

Mr. Giansante



Visual Basic

Etch-a-Sketch

August 2016

Etch-a-Sketch

Difficulty Level:

Beginner
Intermediate
Advanced

Help References:

PictureBox Control
Graphics Commands



Design a Visual Basic program that simulates an Etch-a-Sketch™.

The user should be able to control the "dot" by using the four arrow keys on the **numerical keypad**.

The user should also be presented with a "Clear" Button that allows them to reset the picture.

Also, the user should be able to choose from six pre-determined colours using a Menu and RadioButtons.

Help for Etch-a-Sketch

You will need two variables to keep track of the current position of the drawing dot.

```
Dim x As Integer  
Dim y As Integer
```

The initial value of x and y should be set to the center of the PictureBox. This can be done in **Form | Load ...**

```
x = Int(PictureBox1.Width / 2)  
y = Int(PictureBox1.Height / 2)
```

Capturing Key Presses

In order to "capture" key presses, include the following line in **Form | Load ...**

```
Me.KeyPreview = True
```

When a key is pressed, the KeyDown event for the Form is invoked. You can check what key has been pressed by checking the built-in variable KeyCode.

Etch-a-Sketch

Ensuring that the User had NUMSLOCK On

In Form | Load ...

```
If My.Computer.Keyboard.NumLock = False Then MessageBox.Show("Please turn on NUMSLOCK")
```

Ensuring the Dot appears when the game starts

In Form | Paint ...

```
Button1.PerformClick()
```

Note: Button1 is the "Clear" button. It might have a different name in your program.

Moving the Dot

In Form | KeyDown ...

Code for moving up and down ...

```
If e.KeyCode = Keys.NumPad8 And y > 3 Then y = y - 3  
If e.KeyCode = Keys.NumPad2 And y < PictureBox1.Height - 9 Then y = y + 3
```

You must figure out the code for moving left and right.

Call the DrawDot() procedure which you will write in the next step.

```
DrawDot()
```

The DrawDot() Procedure

The DrawDot() procedure checks which of the color RadioButtons is selected and then draws a dot at the current (x, y) coordinate. Note that to draw a dot, you must draw a filled ellipse with a horizontal and vertical radius of 5 pixels (you can adjust the radius to your liking).

```
If RadioButton1.Checked = True Then PictureBox1.CreateGraphics.  
FillEllipse(New SolidBrush(Color.Black), x, y, 5, 5)
```

You must repeat the above line for each color.

Note: Put this all on ONE line

The "Clear" Button

```
PictureBox1.Image = Nothing
```

```
RadioButton1.Checked = True
```

```
x = Int(PictureBox1.Width / 2)  
y = Int(PictureBox1.Height / 2)
```

```
PictureBox1.Refresh()
```

```
PictureBox1.CreateGraphics.FillEllipse(New SolidBrush(Color.Black), x, y, 5, 5)
```

Etch-a-Sketch

Please fill out all the information in this column using a pen before getting this assignment marked.

Name

Date

Class

Academic Honesty

The work I am submitting is completely my own creation and has not been copied from anyone else's work. If I have received help on this project, the names of those who have assisted are listed below.

Signature

Pre-Marking

The following people have pre-marked this assignment: (minimum of two)

Deductions

Each which is checked indicates the item was not satisfactory and results in the loss of one mark.

Deduction for late assignment is 1 mark per day.

Deduction for program crashing is 2 marks.

User Interface

- Appropriate Text in Title Bar (Form.Text)
- Separators and Access Keys in Menu, Capitalization
- "Exit" DialogBox meets requirements
- "About" DialogBox meets requirements
- Efficient and Esthetically-Pleasing User Interface
- Appropriate controls are used
- Spelling and Grammar are correct

Code / Programming Style

- Variables are declared and logically named
- Code is commented where appropriate
- Code is indented and spaced to show
- Code is efficient

Work Ethic / Problem Solving Skills

- Problem Solving Skills are demonstrated
- Makes Productive Use of Time
- Only Seeks Help when Necessary

Program-Specific Criteria

- Dot appears in center at start
- Dot can be moved in four directions
- Dot cannot be moved off screen
- Color can be changed
- Set Focus back to PictureBox if RadioButtons are used for color
- Clear image works

Comments

Mark _____ / 10