

CE 311 K
Introduction to Computer Methods

VB Controls and Events

Daene C. McKinney

Introduction

- Program Planning and Flowcharts
- Visual Basic
- Visual basic Interface
- VB Controls
- Creating a Project

Why Visual Basic?

- #1 Reasons
 - Graphical User Interface (GUI) - easily constructed
 - More fun for students than other languages!

- The “other” reasons
 - General purpose, machine-independent language
 - Powerful and flexible language
 - Popular (used by many programmers, it’s been around since well MS DOS. Yeah, Bill Gates wrote it!)
 - Portable (works on all PC’s)
 - Small language (few components)
 - Modular (easily maintainable)

VB Programs

- Developing a VB Program
 - Design the GUI (buttons, text boxes, etc.)
 - Determine the *events* that the controls (buttons, etc.) will recognize
 - Write the *procedures* for those events

What’s an *EVENT*? CLICK!

- Running a VB Program
 - VB monitors the controls in the window for events
 - When it detects an event, execute procedure for that event
 - Return to monitoring

What’s a *PROCEDURE*?

RUN? Is this a race?

- Sounds easy, but it can be frustrating!



Flowcharting

This can save your &^%\$ when you lose track of what you're doing!

- Flowchart
 - Graphic representation of the sequence of steps in a process

- Flowchart Symbols

- Start/Stop



- Line



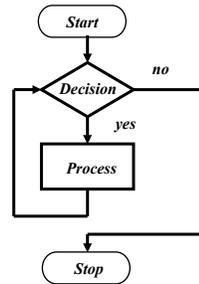
- Input/Output



- Processing

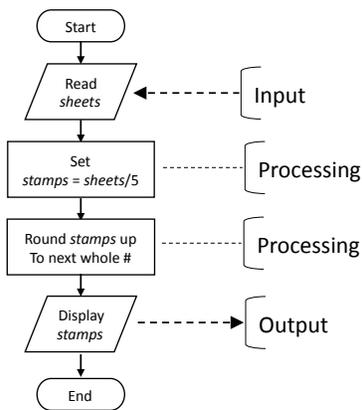


- Decision



Example: Stamp Problem

Flowchart



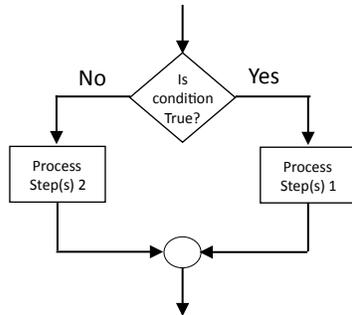
Pseudocode

Program Purpose: Determine the proper number of stamps for a letter

- Read sheets
- Set the number of stamps to sheets/5
- Round the number of stamps up to the next whole number
- Display the number of stamps

Decisions

Flowchart



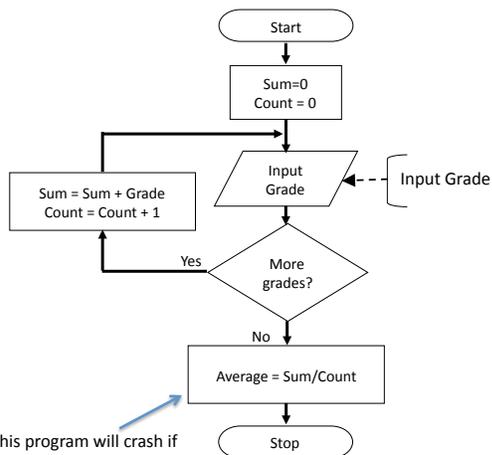
Pseudocode

```

If condition is true, then
    Process step(s) 1
Else
    Process step(s) 2
End if
    
```

