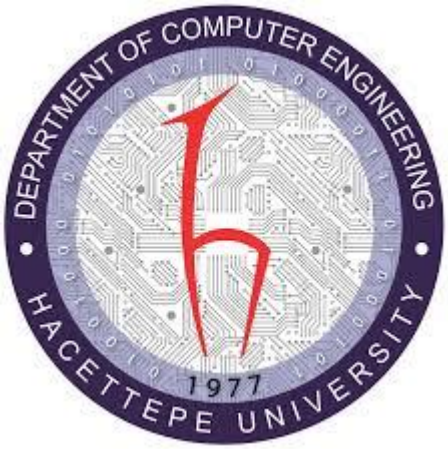

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BBM203 Software Laboratory I

Assignment IV

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Explain your encoding algorithm and code step by step in detail

Firstly I readed my input text. I calculate the frequency of each char in the frequenyCounter method together with my string from input txt and I save these values in my map.

After that, in my buildTree method I created a leaf node for each character and add it to the queue. and then I ordered queue by frequency with calling my sort method.In my sort method, I used vector for queue sorting.

If in my while loop I removed the lowest two frequency from the queue after that creating a new node with these two nodes as children and with a frequency equal to the sum of the two nodes frequencies. I added the new node to the queue. and in this loop I sorted the queue with the sort method after each push.

In the encode method, I called the method itself until I found a leaf node and saved the huffman code of each character to the encodedcodes map.I used this map in my displayEncode method for display.

Also,I saved characters and its huffman codes in tree.txt.I created readingCharacter method for a character returns its Huffman encoding.

Explain your decoding algorithm and code step by step in detail

Firstly,I readed the decode input text.After this, I called decode method with my string from text.In this method, I used the string from decode.text using a simple for loop and I added each character at current index to another string (str2).

After adding each character at current index ,I used tree text for using characters' huffman codes.If str2 equals the huffman code of any character in my tree text, I add the character itself to the output string and I printed output string for decode display.

make

./a4.exe -i input_1.txt –encode

./a4.exe -s d

./a4.exe -i decode_input_1.txt –decode