MULTIMEDIA LAB
JADAVPUR UNIVERSITY
INFORMATION TECHNOLOGY, 6TH SEM

NAME: - MIHIR CHOWDHURY
ROLL NO. : - 00201101040
TOPIC: - 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