Average Grade Problem

Flowchart



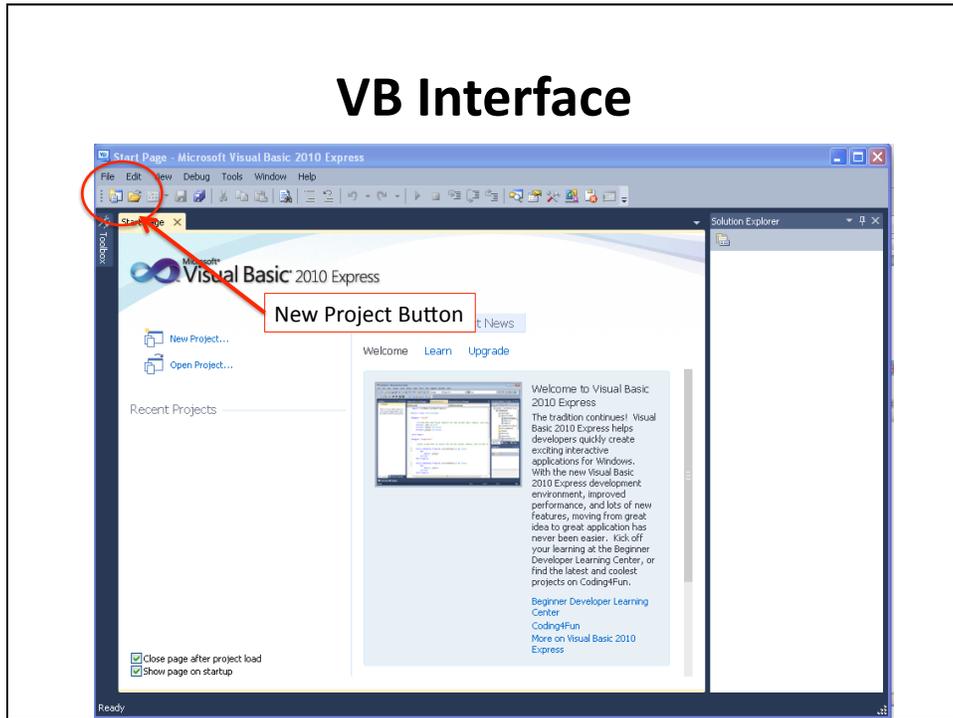
Pseudocode

```

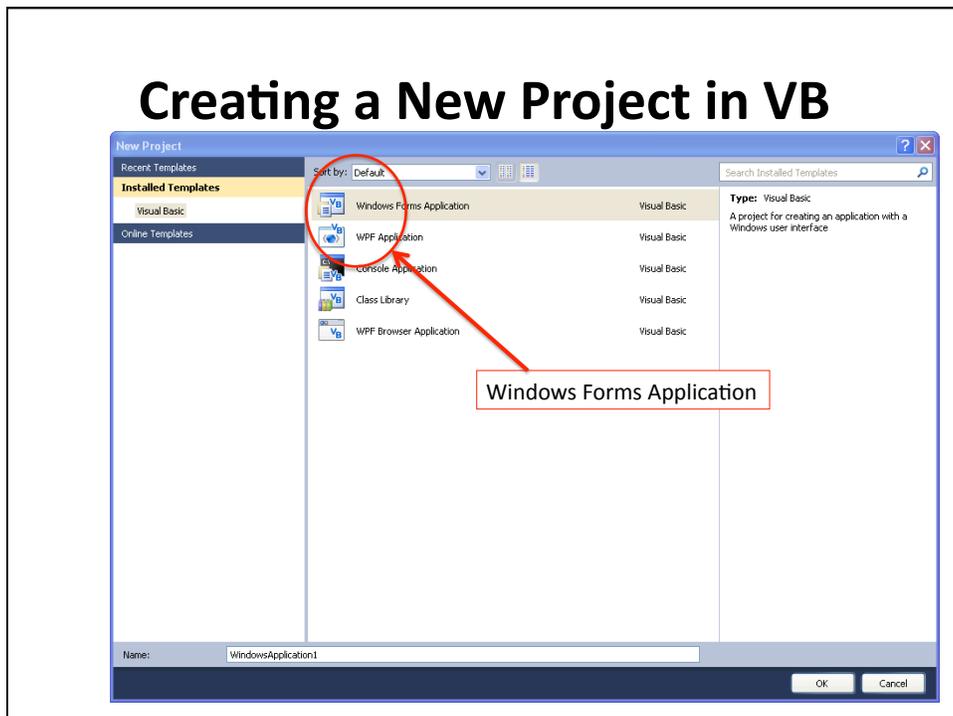
BEGIN Average Grade
sum=0
count = 0
LOOP WHILE grade > 0
    sum = sum + grade
    count = count + 1
END LOOP
average = sum/count
END Average Grade
    
```

Note: We can translate this pseudocode into any programming language.

