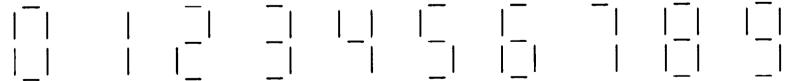
memcpy(a, b, sizeof(a));

Many programmers prefer memcpy, especially for large arrays, because it's potentially faster than an ordinary loop.

- \*Q: Section 6.4 mentioned that C99 doesn't allow a goto statement to bypass the declaration of a variable-length array. What's the reason for this restriction?
  - A: The memory used to store a variable-length array is usually allocated when the declaration of the array is reached during program execution. Bypassing the declaration using a goto statement could result in a program accessing the elements of an array that was never allocated.

## **Exercises**

- Section 8.1
- We discussed using the expression sizeof(a) / sizeof(a[0]) to calculate the number of elements in an array. The expression sizeof(a) / sizeof(t), where t is the type of a's elements, would also work, but it's considered an inferior technique. Why?
- 2. The Q&A section shows how to use a *letter* as an array subscript. Describe how to use a *digit* (in character form) as a subscript.
  - 3. Write a declaration of an array named weekend containing seven bool values. Include an initializer that makes the first and last values true; all other values should be false.
  - 4. (C99) Repeat Exercise 3, but this time use a designated initializer. Make the initializer as short as possible.
  - 5. The Fibonacci numbers are 0, 1, 1, 2, 3, 5, 8, 13, ..., where each number is the sum of the two preceding numbers. Write a program fragment that declares an array named fib\_numbers of length 40 and fills the array with the first 40 Fibonacci numbers. Hint: Fill in the first two numbers individually, then use a loop to compute the remaining numbers.
- Section 8.2
- 6. Calculators, watches, and other electronic devices often rely on seven-segment displays for numerical output. To form a digit, such devices "turn on" some of the seven segments while leaving others "off":



Suppose that we want to set up an array that remembers which segments should be "on" for each digit. Let's number the segments as follows:

$$5 \begin{vmatrix} \frac{0}{6} & 1 \\ \frac{6}{3} & 2 \end{vmatrix}$$

Here's what the array might look like, with each row representing one digit: const int segments [10] [7] =  $\{\{1, 1, 1, 1, 1, 1, 0\}, ...\}$ ; I've given you the first row of the initializer; fill in the rest.