

```

1: unit Unit1; //Corrigé Examen Septembre 2016 Pratique
2:
3: interface
4:
5: uses
6:   Windows, Messages, SysUtils, Variants, Classes, Graphics, Controls, Forms,
7:   Dialogs, StdCtrls, Grids, ExtCtrls;
8:
9: type
10:   TfrmMain = class(TForm)
11:     imgD: TImage;
12:     Label1: TLabel;
13:     Label2: TLabel;
14:     btnLine: TButton;
15:     btnClear: TButton;
16:     btnSplit: TButton;
17:     lbX: TListBox;
18:     lbY: TListBox;
19:     btnAverage: TButton;
20:     Label3: TLabel;
21:     Label4: TLabel;
22:     lblNPoints: TLabel;
23:     procedure imgDMouseDown(Sender: TObject; Button: TMouseButton; Shift: TShiftState; X,
Y: Integer);
24:     procedure FormCreate(Sender: TObject);
25:     procedure btnLineClick(Sender: TObject);
26:     procedure btnClearClick(Sender: TObject);
27:     procedure btnSplitClick(Sender: TObject);
28:     procedure btnAverageClick(Sender: TObject);
29:     private
30:       { Déclarations privées }
31:     public
32:       { Déclarations publiques }
33:     end;
34:
35: var
36:   frmMain: TfrmMain;
37:
38: implementation
39:
40: {$R *.dfm}
41:
42: procedure line(lbX, lbY: TListBox; imgD: TImage); // 6 points
43: var
44:   i, x, y: integer;
45: begin
46:   imgD.Canvas.Brush.Style := bsSolid;
47:   imgD.Canvas.Rectangle(-1, -1, imgD.Width + 1, imgD.Height + 1);
48:   for i := 0 to lbX.Items.Count - 1 do
49:     begin
50:       x := strtoint(lbX.Items[i]);
51:       y := strtoint(lbY.Items[i]);
52:       imgD.Canvas.Brush.Style := bsClear;
53:       imgD.Canvas.Ellipse(x - 3, y - 3, x + 4, y + 4);
54:       if i = 0 then
55:         imgD.Canvas.MoveTo(x, y)
56:       else
57:         imgD.Canvas.LineTo(x, y)
58:       end;
59:     end;
60:
61: procedure TfrmMain.FormCreate(Sender: TObject); // 4 points
62: begin
63:   imgD.Canvas.Pixels[0, 0] := clWhite;
64:   imgD.Canvas.Brush.Style := bsClear;
65: end;
66:
67: procedure TfrmMain.btnClearClick(Sender: TObject); // 4 points
68: begin
69:   lbX.Clear;
70:   lbY.Clear;
71:   imgD.Canvas.Brush.Style := bsSolid;
72:   imgD.Canvas.Rectangle(-1, -1, imgD.Width + 1, imgD.Height + 1);
73:   lblNPoints.Caption := '0'
74: end;
75:

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76: procedure TfrmMain.imgDMouseDown(Sender: TObject; Button: TMouseButton; // 4 points
77:   Shift: TShiftState; X, Y: Integer);
78: begin
79:   if ssLeft in Shift then
80:     begin
81:       imgD.Canvas.Ellipse(X - 3, Y - 3, X + 4, Y + 4);
82:       lbX.Items.Add(inttostr(X));
83:       lbY.Items.Add(inttostr(Y));
84:       lblNPoints.Caption := inttostr(strtoint(lblNPoints.Caption) + 1)
85:     end
86:   end;
87:
88: procedure TfrmMain.btnLineClick(Sender: TObject);
89: begin
90:   line(lbX, lbY, imgD);
91: end;
92:
93: procedure TfrmMain.btnSplitClick(Sender: TObject);           // 6 points
94: var
95:   x, y, i: integer;
96: begin
97:   i := 0;
98:   while i < lbX.Items.Count - 1 do
99:     begin
100:      x := (strtoint(lbX.Items[i]) + strtoint(lbX.Items[i + 1])) div 2;
101:      y := (strtoint(lbY.Items[i]) + strtoint(lbY.Items[i + 1])) div 2;
102:      lbX.Items.Insert(i + 1, inttostr(x));
103:      lbY.Items.Insert(i + 1, inttostr(y));
104:      i := i + 2;
105:     end;
106:     line(lbX, lbY, imgD);
107:     lblNPoints.Caption := inttostr(2 * strtoint(lblNPoints.Caption) - 1);
108:   end;
109:
110: procedure TfrmMain.btnAverageClick(Sender: TObject);         // 6 points
111: var
112:   x, y, i: integer;
113: begin
114:   for i := 0 to lbX.Items.Count - 2 do
115:     begin
116:       x := (strtoint(lbX.Items[i]) + strtoint(lbX.Items[i + 1])) div 2;
117:       y := (strtoint(lbY.Items[i]) + strtoint(lbY.Items[i + 1])) div 2;
118:       lbX.Items[i] := inttostr(x);
119:       lbY.Items[i] := inttostr(y);
120:     end;
121:     lbX.Items.Delete(lbX.Items.Count - 1);
122:     lbY.Items.Delete(lbY.Items.Count - 1);
123:     line(lbX, lbY, imgD);
124:     lblNPoints.Caption := inttostr(strtoint(lblNPoints.Caption) - 1);
125:   end;
126:
127: end.
128:
```