Data Compression: Huffman Codes

Read the book chapters first, then make sure you can answer the questions in the notes. Following that, work on some skills-check problems and exercises. Then take the online quizzes.

Reading 17.3
Skills Check 11
Exercises 16, 17, 19, 20, 21, 22, 24, 25, 26, 27, 28
Quiz No quiz today.

17.3

- What is the main goal of *data compression*? What are some examples?
- Data compression requires *variable-length codes*. Explain what that is.
- Table 17.9 shows the relative frequencies of letters in the English language. Morse Code, which is a variable-length code, would likely try to assign shorter codes to most frequent letters. Verify this by looking at the Morse Code assignments in spotlight 17.4 (For example, E takes a single more signal, a dot, and T takes a single signal, a dash, and this matches the fact that E and T are the two most frequent letters).
- Describe what *delta encodings* are, and situations in which they might be effective.
- Describe how the *Huffman encoding* works. How is the code-tree built?
- Show how to encode and decode using the code-tree.
- Using the frequencies in Figure 17.9, construct a Huffman code for the English language. Then use that code to encode the phrase “HANOVERCOLLEGE”.