

Homework #4 McKinney CE311K

Input Output Problems

Problem 1. Text, page 107, Problems 2 and 6

- 2. -12.346
- 6. 0.1

Problem 2. Text, page 110, Problem 44

- 44. 60

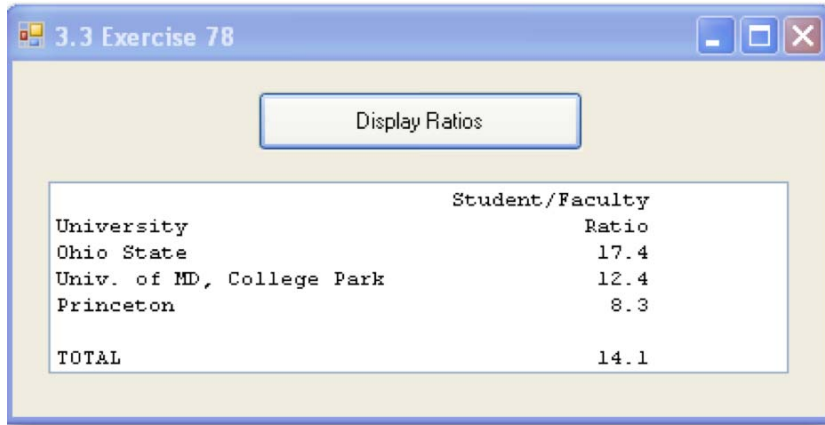
Problem 3. Text, page 112, Problem 56

- 56. At the current interest rate, money will double in 18 years.

Problem 4. Text, page 113, Problem 68

```
Private Sub btnDisplay_Click(...) Handles btnDisplay.Click
    Dim major As String, percent06, percent07 As Double
    Dim sr As IO.StreamReader = IO.File.OpenText("MAJORS.TXT")
    major = sr.ReadLine
    percent03 = CDb1(sr.ReadLine)
    percent04 = CDb1(sr.ReadLine)
    lstOutput.Item.Add("From 2006 to 2007, the percentage of " & major)
    lstOutput.Item.Add("majors increased by " & (percent04 - percent03))
    lstOutput.Item.Add("percentage points.")
    major = sr.ReadLine
    percent03 = CDb1(sr.ReadLine)
    percent04 = CDb1(sr.ReadLine)
    lstOutput.Item.Add("From 2006 to 2007, the percentage of " & major)
    lstOutput.Item.Add("majors increased by " & (percent07 - percent06))
    lstOutput.Item.Add("percentage points.")
End Sub
```

Problem 5. Text, page 114, Problem 78



```
Private Sub btnDisplay_Click(ByVal sender As System.Object, ByVal e As
System.EventArgs) Handles btnDisplay.Click
    'Calculate student-to-faculty ratio for 3 universities.
    Dim univ As String
    Dim students, faculty As Double
    Dim totalStudents, totalFaculty As Double
    Dim ratio, totalRatio As Double
    Dim fmtStr = "{0, -29} {1, 15:N1}"
    Dim sr As IO.StreamReader = IO.File.OpenText("3-3-E78.TXT")
    lstOutput.Items.Clear()
    lstOutput.Items.Add(String.Format(fmtStr, "", "Student/Faculty"))
    lstOutput.Items.Add(String.Format(fmtStr, "University", "Ratio"))

    '1st university
    univ = sr.ReadLine
    students = Cdbl(sr.ReadLine)
    faculty = Cdbl(sr.ReadLine)
    ratio = students / faculty
    totalStudents = students
    totalFaculty = faculty
    lstOutput.Items.Add(String.Format(fmtStr, univ, ratio))

    '2nd university
    univ = sr.ReadLine
    students = Cdbl(sr.ReadLine)
    faculty = Cdbl(sr.ReadLine)
    ratio = students / faculty
    totalStudents += students
    totalFaculty += faculty
    lstOutput.Items.Add(String.Format(fmtStr, univ, ratio))

    '3rd university
    univ = sr.ReadLine
    students = Cdbl(sr.ReadLine)
    faculty = Cdbl(sr.ReadLine)
    ratio = students / faculty
    totalStudents += students
    totalFaculty += faculty
    lstOutput.Items.Add(String.Format(fmtStr, univ, ratio))
```

```

'Total
totalRatio = totalStudents / totalFaculty
lstOutput.Items.Add("")
lstOutput.Items.Add(String.Format(fmtStr, "TOTAL", totalRatio))
sr.Close()
End Sub

```

Logical Operator Problems

Problem 6. Text, page 127, Problem 14

$a = 2, b = 3$

$(a * a < b)$ OR Not $(a * a < a)$
 $(2 * 2 < 3)$ OR Not $(2 * 2 < 2)$
 (F) OR Not (F)
 (F) OR (T)
 T
 True

Problem 7. Text, page 127, Problem 16

$a = 2, b = 3$

Not $(a < b)$ OR Not $(a < (b + a))$
 Not $(2 < 3)$ OR Not $(2 < (3 + 2))$
 Not (T) OR Not $(2 < 5)$
 Not (T) OR Not (T)
 F OR F
 False

Problem 8. Text, page 127, Problem 18

$((a = b)$ OR Not $(b < a))$ AND $((a < b)$ OR $(b = a + 1))$
 $((2 = 3)$ OR Not $(3 < 2))$ AND $((2 < 3)$ OR $(3 = 2 + 1))$
 (F OR Not (F)) AND (T OR T)
 (F OR T) AND (T OR T)
 (T) AND (T)
 True

Problem 9. Text, page 128, Problem 44

Write a condition equivalent to the negation of the given expression:

Not $((a = b)$ OR $(a > b))$

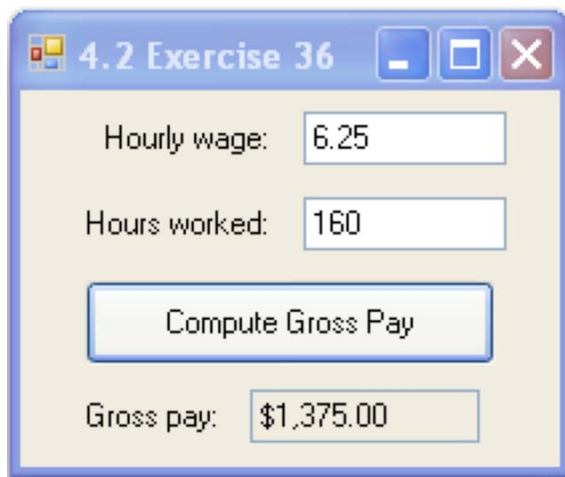
$(a = b)$ OR $(a > b)$

If-Block Problems

Problem 10. Text, page 137, Problem 4

Your change contains 3 dollars.

Problem 11. Text, page 143, Problem 36



```
Private Sub btnCompute_Click(ByVal sender As System.Object,  
    'Compute gross pay, including "time-and-a-half"  
    'for overtime  
    Dim wage, hours, grossPay As Double  
    wage = CDb1(txtHourlyWage.Text)    'Hourly pay  
    hours = CDb1(txtHoursWorked.Text)  'Hours worked  
    If hours <= 40 Then  
        grossPay = wage * hours  
    Else  
        grossPay = (wage * 40) + (1.5 * wage * (hours - 40))  
    End If  
    txtGrossPay.Text = FormatCurrency(grossPay)  
End Sub
```

Problem 12. Text, page 156, Problem 4

Sorry, 1945. Work on the ENIAC began in June 1943.

Correct.

No, 1945. By then IBM had built a stored-program computer.