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In [ ]: import heapq
        from collections import defaultdict

        # Define compression functions
        def compress_rle(text):
            compressed_text = []
            count = 0
            for i in range(1, len(text)):
                if text[i] == text[i - 1] and count < RUN_LENGTH:
                    count += 1
                else:
                    compressed_text.append((text[i - 1], count)) # Length starts from 0
                    count = 0
            # Append the last symbol with its count
            compressed_text.append((text[-1], count))
            return compressed_text
```

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In [ ]: # Define decompression functions
        def decompress_rle(compressed_text):
            decompressed_text = ''
            for symbol, length in compressed_text:
                decompressed_text += symbol * (length + 1) # Increment length to match RLE
            return decompressed_text
```

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In [ ]: RUN_BITS = 2
        RUN_LENGTH = 2**RUN_BITS

        text = "AAABBBCCDAA"
```

```
In [ ]: #Ex form of compressed text: [('A', 2), ('B', 2), ('C', 1), ('D', 0), ('A', 1)]
        # Test the RLE compression and decompression

        compressed_text = compress_rle(text)
        print("Compressed text:", compressed_text)

        decompressed_text = decompress_rle(compressed_text)
        print("Decompressed text:", decompressed_text)
```

Compressed text: [('A', 2), ('A', 1), ('B', 2), ('C', 1), ('D', 0), ('A', 1)]
 Decompressed text: AAAAABBBCCDAA