

# Analysis of Run-Length Data Compression Algorithm

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**Abstract :** Compression is a process of coding for reducing the total number of bits that are used to represent certain information. The main emphasis of compression is to transmit only minimum information that are mainly required for reconstruction. In this work, Run length coding algorithm is demonstrated by taking different data inputs.

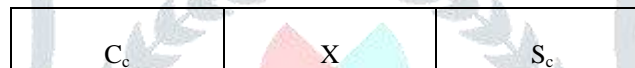
## I. INTRODUCTION

Run length encoding is a data compression method that will physically reduce any type of repeating character sequence. Run length-coding combines with Huffman coding for to form modified Huffman coding, which is used in fax machines. Run length coding differ from Huffman and Shannon-Fano coding in such a way that Shannon-fano and Huffman coding output have variable lengths while run length coding have fixed length [1,2,3,4].

The employment of run-length encoding normally requires the use of a special character to denote that this type of compression has occurred. When a compression-indicator character is used, it is normally followed by one of the repeating characters, which were in the encountered string of repetitious characters. Finally, a count character signifies the number of times the repeated character occurred in the sequence.

## II. RUN LENGTH ENCODI PROCESS

The Run length compression process results in a string of repeated characters being converted into a compressed data string. With three characters required to denote compression, run length encoding is only effective when a data string contains a sequence of four or more repeated data characters.



**Fig: Run-Length Encoding**

$S_c$  = Special character indicating compression follows

$X$  = Any repeated data character

$C_c$  = Character count. This count is the number of times the compressed character is to be repeated.

## III. PROBLEM FORMULATION

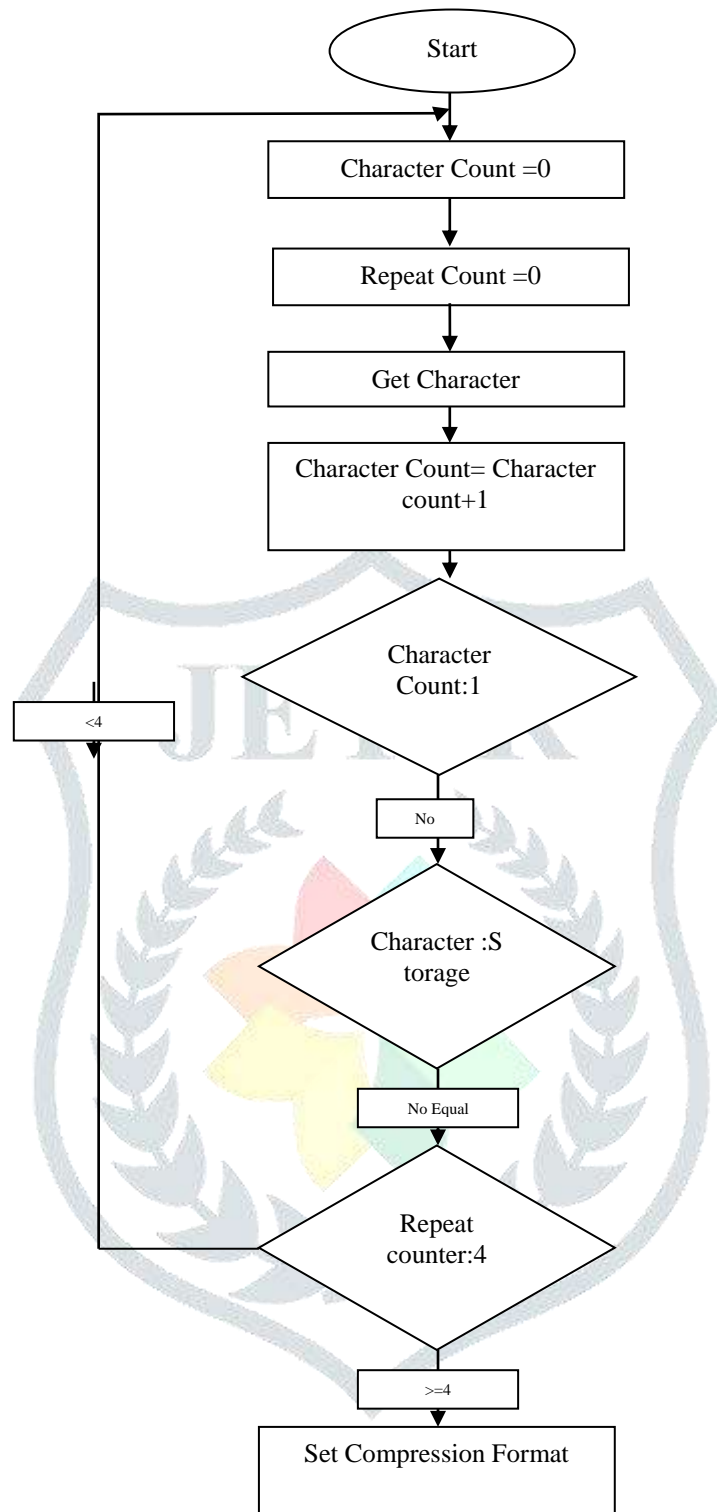
As the Run length encoding is used for null-suppression, as well as in microcosm networking protocol. In this work, the following data has been implemented using Run-Length algorithm.

Original data String

1. @%%%%%%%%99.9

2. JK RL \$\$\$\$\$\$\$\$99.97

## IV. METHODOLOGY



**Algorithmic Steps**

1. Initially set character count and Repeat count at null point
2. Then give sample input inputs as defined in problem formulation

Sample input's

- 1: @%%%%%%%%99.9
- 2: JK RL \$\$\$\$\$\$\$\$99.97
3. After that, character count is incremented by 1
4. Apply main compression steps as shown in following flow chart.

**V. RESULTS**

Data Inputs	Result
@%%%%%%%%99.9	@ S <sub>c</sub> %699.9
JKRL \$\$\$\$\$\$\$\$99.97	JKRL S <sub>c</sub> \$99.97

## VI. CONCLUSION

This coding helps to compress any repeated character in an efficient way. Run length coding is combined with Huffman coding for to form modified Huffman coding. This combination provides the optimal results.

## REFERENCES

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