

Mr. Giansante



Visual Basic

Baseball

August 2016

Baseball

Learning Objectives:

Exploring a problem space (ie. all possible winning combinations).
Using Nested If-Then Statements.
Game with simple graphics.



Design a Visual Basic program that simulates a one team game of baseball.

Your program should keep track of the base runners as well as the score, number of outs and the inning number.

The user should be presented with one CommandButton with the caption "Swing". When this button is clicked, the computer should randomly select one of the following options for the batter:

1. Single
2. Double
3. Triple
4. Home Run
5. Walk
6. Intentional Walk
7. Hit by Pitch
8. Ground Out
9. Pop-fly
10. Strike Out

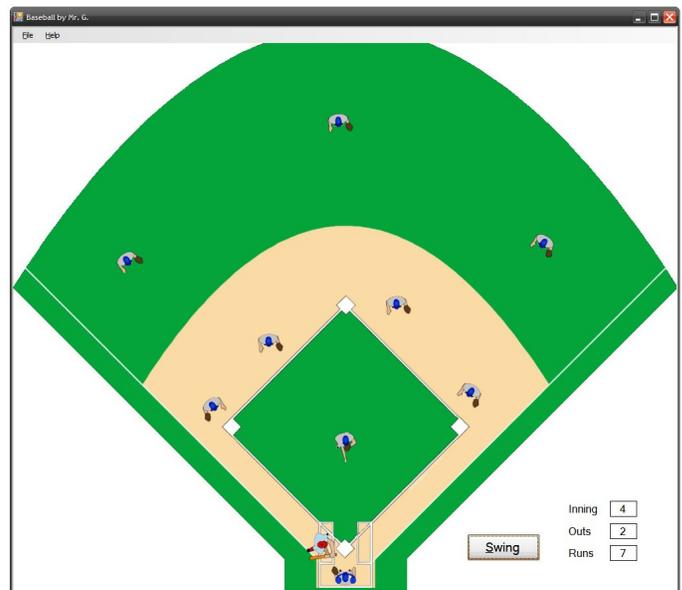
Note: "Walk", "Intentional Walk" and "Hit by Pitch" have the same outcome.

Note: "Ground Out", "Pop Fly" and "Strike Out" have the same outcome.

Whenever a player gets a hit or advances to first on a walk (etc.), you must consider the following cases ...

1. Bases are empty
2. Runner on first
3. Runner on second
4. Runner on third
5. Runners on first and second
6. Runners on first and third
7. Runners on second and third
8. Bases are loaded

When an inning is over (ie. three outs), the base runners left on base are simply "stranded" and the bases are cleared for the next inning.



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Help for Baseball

Variables Required ...

```
Dim Base1 As Boolean
Dim Base2 As Boolean
Dim Base3 As Boolean
```

```
Dim Outs As Integer
Dim Inning As Integer
Dim Runs As Integer
```

```
Dim r as Random = New Random
Dim result as Integer
```

```
Dim Updated As Boolean
```

In Form | Load ...

```
Base1 = False
Base2 = False
Base2 = False
```

```
Outs = 0
Inning = 1
Runs = 0
```

In the "Swing" Button control ...

```
result = r.Next(1, 11)
```

```
Updated = False
```

```
'Batter gets a single
If result = 1 Then
```

```
    MessageBox.Show("You hit a single.", "Batter's Result")
```

```
    'Bases were empty
```

```
    If Base1 = False and Base2 = False and Base3 = False and Updated = False Then
```

```
        Base1 = True
```

```
        Base2 = False
```

```
        Base3 = False
```

```
        Updated = True
```

```
    End If
```

```
    'Runner on first base only
```

```
    If Base1 = True and Base2 = False and Base3 = False and Updated = False Then
```

```
        Base1 = True
```

```
        Base2 = True
```

```
        Base3 = False
```

```
        Updated = True
```

```
    End If
```

repeat the above for:

- Runner on second only
- Runner on third only
- Runners on first and second
- Runners on first and third
- Runners on second and third

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```
'Bases loaded
If Base1 = True and Base2 = True and Base3 = True and Updated = False Then
    Base1 = True
    Base2 = True
    Base3 = True
    Runs = Runs + 1
    Updated = True
End If

End If
```

Repeat the above for a double, triple, homerun, walk, etc.

Dealing with an out (ie. strikeout, groundout, pop fly ...)

```
If Result = 8 Then

    MessageBox.Show("You grounded out.", "Batter's Result")
    Outs = Outs + 1

End If
```

Repeat the above for a pop fly, ground out, etc.

Now, check if inning and/or game is over ...

```
If Outs = 3 Then

    MessageBox.Show("The inning is over.", "Inning Over")
    Outs = 0
    Inning = Inning + 1
    Base1 = False
    Base2 = False
    Base3 = False

    If Inning = 10 Then

        response = MessageBox.Show("The game is over." + vbNewLine +
            "Do you want to play again?", "Game Over", MessageBoxButtons.YesNo)

        If response = DialogResult.No Then
            Me.Close()
        Else


```

Note: Put this all on ONE line.

Put the code here to reset all the variables, clear the Label controls and clear the PictureBox controls.

```
End If

End If

End If
```

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Now, you must update the base runners ...

The following assumes that first base is PictureBox1, second base is PictureBox2 and that third base is PictureBox3. Also, you should have two pictures (PictureBox4 and PictureBox5) which contain a picture of a blank base and a picture of a base runner on base respectively. PictureBox4 and PictureBox5 will be invisible when the game is running.

```
If Base1 = True Then
    PictureBox1.Image = PictureBox5.Image
Else
    PictureBox1.Image = PictureBox4.Image
End If
```

(Repeat for second base and third base)

Now, you must update the score, outs and inning number ...

```
Label11.Text = Inning
```

(etc.)

Baseball

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

- Every swing gives a result
- Outs are calculated correctly and displayed immediately
- Runs are calculated correctly and displayed immediately
- Inning is calculated correctly and displayed immediately
- Runners move correctly around bases (subtract one mark for each incorrect occurrence)
- End of inning results in messagebox
- Batters cleared from bases after end of inning
- Game ends after 9th inning

Comments

Mark _____ / 10