

CHAPTER 18

EXTRA RESOURCES

Additional Resources

1. “Small Basic Reference Documentation: Text Object” (<http://tiny.cc/textobject/>): Check out information about the Text object in the Small Basic reference documentation.
2. “Text Basics” (<http://tiny.cc/textbasics/>): Look at more examples of what you can do with the Text object.
3. “Strings and Characters in Non-English Languages” (<http://tiny.cc/nonenglish/>): Learn more about ASCII and how to write in some non-English languages.
4. “Pig Latin” (<http://tiny.cc/piglatin/>): Expand on the pig latin exercise in Listing 18-7 by reading about its history and how it works.

Review Questions

1. What does `Text.GetLength("Jack and Joe")` return?
2. What's the difference between `Text.Append()` and the concatenation operator (the plus sign)?
3. What's the output of the following program?

```
var1 = 1
var2 = 5
res = Text.Append(var1, var2)
TextWindow.WriteLine(res)
```

4. What does `Text.GetSubText(str, 2, 4)` return if `str = "seven"`?
5. If `str = "engage"`, what does `Text.GetSubTextToEnd(str, 4)` return?
6. Write a statement that returns a five-digit zip code that starts at position 12 in a string named `strAddress`.
7. What's the purpose of the `Text` object's `StartsWith()` and `EndsWith()` methods?
8. What would you write to display every letter in a string named `strName`?
9. Which method would you use to get the uppercase version of an input string named `strIn`?
10. If `str = "cybernetic"`, what does the substring right contain after executing the following two statements?

```
midPos = Text.GetLength(str) / 2
right = Text.GetSubTextToEnd(str, midPos)
```

11. Write statements to perform each of the following on an input string called `strIn`:
 - a. Display the first letter of `strIn`.
 - b. Display the last letter of `strIn`.
 - c. Display the first two letters of `strIn`.
 - d. Display the last two letters of `strIn`.
 - e. Extract the first *N* letters of `strIn` and assign the result to a new string called `strOut`.
12. Let `strIn` be a two-letter string. How would you interchange these two letters to get a new string called `strOut`?
13. You have two strings called `str1` and `str2`. How would you create a new string, `str3`, which contains the first three letters from `str1` and the last three letters from `str2`?
14. Explain how the `Text` object's `GetCharacter()` and `GetCharacterCode()` methods work.

Practice Exercises

1. Write a program that reads the first and last name of the user and then displays the username as their first initial followed by the first four letters of the last name. For example, if the user enters Mickey for his first name and Mouse for his last name, the program should display MMous.
2. Write a program that reads a month's number (1 to 12) and outputs the month's abbreviation. (Hint: define a string months = "Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec" and use the month's number to get the month's abbreviation.)
3. Let ans contain a string input by the user. What's the purpose of the following code?

```
For N = 1 To Text.GetLength(ans)
  ch = Text.GetSubText(ans, N, 1)
  If (ch <> " ") Then
    TextWindow.Write(ch)
  EndIf
EndFor
```

4. Return to *StringMatch.sb* in Listing 18-2. Turn the program into a trivia game for your friends, and feature your favorite theme, whether it's the Seattle Mariners or *Jurassic Park*.
5. A simple way to encrypt text is to substitute letters. For example, the following program substitutes every letter with the letter that comes after it:

```
TextWindow.Write("Enter a message to encrypt: ")
msg = TextWindow.Read()
For N = 1 To Text.GetLength(msg)
  ch = Text.GetSubText(msg, N, 1)
  code = Text.GetCharacterCode(ch)
  code = code + 1
  ch = Text.GetCharacter(code)
  TextWindow.Write(ch)
EndFor
TextWindow.WriteLine("")
```

Run this program several times to see its output, and then explain how it works.