VB Interface

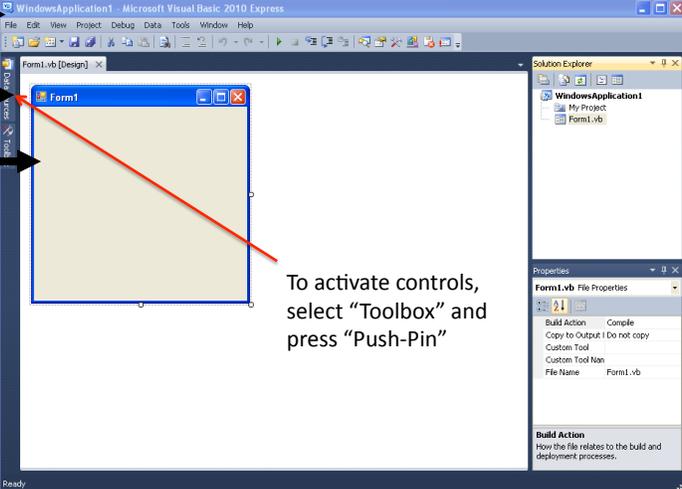


Creating a New Project in VB



VB “Form Designer” Window

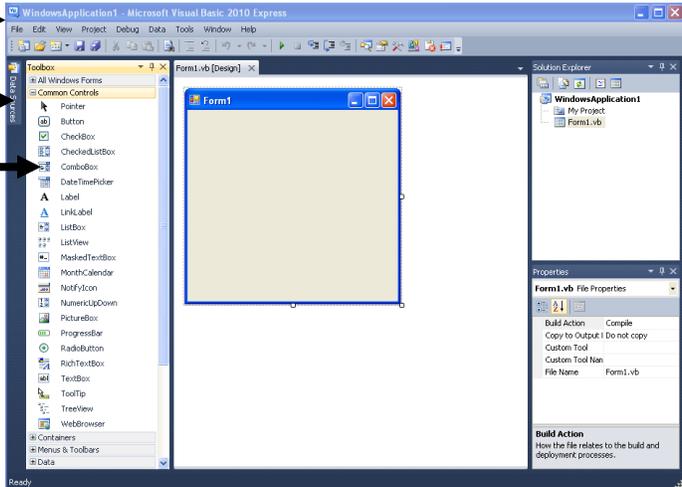
- Project →
- Controls →
- Form →



To activate controls, select “Toolbox” and press “Push-Pin”

VB “Form Designer” Window

- Project →
- Controls →
- Form →



A Little Visual Basic

- **Controls**

- Picture boxes (pic)
- Text boxes (txt)
- Buttons (cmd)



Visual Basic Objects

- **Useful Objects**

- List Boxes
- Text Boxes
- Picture Boxes
- Labels
- Buttons

- **Useful Object Properties**

- Name
- Caption
- Border style
- Visible
- Back Color
- Alignment
- Font

Visual Basic Events

- When a VB program runs
 - A **Form** and some **Controls** appear on the screen
- Nothing happens until user takes an action
 - **Event**
- Most Events are associated with Controls
 - **Objects**
- Programmer writes **Code** to respond to events
 - **Procedures**

Boxes and Buttons

- VB: Object-oriented language
 - **Objects:** Controls
 - Text boxes, Picture boxes, Buttons, etc
 - **Procedures:** tasks that objects perform
 - Dot separates object name from method (TextBox1.TEXT)
 - Method: Assign text to a text box



Button

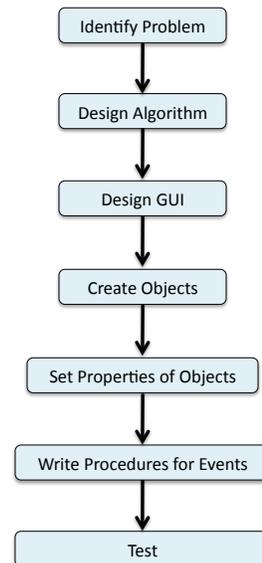
```

Form1.vb*  Form1.vb [Design]*
(General)  (Declarations)
Public Class Form1
    Private Sub Button1_Click(ByVal sender As System.Object, ByVal e As S
        TextBox1.Text = "Text Box #1"
    End Sub
End Class
  
```

Button code

Creating a Visual Basic Program

1. Identify Problem
2. Design Algorithm
3. Design GUI (interface)
4. Create Objects
5. Set Properties
6. Write Procedures for Events
(button clicks, etc.)
7. Test Your Program



Homeworks

- Install
 - VB-2008
 - from the MS website or the CD at back of the book
- Do
 - Homework problems in VB
- Learn
 - How to create VB projects and solve problems
- Make
 - Screenshots and paste them into Word docs
- Use
 - Your computer

Summary

- Program Planning and Flowcharts
- Visual Basic
- Visual basic Interface
- VB Controls
- Creating a Project