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| Journal Name: | [**Journal of Advances in Mathematics and Computer Science**](https://journaljamcs.com/index.php/JAMCS) |
| Manuscript Number: | **Ms\_JAMCS\_142018** |
| Title of the Manuscript: | **NOVEL APPROACH TO HOMOMORPHIC ENCRYPTION AND EFFICIENT DATA COMPRESSION SCHEME FOR CLOUD DATA STORAGE** |
| Type of the Article | Cloud Data Compression and Encryption |

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| PART 1: Comments | | |
|  | Reviewer’s comment **Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.** | **Author’s Feedback** (It is mandatory that authors should write his/her feedback here) |
| **Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.** | This manuscript holds important value for the scientific community as it addresses a clear gap in integrating entropy-based compression, specifically Huffman coding, with Fully Homomorphic Encryption (FHE) for secure and efficient cloud data management. By combining lossless compression with robust end-to-end encryption, the proposed framework enhances both storage efficiency and data confidentiality, which are critical in sectors such as finance, healthcare, and government. The detailed performance evaluation using real-world datasets provides empirical evidence of scalability and practicality, offering a foundation for future research on secure compression-encryption hybrids. Furthermore, its novel approach can inspire advancements in optimizing secure cloud processing for diverse data types and large-scale applications. | - |
| **Is the title of the article suitable?**  **(If not please suggest an alternative title)** | The title looks good to me. |  |
| Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here. | Yes, the abstract is comprehensive as it clearly outlines the problem, proposed solution, methodology, key results, and implications. However, a few improvements could make it more impactful:   1. Explicitly state that this is the first or one of the few works integrating Huffman coding with Fully Homomorphic Encryption for cloud data management to highlight its uniqueness. 2. Briefly mention the security strength (example- cryptographic parameters, bit security) to reinforce the robustness of the approach. 3. Specify that both textual and numerical datasets were used to emphasize the generality of the evaluation. 4. Conclude with a few sentences on how this work can be extended (example- multimedia data, large-scale real-time applications) to show forward-looking potential. | Addressed |
| Is the manuscript scientifically, correct? Please write here. | The manuscript appears to be scientifically correct scientific inaccuracies are evident in the description. The methodology is logically structured, detailing each stage from compression to encryption, transmission, and homomorphic computation. Performance evaluation uses real-world datasets (textual and numerical from Zenodo), ensuring practical relevance. Reported metrics like compression ratio, throughput, encryption/decryption times, and correlation analysis are consistent with accepted evaluation practices in this domain. Results align with theoretical expectations |  |
| **Are the references sufficient and recent? If you have suggestions for additional references, please mention them in the review form.** | Yes, the references in the manuscript are sufficient and recent. |  |
| Is the language/English quality of the article suitable for scholarly communications? | The manuscript uses a formal academic tone, precise technical terminology, and logically structured sentences appropriate for a research audience. However, there are a few minor improvements that could enhance clarity and readability:   1. Simplify overly long sentences in the abstract and introduction to improve flow and accessibility. 2. Avoid redundancy where similar ideas (e.g., benefits of Huffman + FHE) are repeated in multiple sections without adding new insights. 3. Ensure consistent tense usage; some sections alternate between past and present tense when describing the study's contributions. 4. Check article usage and grammar in a few places (example- the data stays exposed - the data remains exposed).   Overall, the English is good enough for publication but would benefit from light language polishing for conciseness and smoother readability. | Addressed |
| Optional/General comments |  |  |

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| **PART 2:** | | |
|  | **Reviewer’s comment** | **Author’s comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Are there ethical issues in this manuscript?** | *(If yes, Kindly please write down the ethical issues here in details)* |  |