**CS 254- ANALYSIS OF ALGORITHMS**

**ANALYSIS OF DATA COMPRESSION ALGORITHM**

**INTRODUCTION**

LZ77 and LZ78 are two lossless data compression algorithms designed by Abraham Lempel and Jacob Ziv.

LZW is an improved implementation of the LZ78 algorithms, created by Terry Welch. LZSS is an improved version of LZ77 algorithm created by James Storer and Thomas Szymanski.

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**OBJECTIVE**

1. Study and analysis of LZW and LZSS compression algorithm.
2. Compression and decompression of a text file using LZW and LZSS algorithm, thereby proving its correctness.
3. Attempt to discuss recent variants in the LZ algorithm family.

**MOTIVATION**

Data compression finds its applications everywhere - easing data transfer, file encryption, and many more. Data compression involves encoding information using fewer bits than original representation. This may be lossless or lossy. Lossless compression reduces bits by eliminating statistical redundancy. Two such lossless compression algorithms are LZW and LZSS algorithm. LZW algorithm is based on the concept of dictionary keys while LZSS is based on the concept of sliding window.

**COURTESY**

Source credits given to recent research papers and Wikipedia.