CSE 4203 ASSIGNMENT

HUFFMAN CODING

To generate the prefix code for Huffman coding, the steps needed to be followed are:

Step 1: Calculate the frequency of each character in the input data and create a frequency table. The input characters are sorted into an array.

Step 2: Take the two nodes with the lowest frequency and create a new internal node with a frequency equal to the sum of the two nodes. The two nodes become the left and right sub-trees of the new node. The new node is added into the array. This process is repeated until there is only one node left, which is the root of the Huffman tree.

Step 3: Traverse the Huffman tree from root to leaves, assigning a 0 to the left branch and a 1 to the right branch at each node. The code for each symbol is the sequence of 0s and 1s from the root to the leaf. This generates the prefix code for each symbol.

As my name is “Mehreen Hossain Chowdhury”, the frequency table for my name is:

|  |  |
| --- | --- |
| **Symbol** | **Frequency** |
| M | 1 |
| A | 1 |
| I | 1 |
| C | 1 |
| W | 1 |
| D | 1 |
| Y | 1 |
| U | 1 |
| R | 2 |
| N | 2 |
| O | 2 |
| S | 2 |
| E | 3 |
| H | 4 |

The tree for the prefix code would look like:

