1. Apply Huffman encoding on the string \( s = \text{CELESTEELA} \). Show the resulting decoding trie and give the encoding for \( s \).

2. Consider Run-Length Encoding compression.

   a) Encode the string \( s = 1111111000001111011111100000000000000000000 \) using RLE.

   b) Decode the string \( c = 111001011010010011 \) using RLE.

3. For the following questions, you may assume that \( n \) is divisible by 4.

   a) For each \( n > 0 \), give a string of \( n \) bits that achieves the worst compression ratio with Run-Length Encoding from all \( n \)-bit strings, and state the exact compression ratio achieved.

   b) Same question, but for the best compression ratio.