

IST 256  
Lab Week 11 – April 1, 2009

### 1. Understanding How to Write a Procedure Call

Suppose that we have a form that lets the user figure out how much dog food to feed their dog. The form asks the user to type in the weight of their dog in pounds and how active their dog is. The button procedure gets the weight and stores it into a Single variable called “pounds” and stores the activity level into a String variable called “activity”. This form has a procedure called dogfood that will set a label to show the amount of dog food the dog should get per day. Here is the procedure:

```
Public Class Form1
    ' This procedure takes the weight and activity of a dog,
    '   and displays the amount of dog food per day in a label
    Private Sub dogfood ( ByVal wt as Single, ByVal active as String, ByRef lab as Label)
        Dim amount as Single
        Select Case active
            Case "slow" : amount = wt * 0.1
            Case "active" : amount = wt * 0.2
            Case "hyper" : amount = wt * 0.4
            Case else:    amount = wt * 0.2
        End Select
        lab.Text = "Amount Per Day = " & Format(amount, "standard")
    End Sub
    ....
End Class
```

Also suppose that the form has a label named Label3 to display the amount of dog food.

a. Write a valid procedure call to the procedure dogfood that could occur in the button procedure that defined the “weight” and “activity” variables, and will display the amount in Label3:

b. Suppose that the value of the variable “weight” is 10.0 and the value of the variable “activity” is “hyper”. After the procedure call that you wrote in part a, write what output will be given in the label:

## 2. Understanding an Array Program

a. Suppose that we have a file named “examples.txt” and it has 5 numbers in it:

5  
9  
-6  
4  
1

We also have a form with a button procedure that reads these numbers into an array called “examples” and uses them.

```
Dim examples ( 0 to 4 ) As Integer
Dim index As Integer

' read the example numbers from the file and store in the array
FileOpen ( 1, "examples.txt", OpenMode.Input)
index = 0
While Not EOF(1)
    Input ( 1, examples(index))
    index = index + 1
End While

' standard array loop to double each element
For index = 0 To 4
    examples(index) = examples(index) * 2
Next
```

b. Without running the program, think about the values of the variables during the execution of the program. Write the values of the array elements after the While loop and after the For loop:

Variable	Value after While loop	Value after For loop
examples(0)		
examples(1)		
examples(2)		
examples(3)		
examples(4)		

### 3. Understanding a Two-dimensional Array Program

Suppose that we have a two-dimensional array that was read in from the file similar to the file “samples.txt”, as shown in class, except that it has different numbers in it. Shown here is the declaration of the array and how it would look after the file is file:

```
Dim numbers(0 To 5, 0 To 2) As Integer
```

<i>numbers</i>	Column 0	Column 1	Column 2
Row 0	7	3	-7
Row 1	2	6	9
Row 2	3	-20	17
Row 3	4	10	3
Row 4	5	2	4
Row 5	6	9	1

a. Write an expression that will give the array element in Row 2, Column 1:

What is the value of this element?

b. Here is a code fragment that shows a nested loop that iterates over every element of the array.

```
Dim total as Integer
```

```
Label1.Text = “ “
```

```
For row = 0 to 5
```

```
    total = 0
```

```
    For col = 0 to 2
```

```
        total = total + numbers(row,col)
```

```
    Next
```

```
    Label1.Text = Label1.Text & “Sum over “ & row &”= “ & total & vbCrLf
```

```
Next
```

Given the values in the numbers array, what will the value of Label1.Text be during the first iteration of the outermost loop, when row = 0?

What are the remaining values given in the Label?

**For labs this week, hand in the lab sheet and programs from Monday and the lab sheet from today.**