6. Write a program that decrypts a message that was encrypted by the program in the preceding practice exercise.
7. The following program can help you discover the codes for your keyboard characters. Run the program, and then explain how it works.

```
While ("True")
  TextWindow.Write(" Key: ")
```

```
key = TextWindow.Read()
code = Text.GetCharacterCode(key)
TextWindow.WriteLine("Code: " + code)
EndWhile
```

- Write a program that tells whether a string input by the user is in uppercase, lowercase, or mixed case.
 - Create the following array words:
-

```
words = "1=about;2=above;3=absorb;4=academy;5=accent;6=account; ↵
7=address;8=adhere;9=age;10=again;"
```

Write a program that prompts the user to enter a prefix to search for. Then display those words (from the words array) that begin with the prefix entered by the user. For example, if the reader enters "ab", then the program displays "about", "above", and "absorb" (because they all start with "ab").

- Create the following array words:
-

```
words = "1=action;2=lotion;3=motion;4=nation;5=option;6=cession; ↵
7=elusion; 8=fusion;9=vision;10=mansion"
```

Write a program that prompts the user to enter a suffix to search for. Then display those words (from the words array) that end with the suffix entered by the user. For example, if the user enters "usion", the program should display "elusion", and "fusion" (because both words end in "usion").

- Open *PigLatin.sb* from Listing 18-7. You'll make two updates to increase the quality of your pig latin! For the first update, if two consonants come before the first vowel in the word, such as in *pride*, append the first two letters at the end and then add ay, such as *idepray*. For the second update, don't append any letter to the end of the word if the word starts with a vowel; instead, append yay at the end, such as *amyay* for *am*. For example, if the user enters I am full of pride, the program will display Iyay amyay ullfray ofyay idepray.
 - Write a program that reads a string from the user. Then create a new string that replaces all occurrences of the letter A in the input string with the letter B. For example, if the input string is banana, the output string is bbnbnb.
 - What's the output of the following program? Run the program, and then explain how it works.
-

```
msg = "Hello! I am a computer."
SlowWrite()

msg = "You can call me Crunchy."
SlowWrite()
```

```

Sub SlowWrite
    len = Text.GetLength(msg)
    For N = 1 To len
        char = Text.GetSubText(msg, N, 1)
        TextWindow.Write(char)
        If (char <> " ") Then
            Sound.PlayClickAndWait()
        Else
            Program.Delay(200)
        EndIf
    EndFor
    Program.Delay(400)
    TextWindow.WriteLine("")
EndSub

```

14. Your spaceship takes you to a faraway weird planet where people seem to have everything backward. A friendly alien greets you and starts a conversation with you. Run the following program to carry on this conversation:

```

line[1] = "What is your name? ;That's funny. I'm "
line[2] = "Where are you from? ;Never heard of it. I'm from "
line[3] = "What city? ;How nice! I live in "
line[4] = "What is your address? ;My address is "
line[5] = "What is your favorite food? ;WOW! I love "
line[6] = "What is your favorite TV show? ;Cool, my favorite is "

For N = 1 To 6
    ' Split the current array element into two parts (at the ;)
    pos = Text.GetIndexOf(line[N], ";")
    text1 = Text.GetSubText(line[N], 1, pos-1)
    text2 = Text.GetSubTextToEnd(line[N], pos+1)

    ' Write the question, and read the user's answer
    TextWindow.Write(text1)
    ans = TextWindow.Read()
    ans = Text.ConvertToLowerCase(ans)

    ' Write the first part of the reply, followed by ans (in reverse)
    TextWindow.Write(text2)
    For J = Text.GetLength(ans) To 1 Step -1
        char = Text.GetSubText(ans, J, 1)
        TextWindow.Write(char)
    EndFor

    TextWindow.WriteLine("")
    TextWindow.WriteLine("")
EndFor

```

After you run the program, explain how it works. Change the elements in the line array to make this conversation as funny as you can!

15. Write a word guessing game for two players. The first player enters the word to be used in the game (the second player closes his eyes). The game then clears the screen and shows the first and last letters of the secret word with stars in between. For example, if the first player enters banana, the computer displays b****a. The game then asks the second player to guess the secret word. Have the game continue to ask the second player to enter his answer until he guesses correctly. The players then switch places, and the second player enters the secret word.