

IST 256
Lab Week 10, Part 1 – March 23, 2009

1. Understanding String Operations

For each pair of string assignment statement and Instr operator, give the resulting values of the variable place and the variable prefix. Assume that there are variable declarations:

Dim name, prefix as String
Dim place as Integer

- a. name = "Bob Builder"
 place = Instr(name, " ")
 prefix = String.Left(name, place - 1)

value of place: _____ value of prefix: _____

- b. name = "Dora Explorer"
 place = Instr(name, " ")
 prefix = String.Left(name, place - 1)

value of place: _____ value of prefix: _____

- c. name = "Dinosaur, Barney"
 place = Instr(name, ",")
 prefix = String.Left(name, place - 1)

value of place: _____ value of prefix: _____

2. Writing a program that works with strings and also reads and writes to files.

Use the new process for opening a Visual Studio project:

- a. Go to the C: drive and make a folder at the top level with your name or userid, something like: C:\njmccrac
- b. Open Visual Studio and go to create a new project/solution. When this Dialog box opens,
- i. name: pick a name for the project – something like Courses
 - ii. **location:** browse to the folder that you just made on the C: drive
or after the project is open, do a **Save All** to the C: drive folder.

d. In this first part, create the form and use the program that was gone over in class. Making the form: make six Labels, a textbox and two Buttons on the form that looks something like:

iSchool and Newhouse Course Listings

Course Input File name: |_____|

iSchool Courses:
display courses

Newhouse Courses:
display courses

|__Display Course Listings__| |_Close_|

The two display labels should have a Font that is fixed size. In the properties, under Font, select a font name such as Courier New. Leave lots of room for the display courses labels, so that you can put several lines of text there from the file.

e. Copy the data file “courses.txt” from the web page and save it in the C:\name\Courses\bin\Debug part of the project folder.

f. Copy the button procedure for Display Course Listings from the file on the web page. The program will read the data file and display results.

g. Test the program. In the TextBox, type the name of the input file: courses.txt. (You don’t have to put quotes around the name when it’s in a TextBox as Visual Basic will assume that it’s a String.)

h. Experiment with file errors:

i. First open the file courses.txt in Notepad and edit the first line to remove one of the numbers. Run the program and observe the error message. What type of error did you get? (Write a short version here.)

ii. Now add the number back into the file courses.txt and add an extra comma at the end of the first line. Run the program and observe the error message. What type of error did you get? (Write a short version here.)

3. Extending the program to write data to a file

Now we will extend the Courses project to also write a file. We will add code to the same button, so you do not need to add a button to the form. The form will appear and behave exactly the same as before, but after running the button procedure, there will be an output file in the folder Courses\bin\Debug.

Recall that the input file has:

```
courseid, day/time, course title, total number enrolled, number  
freshman, number sophomores, number juniors, and number seniors
```

The code that we will add will sum up the numbers of different types of students taking the courses and write a report to an output file.

a. Add an output file to the program. Pick a name and add a command to open the file for output, i.e. write a call to the FileOpen function. Be sure to pick a new file number.

b. **Before** the loop to read data from the file, declare and initialize five variables to sum up the total and the four types of students. (An idea for the names of variables might be totalall, totalfrosh, totaljunior, ...) These variables should be initialized to 0.

c. **During** the loop to read data from the file, add each number of different type of students to the totals. For example:

```
totalall = totalall + totalnum  
totalfrosh = totalfrosh + froshnum  
etc.
```

d. **After** the loop, use the PrintLine command to write a report to the output file. It should have lines similar to the following and the numbers should appear starting in column 41. This is the format that the output file should have:

Report on iSchool and Newhouse course enrollments:

```
Total enrolled:           nnn  
Number of freshman enrollments:  nnn  
Number of sophomores enrollments: nnn  
Number of juniors enrollments:   nnn  
Number of seniors enrollments:   nnn
```

In order to write these lines to the file, first use the PrintLine command to write the report heading and a new blank line.

Then write a code to produce the five lines of output. Each line will consist of the beginning String, a number of spaces to make up a String of length 40, and the number.

For example, to produce the first line, the beginning String is "Total enrolled:", the spaces will be Space(40-Len("Total enrolled:")), and the number is value of the variable that you used to add up the totals from the file.

c. Test your program. Go to the directory Courses\bin\Debug and open the output file with NotePad. Does it look like you expected?

***** **At the end of lab** *****

Go to the C: drive where you put your folder with your name. Copy and paste the entire Courses folder to the H: drive under your IST256 projects.

***** **Don't forget to save your work!** *****

This lab sheet and programs will be handed in on Wednesday.