**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ CSI/Chapter 3 – Section 3.5**

**In Exercises 1 through 30, determine the output produced by the lines of code.**

**1.** txtOutput.Text = FormatNumber(1234.56, 0)

**2.** txtOutput.Text = FormatNumber(-12.3456, 3)

**3.** txtOutput.Text = FormatNumber(1234, 1)

**4.** txtOutput.Text = FormatNumber(12345)

**5.** txtOutput.Text = FormatNumber(0.012, 1)

**6.** txtOutput.Text = FormatNumber(5 \* (10 ^ -2), 1)

**7.** txtOutput.Text = FormatNumber(-2/3)

**8.** Dim numVar As Double = Math.Round(1.2345, 1)

txtOutput.Text = FormatNumber(numVar)

**9.** Dim numVar As Double = Math.Round(12345.9)

txtOutput.Text = FormatNumber(numVar, 3)

**10.** Dim numVar As Double = Math.Round(12.5)

txtOutput.Text = FormatNumber(numVar, 0)

**11.** Dim numVar As Double = Math.Round(11.5)

txtOutput.Text = FormatNumber(numVar, 0)

**12.** txtOutput.Text = FormatCurrency(1234.5)

**13.** txtOutput.Text = FormatCurrency(12345.67, 0)

**14.** txtOutput.Text = FormatCurrency(-1234567)

**15.** txtOutput.Text = FormatCurrency(-0.225)

**16.** txtOutput.Text = FormatCurrency(32 \* (10 ^ 2))

# **17.** txtOutput.Text = FormatCurrency(4 / 5)

# **18.** txtOutput.Text = FormatPercent(0.04, 0)

# **19.** txtOutput.Text = FormatPercent(0.075)

# **20.** txtOutput.Text = FormatPercent(-.05, 3)

# **21.** txtOutput.Text = FormatPercent(1)

# **22.** txtOutput.Text = FormatPercent(0.01)

# **23.** txtOutput.Text = FormatPercent(2 / 3)

# **24.** txtOutput.Text = FormatPercent(3 / 4, 1)

# **25.** txtOutput.Text = "Pay to France " & FormatCurrency(27267622)

# **26.** txtOutput.Text = "Manhattan was purchased for " & FormatCurrency(24)

**27.** Dim popUSover24 As Double = 177.6 'Million

Dim collegeGrads As Double = 45.5 'Million

'45.5/177.6 = 0.2561937

txtOutput.Text = FormatPercent(collegeGrads / popUSover24, 1) & \_

" of the U.S. population 25+ years old are college graduates."

**28.** Dim degrees As String = FormatNumber(1711500, 0)

txtOutput.Text = degrees & " degrees were conferred."

**29.** txtOutput.Text = "The likelihood of Heads is " & FormatPercent(1 / 2, 0)

**30.** txtOutput.Text = "Pi = " & FormatNumber(3.1415926536, 4)

**In Exercises 31 through 40, determine the output produced by the lines of code. Assume that Courier**

**New is the font for the list box.**

**31.** Dim fmtStr As String = "{0,-5}{1,5}"

With lstOutput.Items

.Add("12345678901234567890")

.Add(String.Format(fmtStr, 1, 2))

End With

**32.** Dim fmtStr As String = "{0,5}{1,5}"

With lstOutput.Items

.Add("12345678901234567890")

.Add(String.Format(fmtStr, 1, 2))

End With

**33.** Dim fmtStr As String = "{0,5}{1,-5}"

With lstOutput.Items

.Add("12345678901234567890")

.Add(String.Format(fmtStr, 1, 2))

End With

**34.** Dim fmtStr As String = "{0,-5}{1,-5}"

With lstOutput.Items

.Add("12345678901234567890")

.Add(String.Format(fmtStr, 1, 2))

End With

**35.** Dim fmtStr As String = "{0,3}{1,10}"

With lstOutput.Items

.Add("12345678901234567890")

.Add(String.Format(fmtStr, "A", "Alice"))

End With

**36.** Dim fmtStr As String = "{0,-13}{1,-10}{2,-7:N0}"

With lstOutput.Items

.Add("123456789012345678901234567890")

.Add(String.Format(fmtStr, "Mountain", "Place", "Ht (ft)"))

.Add(String.Format(fmtStr, "K2", "Kashmir", 28250))

End With

**37.** Dim fmtStr As String = "{0,11} {1,-11}" 'Three spaces

With lstOutput.Items

.Add("12345678901234567890")

.Add(String.Format(fmtStr, "College", "Mascot"))

.Add(String.Format(fmtStr, "Univ. of MD", "Terrapins"))

.Add(String.Format(fmtStr, "Duke", "Blue Devils"))

End With

**38.** 'Toss coin twice

Dim fmtStr As String = "{0,8} {1,-7:P0}" 'Two spaces

With lstOutput.Items

.Clear()

.Add("12345678901234567890")

.Add(String.Format(fmtStr, "Number", "Percent"))

.Add(String.Format(fmtStr, "of Heads", "of time"))

