FIT 100 — A Little Review: What is the Value of wicked, dude?

❖ Take out a piece of scratch paper. See if you can answer the questions below.

```
Dim wicked As Integer
Dim dude As Integer
dude = 5
wicked = 2
dude = wicked * 5        [ * means multiply ]
dude = dude + 3
wicked = dude + 1
```

❖ Questions:
1. What values do *dude* and *wicked* contain at the end of this code?

FIT 100 — Expressions

Computing is **NOT** Algebra: Even though **=** is used in assignment statements, it means "becomes". In Algebra it means equality. So, **score = score + 3** is essential to computing, but meaningless in Algebra

❖ CONCEPT: Expressions are a means of performing the actual computation in a program. They are formulae made from variables and operators, e.g. calculator operations: $+, -, *, /, \wedge$

☐ weeks = days / 7   divide value of days by 7
☐ totalAfterTax= totalPrice * 1.087   multiply the two values

❖ The Fundamental Rules of Assignment:
☐ The general form of an assignment statement is
  <variable name> < assignment symbol > <expression>
☐ The *flow of information* is always right - to – left
☐ The expression is evaluated before the assignment is made
  ≡ score = score + 3

When A Decision Must Be Made:

Conditionals

FIT 100

Computers can be programmed to make decisions – that is, to choose one path to follow from many alternatives. Conditionals are the programming tool that implements this concept

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FIT 100 — The Reason to Have Conditionals:

❖ CONCEPT: computer programs execute all statements in the program in order unless the program is instructed to only execute certain statements under certain conditions

❖ For example:
☐ If (something is true) Then
    [do this part of the program]
  End If

FIT 100 Operators:

- ❖ CONCEPT: Operators are used to *combine* expressions (logical operators) or to *compare* expressions (relational operators)
  - □ They are used in combination with values, or variables that contain values – both called operands when using operators- to complete the expression formulae

- ❖ Most programming languages have more logical operators than a pocket calculator
  - □ Operators like + taking 2 operands are called binary: a + b
  - □ Operators like – taking 1 operand are called unary: - a

- ❖ A very useful logical operator is concatenate, & in VB6, which connects two strings or variables together:
  - □ plural = "dog" & "s"

FIT 100 Operators

- ❖ CONCEPT: Relational operators are often used in conditional statements to create expressions that evaluate to either "true" or "false"

- ❖ The relational operators in VB6 are:

a < b	less than	a > b	greater than
a <= b	less than or equal to	a >= b	greater than or equal to
a = b	equal to	a < > b	not equal

FIT 100 Basic Conditional

- ❖ Use conditionals to test to see if a condition holds:
  - □ If temp < 32 Then
    state = "frozen"
    form = "ice"
    End If
- ❖ General form of basic conditional:
  If <T / F expression> Then
      <code statements>
  End If
- ❖ What this means:
  - □ First, the <T / F expression> is evaluated
  - □ If the outcome is true, then the statements that follow Then are performed
  - □ If the outcome is false, then the statements that follow Then are skipped

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FIT 100 General Conditional Statement

- ❖ CONCEPT: When one set of statements must be performed for the true conditions and a different set of statements are needed for the false conditions, use the If-Then-Else statement

- ❖ General form
  If <T / F expression> Then
      <code statements>
  Else
      <code statements>
  End If

  If sky = "clear" AND temp >70 Then

      clothing = "tank top"

  Else

      clothing = "sweats"

  End If

FIT 100 "Nested" If-Then-Else

❖ CONCEPT: An advantage of the general conditional is that it can be imbedded within another conditional

```
If  sky = "clear" AND  temp  > 70  Then
            clothing ="tank top"
                    If  laundry ="clean"  Then
                            clothingColor="purple"
                    End if
Else
            clothing = "sweats"
                    If  ground = "muddy" Then
                            shoes = "boots"
                    End if
End If
```

FIT 100 Exercise #1

❖ What does this print?

```
Dim x As Integer
x=10
  If x=1 Then
        Print "octopus"
  ElseIf x=2 Then
        Print "squid"
  Else
        Print "clam"
End If

Print "mollusk
```

```
clam

mollusk
```

FIT 100 Let's Move From Theory to Practice!

❖ We want to write a program that takes an integer as input and outputs whether or not the integer is a positive number

☐ How should we get the user's input?

☐ How do we tell if the input is positive or negative?

☐ What should we do with an input of zero?

☐ How should we output the "positive" or "negative" evaluation to the user?
   ≡ Be Creative!

☐ How do we get started?

FIT 100 For Monday

❖ Read Chapters 13 and 14 of the FIT course pack

❖ Reading through Lab 9

❖ Project 2, part 1 is due Wednesday
☐ You will submit through the web your project, form and executable files
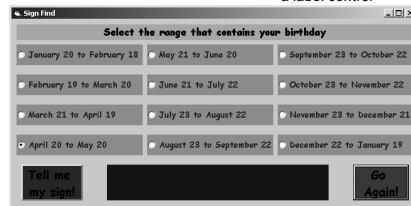☐ The link will be up by Monday on the Project Turn In page

Writing a VB6 Program

Sign Find is preparation for Project 2. You will finish the more complex version called Sign Finder for Lab 9. We will start and debug this program

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FIT 100 Form Set-up (the interface)

❖ Components (controls, objects, items) needed for the form

- ☐ Heading text
  – a label control
- ☐ 12 radio buttons
  – each with its own name
- ☐ OK button
  – a command control
- ☐ Clear button
  – a command control
- ☐ Sign display
  – a label control

Sign Find

Select the range that contains your birthday

○ January 20 to February 18	○ May 21 to June 20	○ September 23 to October 22
○ February 19 to March 20	○ June 21 to July 22	○ October 23 to November 22
○ March 21 to April 19	○ July 23 to August 22	○ November 23 to December 21
● April 20 to May 19	○ August 23 to September 22	○ December 22 to January 19

Tell me my sign!   Go Again!

FIT 100 Initial Program Code Steps

❖ Declare a variable named sign as a string to hold the sign values for each range of dates

❖ For each month's click event handler, assign to sign the string value of the the sign for that range

❖ For the OK button click event handler
- ☐ Make the label that will display the sign text visible
- ☐ Make the OK button invisible
- ☐ Make the clear button visible
- ☐ Display the value in sign in the caption of the sign display label

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FIT 100 What's Going On in the Program Code

```
Option Explicit
Dim sign As String

Private Sub optCan_Click ()
  sign = "Cancer"
End Sub

Private Sub optCap_Click ()
  sign = "Capricorn"
End Sub

Private Sub optLeo_Click () …
```

```
Private Sub cmdOK_Click ()
      cmdOk.Visible = False
      cmdClear.Visible = True
      lblSign.Visible = True
      lblSign.Caption = "Your sign is " & Sign
End Sub
```

For the January/February radio button, the assignment here saves the value that is used here