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Visual Basic

Cell Phone Game

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Cell Phone Game

Difficulty Level:

Beginner
Intermediate
 Advanced

Help References:

Button Control
 MenuStrip Control
 Random Numbers

Design a Visual Basic program that simulates a simple game which is played on cell phones.

The playing field is a 3 by 3 square.

1	2	3
4	5	6
7	8	9

When a new game is started, the numbers from 1 to 9 are randomly placed in the playing field.

The object of the game is to place the numbers in order.

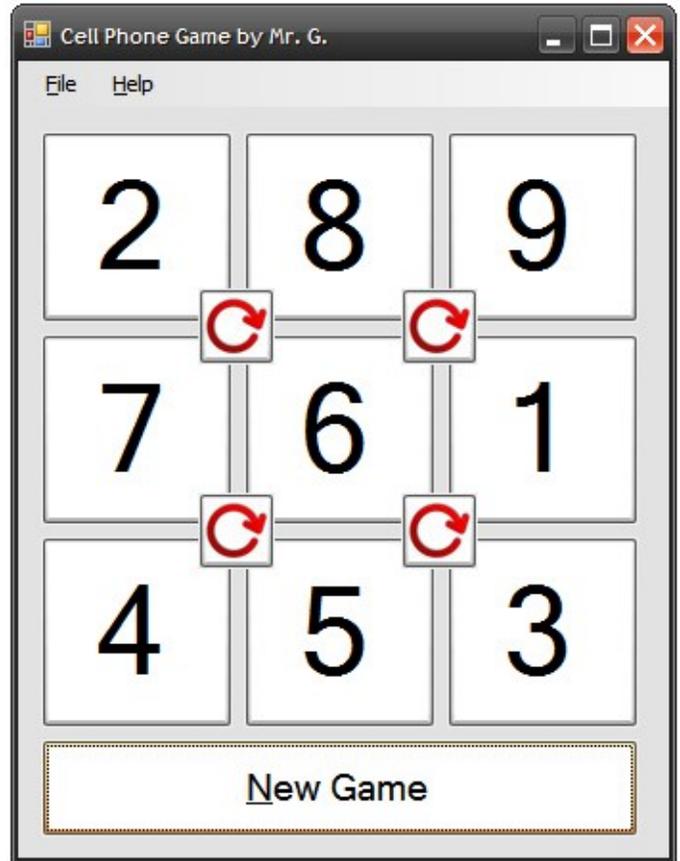
The active area (yellow) is a 2 by 2 square. The active area can be in one of four possible positions (as indicated below).

1	2	3
4	5	6
7	8	9

1	2	3
4	5	6
7	8	9

1	2	3
4	5	6
7	8	9

1	2	3
4	5	6
7	8	9



The user should be able to maneuver the active area using the keyboard or Button controls (or another method of your choice).

Also, the user should have the ability to rotate the active area. When rotation is chosen, the four numbers in the active area should each move one position in the clockwise direction.

Before ...

After rotation ...

1	2	3
4	5	6
7	8	9

4	1	3
5	2	6
7	8	9

When the user has successfully repositioned the numbers in order, a message should appear.

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Declare Variables in General | Declarations ...

```
Dim r As Random = New Random
Dim r1, r2, r3, r4, r5, r6, r7, r8, r9 As Integer
```

Randomizing the Puzzle Board

The following code goes in the "New Game" button ...

Note: A far more effective way to do this would be using an array. However, we will keep this example straight-forward and simple.

```
r1 = 0
r2 = 0
r3 = 0
r4 = 0
r5 = 0
r6 = 0
r7 = 0
r8 = 0
r9 = 0

r1 = r.Next(1, 10) 'pick a number between 1 and 9

Do
    r2 = r.Next(1, 10)
Loop Until r2 <> r1

Do
    r3 = r.Next(1, 10)
Loop Until r3 <> r1 And r3 <> r2

Do
    r4 = r.Next(1, 10)
Loop Until r4 <> r1 And r4 <> r2 And r4 <> r3

Do
    r5 = r.Next(1, 10)
Loop Until r5 <> r1 And r5 <> r2 And r5 <> r3 And r5 <> r4

Do
    r6 = r.Next(1, 10)
Loop Until r6 <> r1 And r6 <> r2 And r6 <> r3 And r6 <> r4 And r6 <> r5

Do
    r7 = r.Next(1, 10)
Loop Until r7 <> r1 And r7 <> r2 And r7 <> r3 And r7 <> r4 And r7 <> r5 And r7 <> r6

Do
    r8 = r.Next(1, 10)
Loop Until r8 <> r1 And r8 <> r2 And r8 <> r3 And r8 <> r4 And r8 <> r5 And r8 <> r6 And r8 <> r7

Do
    r9 = r.Next(1, 10)
Loop Until r9 <> r1 And r9 <> r2 And r9 <> r3 And r9 <> r4 And r9 <> r5 And r9 <> r6
    And r9 <> r7 And r9 <> r8
```

Note: Put this all on ONE line.

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```
Button1.Text = r1
Button2.Text = r2
Button3.Text = r3
Button4.Text = r4
Button5.Text = r5
Button6.Text = r6
Button7.Text = r7
Button8.Text = r8
Button9.Text = r9
```

Rotating a Corner

Code to rotate top lefthand corner ...

```
temp = Button1.Text
Button1.Text = Button4.Text
Button4.Text = Button5.Text
Button5.Text = Button2.Text
Button2.Text = temp

checkforwin()
```

The code to rotate the other 3 corners is very similar.

Checking for a Win

Create a procedure called checkforwin()

```
If Button1.Text = "1" And Button2.Text = "2" ... And Button9.Text = "9" Then
    response = MessageBox.Show("You Win!" + vbNewLine + vbNewLine + "Play
    Again?", "Game Over", MessageBoxButtons.YesNo, MessageBoxIcon.Question)
    If response = DialogResult.No Then
        Me.Close()
    Else
        Button10.PerformClick()
    End If
End If
```

Note: Put this all on ONE line.

Starting the Game

To have a puzzle appear when the game starts, place the following code in **Form | Load ...**

```
Button10.PerformClick()
```

Note: In this example, Button10 is the "New Game" button.

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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

- "New Game" button works
- Selecting one of four "corners" can easily be done
- Selected "corner" is clearly indicated
- Rotating each "corner" works
- Message is displayed when puzzle is solved
- Cheat Button - Positions tiles in a way for easy win

Comments

Mark _____ / 10