.Add(String.Format(fmtStr, 0, 1 / 4))

.Add(String.Format(fmtStr, 1, 1 / 2))

.Add(String.Format(fmtStr, 2, 1 / 4))

End With

**39.** 'Elements in a 150 Pound Person

Dim fmtStr As String = "{0,-7} {1,-7:N1} {2,-7:P1}" '2 spaces

With lstOutput.Items

.Clear()

.Add("12345678901234567890")

.Add(String.Format(fmtStr, "Element", "Weight", "Percent"))

 .Add(String.Format(fmtStr, "Oxygen", 97.5, 97.5 / 150))

.Add(String.Format(fmtStr, "Carbon", 27, 27 / 150))

End With

**40.** Dim fmtStr As String = "{0,10} {1,-10:C0}" 'Three spaces

With lstOutput.Items

.Clear()

.Add("12345678901234567890")

.Add(String.Format(fmtStr, "", "Tuition"))

.Add(String.Format(fmtStr, "College", "& Fees"))

.Add(String.Format(fmtStr, "Stanford", 24441))

.Add(String.Format(fmtStr, "Harvard", 25128))

End With

**In Exercises 41 through 50, assume that the file DATA.TXT (shown to the right of the code) has been**

**accessed with the statement Dim sr As IO.StreamReader = IO.File.OpenText("DATA.TXT") and**

**closed afterwards with the statement sr.Close(). Determine the output displayed by the lines of code.**

**41.** Dim num As Double DATA.TXT

num = CDbl(sr.ReadLine) 4

txtOutput.Text = CStr(num \* num)

**42.** Dim word As String DATA.TXT

word = sr.ReadLine speakable

txtOutput.Text = "un" & word

**43.** Dim strl, str2 As String DATA.TXT

str1 = sr.ReadLine base

str2 = sr.ReadLine ball

txtOutput.Text = strl & str2

**44.** Dim numl, num2, num3 As Double DATA.TXT

num1 = CDbl(sr.ReadLine) 3

num2 = CDbl(sr.ReadLine) 4

num3 = CDbl(sr.ReadLine) 5

txtOutput.Text = CStr((numl + num2) \* num3)

**45.** Dim yrOfBirth, curYr As Double DATA.TXT

yrOfBirth = CDbl(sr.ReadLine) 1986

curYr = CDbl(sr.ReadLine) 'Current year 2006

txtOutput.Text = "Age: " & curYr – yrOfBirth

**46.** Dim strl, str2 As String DATA.TXT

strl = sr.ReadLine A, my name is

str2 = sr.ReadLine Alice

txtOutput.Text = strl & " " & str2

**47.** Dim building As String DATA.TXT

Dim numRooms As Double White House

building = sr.ReadLine 132

numRooms = CDbl(sr.ReadLine)

txtOutput.Text = "The " & building " has " & numRooms & " rooms."

**48.** Dim major As String DATA.TXT

Dim percent As Double Computer Science

major = sr.ReadLine 1.4

percent = CDbl(sr.ReadLine)

txtOutput.Text = "In 2004, " & percent & \_

"% of entering college freshmen majored in " & major & "."

**49.** Dim num, sum As Double DATA.TXT

sum = 0 123

num = CDbl(sr.ReadLine) 321

sum += num

num = CDbl(sr.ReadLine)

sum += num

txtOutput.Text = "Sum: "& sum

**50.** Dim grade, total, average As Double DATA.TXT

Dim numGrades As Integer 85

total = 0 95

numGrades = 0

grade = CDbl(sr.ReadLine)

total += grade 'Increase value of total by value of grade

numGrades += 1 'Increase value of numGrades by 1

grade = CDbl(sr.ReadLine)

total += grade 'Increase value of total by value of grade

numGrades += 1 'Increase value of numGrades by 1

average = total / numGrades

txtOutput.Text = "Average grade: " & average

**51.** Dim college As String DATA.TXT

college = sr.ReadLine Harvard

lstOutput.Items.Add(college) Yale

sr.Close()

sr = IO.File.OpenText("DATA.TXT")

college = sr.ReadLine

lstOutput.Items.Add(college)

**52.** Dim num As Integer, str As String DATA.TXT

num = CInt(sr.ReadLine) 4

str = sr.ReadLine calling birds

lstOutput.Items.Add(num & " " & str) 3

sr.Close() French hens

sr = IO.File.OpenText("DATA.TXT")

num = CInt(sr.ReadLine)

str = sr.ReadLine

lstOutput.Items.Add(num & " " & str)

**In Exercises 53 through 58, determine the output displayed.**

**53.** Dim bet As Double 'Amount bet at roulette

bet = CDbl(InputBox("How much do you want to bet?", "Wager"))

txtOutput.Text = "You might win " & 36 \* bet & " dollars."

(Assume that the response is 10.)

**54.** Dim word As String

word = InputBox("Word to negate:", "Negatives")

txtOutput.Text = "un" & word

(Assume that the response is "tied".)

