File Structures Laboratory with Mini Project (18ISL67) - Synopsis

Proposed Mini Project Synopsis – VI Sem ISE 'A'

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Mini Project Title:	**Compression Using Lempel Ziv Welch (LZW) Algorithm**

Mini Project Description:

This project uses the Lempel-Ziv algorithm, a text compression method that utilizes a dictionary-based approach. It works by replacing repeated sequences of characters in a text with shorter codes or references to previously encountered sequences. This enables efficient storage and transmission of data. The algorithm scans the input text, building a dictionary of sequences encountered so far. When a repeated sequence is found, it is replaced with a code or reference to the dictionary entry. Lempel-Ziv is widely used in various applications, including file compression formats like ZIP and gzip, as it achieves good compression ratios while maintaining relatively fast encoding and decoding speeds.The LZW algorithm is commonly used to compress GIF and TIFF image files and occasionally for PDF and TXT files. It is part of the Unix operating system's file compression utility. The method is simple to implement, versatile, and capable of high throughput in hardware implementations. Consequently, LZW is often used for general-purpose data compression in many PC utilities.

References:

[1] Michael J. Folk, Bill Zoellick, Greg Riccardi: File Structures-An Object-Oriented Approach with C++, 3rd Edition, Pearson Education, 1998. Erik Hellman, "Android Programming-Pushing the limits", 1st Edition, Wiley India Pvt Ltd, 2014. ISBN-13: 978-8126547197.