***MULTIMEDIA LAB***

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Assignment - *Implement Huffman Coding Algorithm of Variable length coding scheme*

*Steps:*

1. Open your preferred Python editor or environment. This implementation should work in any Python environment, including Jupyter Notebook, Google Colab, or a local installation of Pyt]hon.
2. Copy and paste the entire implementation code into a new Python file.

3.Use the huffman\_encode function to encode a given text string. The function takes a single argument, the text string to be encoded. For example, to encode the text "hello world", you can call the function as follows where the given text is stored in original\_data.txt :

*f=open("original\_data.txt","r") //we open the file and read the input text*

*text=f.read()*

*f.close()*

*encoded\_text, root = huffman\_encode(text)*

4.The huffman\_encode function returns two values: the encoded text and the root node of the Huffman tree. The encoded text is a string of binary digits, and the root node is an instance of the HuffmanNode class. You can print these values to see the results of the encoding step:

*print(f'Encoded text: {encoded\_text}')*

*print(f'Huffman tree root node: {root}')*

5.Use the huffman\_decode function to decode an encoded text string. The function takes two arguments: the encoded text string and the root node of the Huffman tree. For example, to decode the encoded text from step 4, you can call the function as follows:

Use the huffman\_decode function to decode an encoded text string. The function takes two arguments: the encoded text string and the root node of the Huffman tree. For example, to decode the encoded text from step 4, you can call the function as follows:

*decoded\_text = huffman\_decode(encoded\_text, root)*

6.The huffman\_decode function returns the original text string that was encoded. You can print this value to see the result of the decoding step:

*print(f'Decoded text: {decoded\_text}')*

With these steps, you can use the Huffman Coding algorithm implementation in Python to encode and decode text strings using a variable-length code.

The CSV and JSON files will also be created and with their respective data