Run Length Encoding:

Run Length Encoding is a simple to implement data compression technique.

Limitations and Efficiency:

RLE’s efficiency depends on the repetitiveness of the data that is encoded. More repetitive is the data, better is the compression ratio.

In our implementation, we are using two bytes for every unit of data. One is to represent the run length and another is the actual data. This works fine when the data is highly repetitive. Assuming a worst case scenario where the data is not repetitive, we would need two bytes to represent every byte. Compressed data would need double the space compared to actual uncompressed data.

Another way to represent is to use an array of characters where the run length is marked using a control character followed by the actual data. If the data is not repetitive, the control character and run length is omitted and just the actual data is added to the array.