Critical Thinking Task

To begin with, run-length encoding is a lossless data compression technique, meaning that when the data is decompressed, the original data is fully recovered. Data runs (sequences in which the same data value appears in numerous consecutive data items) are saved as a single data value and count instead of the original run using this technique. It is a basic data compression method in which the input is a stream of data, and the output is a series of counts of successive data values in a row. The algorithm's simplicity in both encoding and decoding is one of its most appealing features.

Textual data is the type of data for which run-length encoding is well suited. This method comprises counting the number of times each character appears in a row while reading the text. The count is the first half of the couple, while the character is the second.

Applying run length encoding on a 10x10 image could be a real-world scenario. From a 10x10 representation, a 100-bit code is formed. A single bit represents each pixel, indicating whether the pixel is black or white. Run-length coding is based on the length of an alternate black or white sequence. An encoded data stream, which is a string of numbers, is used to represent the length of alternate black or white runs.