REVIEWER'S REPORT

Manuscript No.: **IJAR- 52634**   Date: 04-07-2025

Title: A review and comparative study on task scheduling in group mutual exclusion algorithms to solve critical section problem based on cloud computing

Recommendation:

Accept as it is ....

Accept after minor revision ....

Accept after major revision...✓.........

Do not accept (*Reasons below*) ....

Rating	Excel.	Good	Fair	Poor
Originality			✓	
Techn. Quality			✓	
Clarity			✓	
Significance			✓	

Reviewer Name: **Sudhanshu Sekhar Tripathy**   **Date:** 04-07-2025

Reviewer's Comment for Publication.

(*To be published with the manuscript in the journal*)

The reviewer is requested to provide a brief comment (3-4 lines) highlighting the significance, strengths, or key insights of the manuscript. This comment will be Displayed in the journal publication alongside with the reviewer's name.

Reviewer's Comment for Publication

The manuscript presents a relevant and informative review of task scheduling algorithms used in cloud computing environments, with a focus on Group Mutual Exclusion (GME) and critical section problem-solving. It offers a comparative perspective on various scheduling strategies, including FCFS, Round Robin, Priority Scheduling, and the proposed DHJS algorithm.

While the topic is well-aligned with current trends in distributed computing, the manuscript would benefit from minor revisions to enhance clarity, structure, and presentation quality. Improvements are needed in citation formatting, grammatical consistency, figure referencing, and the integration of recent scholarly literature.

Overall, the paper presents a promising contribution to the field; however, significant revisions are required to improve its structure, clarity, and technical presentation. The manuscript can be considered for publication after the recommended **major revisions** are thoroughly addressed.

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Detailed Reviewer's Report

Recommendation: **Accept after major revision**

Comments & Suggestions for Improvement

1. Scope & Relevance:

➢ The manuscript addresses a well-defined and relevant topic in cloud computing and task scheduling, especially within the scope of group mutual exclusion (GME) and critical section management.

➢ It provides comparative insights into various scheduling algorithms (e.g., FCFS, RR, Priority, DHJS), which are essential in distributed computing.

2. Structure & Technical Presentation:

➢ The abstract is overly general and lacks specificity. It does not clearly convey what algorithms are being compared or what the main findings of the study are. It uses vague phrases like "this paper gives a picture of scheduling techniques", which are not suitable for a scholarly abstract.

➢ While the overall organization is acceptable, transitions between sections should be improved for better flow, especially between the review and analysis parts.

➢ Section titles such as "Related Work," "Analysis," and "Conclusion" are helpful but could benefit from clearer delineation.

➢ To improve the visual clarity and reader engagement of the manuscript, it is strongly recommended to include one well-illustrated diagram for each algorithm discussed (e.g., FCFS, RR, Priority, DHJS). These diagrams should visually explain the scheduling flow, decision points, or state transitions. This will make the comparative analysis more intuitive and visually eye-catching, especially for readers unfamiliar with the inner workings of each algorithm.

➢ Add diagrams or flowcharts illustrating how different algorithms work, especially the proposed DHJS model.

➢ The manuscript contains inconsistent or incorrect section numbering, which may confuse readers and affect the logical structure of the paper. Please ensure that all main sections and sub-sections are numbered sequentially and hierarchically (e.g., 1. Introduction, 2. Related Work, 3. Methodology, 3.1 Algorithm Description, etc.).

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➢ All tables in the manuscript must be properly labeled and numbered (e.g., Table 1, Table 2, etc.) are captioned above according to academic standards. Currently, the tables are missing labels and captions, which affects clarity and makes it difficult for readers to reference them in the discussion. Please ensure each table includes a clear title above and is cited appropriately in the main text.

➢ Include a table or summary chart that contrasts the advantages/disadvantages of the four algorithms.

➢ Improve the Explanation of Complexity under each algorithm type, make it uniform and technically concise.

➢ Convert some bullet lists into full paragraphs for a more scholarly tone, especially in analytical sections.

➢ Rephrase subjective statements with formal academic tone.

➢ Correct all grammatical inconsistencies, particularly in the Abstract and Introduction.

➢ Consider adding recent references (2020–2024) that cover advancements in scheduling algorithms within cloud computing systems. This will strengthen the theoretical foundation and ensure the manuscript reflects current trends in the field. While optional for this version, incorporating such updates in future revisions or publications is strongly recommended.

➢ Improve section transitions to create smoother logical flow between concepts.

➢ Consider a short "Future Work" or "Challenges" section to extend the discussion.