**MINOR-1 PROJECT**

**SYNOPSIS on**

**Comparing lossless Data Compression Algorithms**

Submitted By :

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**Synopsis Report (2018-19)**

**1 Project Title**

# Abstract

In today’s world, With the advent of the Internet and mobile devices with limited resources and with the growing requirements of information storage and data transfer, Cloud Computing has become an important aspect but cloud computing also require physical infrastructure, somewhere down the lane. This exponential sub purge of data leads to high demand for data processing that leads to a high computational requirement which is usually not available at the user's end. Compression reduces the redundancy in data representation thus increasing effective data density. [1] Data Compression is a technique which is used to decrease the size of data. This is very useful when some huge files have to be transferred over networks or being stored on a data storage device and the size is more than the capacity of the data storage or would consume so much bandwidth for transmission in a network. With the limited physical infrastructure for storage, data compression has gained even more importance these days. There are number of data compression algorithms, which are dedicated to compressing different data formats. Even for a single data type, there are number of different compression algorithms, which use different approaches. In this project, we will examine lossless data compression algorithms like Huffman encoding algorithm, Lempel-Ziv-Welch algorithm, and Shannon-Fano algorithm and comparing their performance.[2]

**Keywords: Cloud Computing, Data Compression ,Huffman encoding algorithm, Lempel-Ziv-Welch algorithm, Shannon-Fano algorithm.**

# Introduction

Compression is the art of representing the information in a compact form rather than its original or in uncompressed form [3]. In other words, using the data compression, the size of a particular file can be reduced.This is very useful when processing, storing or transferring a huge file, which needs lots of resources. If the algorithms used to encrypt works properly, there should be a significant difference between the original file and

the compressed file. When data compression is used in a data transmission application, speed is the primary goal. Speed of transmission depends upon the number of bits sent, the time required for the encoder to generate the coded message and the time required for the decoder to recover the original message. In a data storage application, the degree of compression is the primary concern. There are two types of data compressions ie. Lossless data compression and Lossy data compression.

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| Lossless data compression | Lossy data compression |
| In Lossless data compression algorithms the original data can be recovered from compressed data after applyind decompression algorithm | In Lossy compression algorithms it permanently reduces the original data by eliminating certain information, especially redundant information, after decompressing the file only the part of original data is recovered. |
| Lossless compression is generally used for text data or spreadsheet files ,where even a very small amount of data loss can be detected by users. | Lossy compression is generally used for video and sound, where a certain amount of information loss will not be detected by most users. |
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# Literature Review

# Problem Statement

# Objectives

# Methodology

# System Requirements (Software/Hardware)

# Schedule (PERT Chart)

# References

[1] Monika Soni , Dr Neeraj Shukla “Data Compression Techniques in Cloud Computing”

[2] Mohammad Hosseini “A Survey of Data Compression Algorithms and their Applications”

[3] Pu, I.M., 2006, Fundamental Data Compression, Elsevier, Britain.