**55.** Dim lastName, message, firstName As String

lastName = "Jones"

message = "What is your first name Mr. " & lastName & "?"

firstName = InputBox(message, "Name")

txtOutput.Text = "Hello " & firstName & " " & lastName

(Assume that the response is "John".)

**56.** Dim intRate, doublingTime As Double 'Current interest rate, time to double

intRate = CDbl(InputBox("Current interest rate?", "Interest"))

doublingTime = 72 / intRate

lstOutput.Items.Add("At the current interest rate, money will")

lstOutput.Items.Add("double in " & doublingTime & " years.")

(Assume that the response is 4.)

**In Exercises 57 and 58, write a line of code to carry out the task.**

**57.** Pop up a message dialog box with "Good Advice" in the title bar and the message "Keep

cool, but don't freeze."

**58.** Pop up a message dialog box with "Taking Risks Proverb" in the title bar and the

message "You can't steal second base and keep one foot on first."

In Exercises 59 through 66, identify any errors. If the code refers to a file, assume that DATA.TXT (on the right of the code) already has been opened for input.

**59.** Dim num As Double DATA.TXT

num = CDbl(sr.ReadLine) 1 + 2

txtOutput.Text = CStr(3 \* num)

**60.** 'Each line triplet of DATA.TXT contains DATA.TXT

'building, height, # of stories Sears Tower

Dim building As String 1454

Dim ht As Double 110

Dim numStories As Integer Empire State Building

lstOutput.Items.Clear() 1250

building = sr.ReadLine 102

ht = CDbl(sr.ReadLine)

lstOutput.Items.Add(building & " is " & ht & " feet tall.")

building = sr.ReadLine

ht = CDbl(sr.ReadLine)

lstOutput.Items.Add(building & " is " & ht & " feet tall.")

**61.** Dim num As Double

num = InputBox("Pick a number from 1 to 10.")

txtOutput.Text = "Your number is " & num

**62.** info = InputBox()

**63.** Dim num As Double = FormatNumber(123456)

lstOutput.Items.Add(num)

**64.** txtOutput.Text = FormatCurrency($1234)

**65.** Dim fmtStr As String = "{0,20}{1,10}"

lstOutput.Items.Add(fmtStr, "Washington", "George")

**66.** MsgBox("Proof", "Pulitzer Prize for Drama")

**SECTION 3.5 – LAB: write an event procedure to solve the problem and display the answer in a**

**list box. The program should use variables for each of the quantities.**

1. The following steps display the changes in majors for first-year college students from 2003 to 2004.

Assume that file MAJORS.TXT consists of six lines containing the following data:

Elementary Education, 4.9, 4.6, Psychology, 4.7, 4.6.

**a.** Declare all variables used in the steps that follow.

**b.** Open the file MAJORS.TXT for input.

**c.** Use ReadLine statements to assign values to the variables major, percent03, and percent04.

**d.** Display the following chart:

|  |  |  |  |
| --- | --- | --- | --- |
| Major | %03 | %04 | % Change |
| Elementary Education | 4.9 | 4.6 | -.3 |
| Psychology | 4.7 | 4.6 | -.1 |

2. The following steps calculate the amount of money earned in a walk-a-thon:

**a.** Declare all variables used in the steps that follow.

**b.** Request the amount pledged per mile from an input dialog box, and assign it to the variable pledge.

**c.** Request the number of miles walked from an input dialog box, and assign it to the variable miles.

**d.** Display a sentence giving the amount to be paid.

(Test the program with a pledge of $2.00 and a 15-mile walk.)

3. The table below contains a list of colleges with their student enrollments and faculty sizes. Write a

 program to display the names of the colleges and their student/faculty ratios, and the ratio for the total

 collection of students and faculty. Assume that the data for the colleges are stored in a text file.

**Colleges:** Source: The World Almanac, 2005.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Enrollment** | **Faculty** | **Student/Faculty****Ratio** |
| Ohio State | 50721 | 3657 | 319/23 |
| Univ. of MD, College Park | 35262 | 2087 | 35262/2087 |
| Princeton | 6849 | 1015 | 6849/1015 |
| Total | 92832 | 6759 | 30944/2253 |

4.The table below gives the year 2003 populations of three New England states. Write a program that calculates the

 average population and then displays the name of each state and the difference between its population and the

 average population. The states and their populations should be stored in a text file.

**2003 population (in thousands) of three New England states.**

|  |  |  |
| --- | --- | --- |
| **State** | **Population** | **Difference****Population - Average** |
| Maine | 1305 | -2435 |
| Massachusetts | 6433 | 2692 |
| Connecticut | 3483 | -257 |

5. Design a form with two text boxes labeled "Name" and "Phone number". Then write an event procedure that

 shows a message dialog box stating "Be sure to include the area code!" when the second text box receives the

 focus.

6. Write a program to calculate the amount of a waiter's tip given the amount of the bill and the percentage tip

obtained via input dialog boxes. The output should be a complete sentence that reiterates the inputs and gives the resulting tip, as shown below:

