Exercise 1 – Decode the String

This exercise uses a basic Huffman-like lossless compression algorithm.

A secret phrase has been encoded. As there are only 10 characters in the phrase, a maximum of 4 bits is required to encode this.

Using the chart above decode the following code. For a 0, take the branch going up. For a 1, take the branch going down.

1100 011 000 1110 100 101 001 100 011 010 1101 001 1111 1100 1101

Exercise 2 – Encode a String

For this exercise, take your full name or a message, and develop the shortest possible encoding method that uses the least binary digits.

To do this, figure out how many unique letters you have to use. Then find the lowest power of 2 that is large enough to represent all of the characters you require. This is the maximum number of bits you will need per character.

Develop a tree. Assign the most frequently used letters to the lowest number of bits.

Encode your name using the tree and pass the code and your tree to a friend to decode it.