(50));
               SetBkColor(0);
               if m=100 then m:=0;
               if l=400 then l:=0;
               SetColor(15);
               OutTextXY(300,330,'Tekan Sembarang Tombol Untuk
Melanjutkan');
               delay(50);
          end;
     until KeyPressed;Readkey;
     CloseGraph;
     Repeat
     Key:=menu(0);
     if (key=5) then
     begin
          Tutup;
     end;
     if (key=4) then
     begin
          Info;
     end;
          TextBackGround(0);
     if (key=3) then
     begin
          Repeat
          Info;
               if key1<>5 then
               begin
                    level:=key1;
                    Earth;
                    RestoreCrtMode;
               end;
          until key1=5;
          TextBackGround(0);
     end;
     if (key=2) then
     begin
          Repeat
          Info;
               if key1<>5 then
               begin
                    level:=key1;
                    Pike;
                    RestoreCrtMode;
               end;
          until key1=5;
          TextBackGround(0);
     end;
     if (key=1) then
     begin
     repeat
          Info;
               if key1<>5 then
               begin
                    level:=key1;
                    Oak;
                    RestoreCrtMode;
               end;
          until key1=5;
          TextBackGround(0);
     end;
     if (key=0) then
     begin
          Info;
     end;
          TextBackGround(0);
     until key=5;
end.
```
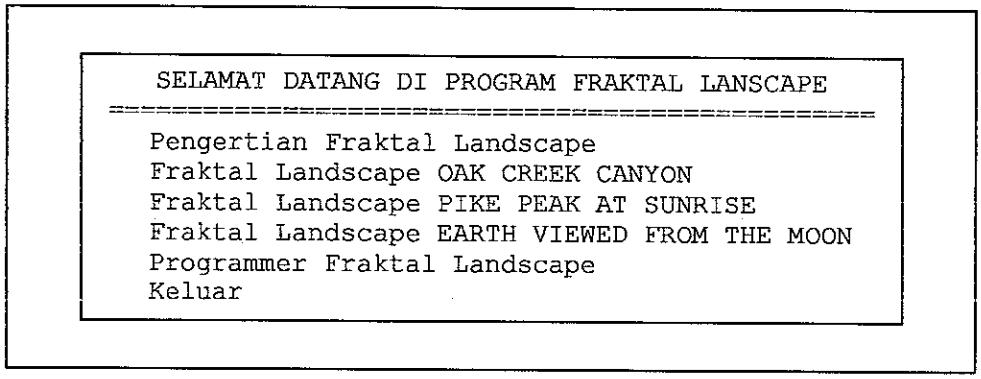
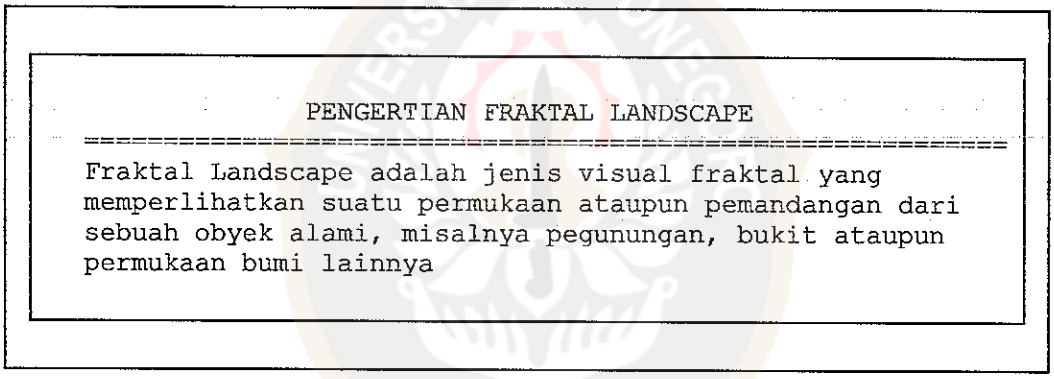
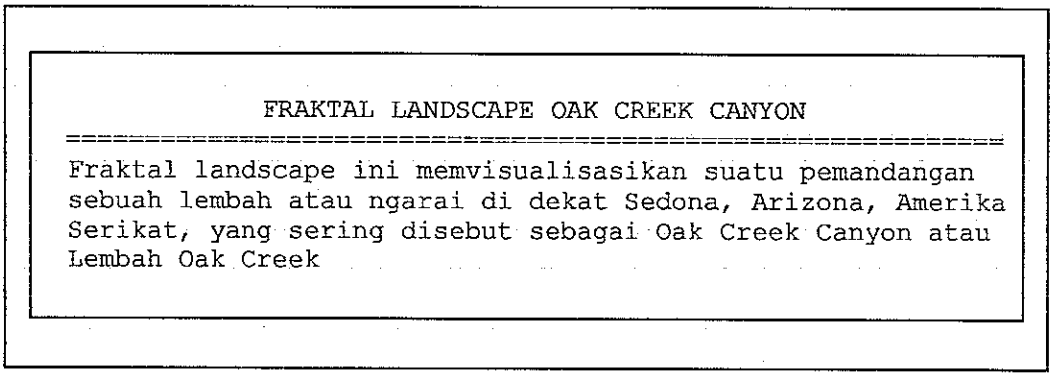

LAMPIRAN 2 : Menu Tampilan Program Fraktal Landscape



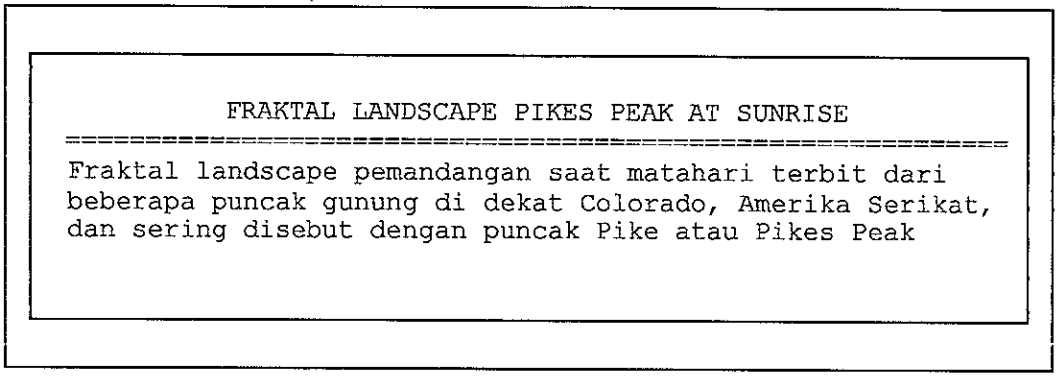
Tampilan Menu Utama pada Program Fraktal Landscape



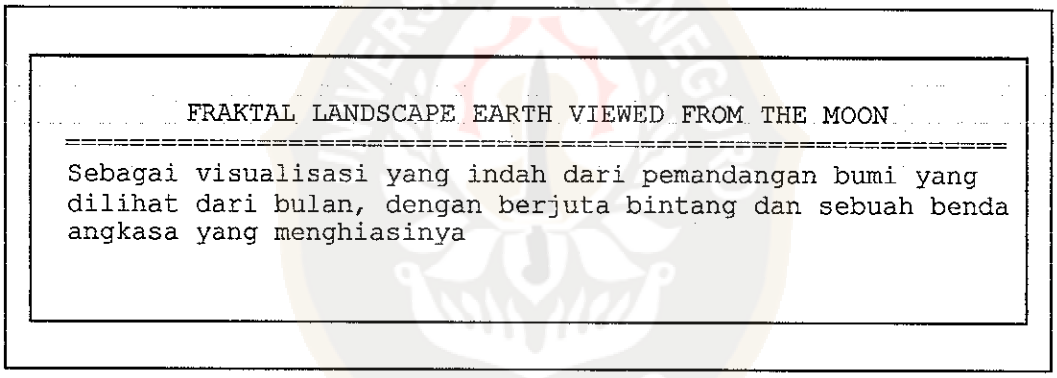
Menu Informasi Tentang Pengertian Fraktal Landscape



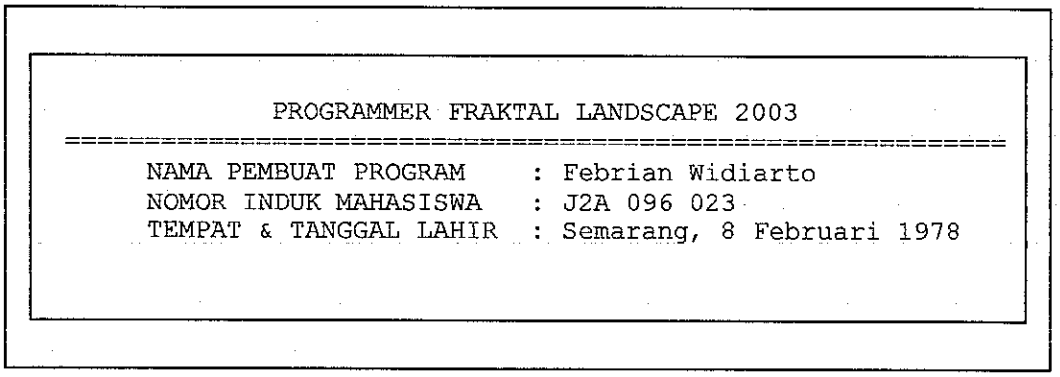
Menu Informasi Tentang Fraktal Landscape Oak Creek Canyon



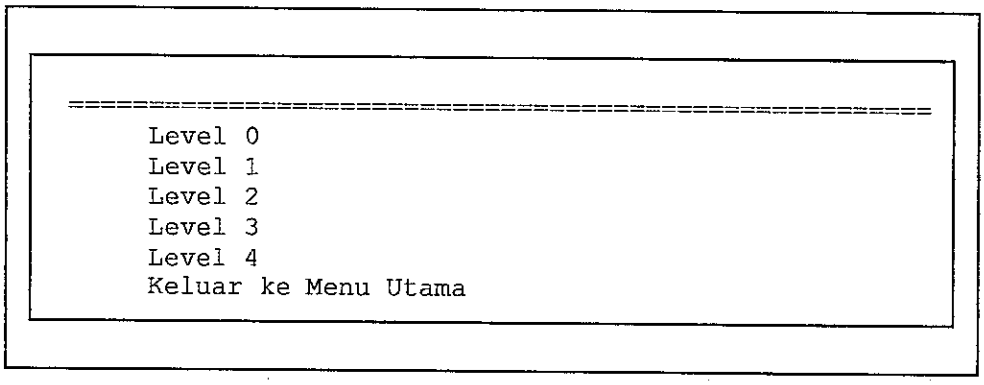
Menu Informasi Tentang Fraktal Landscape Pike's Peak At Sunrise



Menu Informasi Tentang Fraktal Landscape Earth Viewed From The Moon



Menu Informasi Tentang Programmer Fraktal Landscape



Gambar Menu Pilihan Level Untuk Menampilkan Fraktal Landscape