CSci2111: Assignment and Project Set # 2
Handed Out on: Thursday February 3, 2000
Due Date: Thursday February 17, 2000

1 Written Exercises

Question 1:

1. Construct a Huffman encoding for the following letter/frequency pairs: (a, .1), (b, .05), (c, .25), (d, .15), (e, .15), (f, .2), (g, .1). Explain clearly what tie resolution scheme you used. Make sure that you use this scheme consistently.
2. How many different encodings are possible (including yours)?
3. Using your encoding, encode string "acdfcegfcb"
4. Use the Lempel-Ziv compression algorithm to encode the result of the Huffman encoding.
5. Assuming that each letter of the original message can be encoded by one ASCII byte (8 bits). Was it useful to compress the data as directed? Discuss the cases where (1) the Huffman and (2) the Lempel-Ziv encoding techniques are worth using and the cases where they are not.

Question 2: Problem 3, p. 197 and Problem 9, p. 198. (Chapter 5)

Question 3: Problem 8, p. 241 and Problem 12, p. 242. (Chapter 6)

2 Programming Project, Part II (of V)

Use Java or C++ to do the following (if using Java, discard any comment (from the problem question) regarding the use of C++):

Question 1: Problems 22 and 23 on p. 152 (Chapter 4)

Question 2: Problems 31 and 32 on p. 245 (Chapter 6)