Bit length for a = 2, for b = 2, for d = 3, for e = 3, for c = 3, for f = 4, for g = 5, for h = 5.
Average bit length = \[ \sum_{i} l(ai) \cdot p(ai) \]

Where \( p(ai) \) = probability of occurrence of symbol ai,

\[ l(ai) = \text{bit length for ai} \]

This turns out to be 2.73.

The decoder works by reading the encoded bit pattern and traversing the Huffman tree from root to leaf following the bit pattern. Each time a leaf is reached, the corresponding symbol is output. You restart the procedure from the root all over again.

Eg: the code for ‘abcchedffg’ is

01 10 000 000 00111 111 110 0010 0010 00110