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| Journal Name: | [**Asian Journal of Research in Computer Science**](https://journalajrcos.com/index.php/AJRCOS) |
| Manuscript Number: | **Ms\_AJRCOS\_133746** |
| Title of the Manuscript: | **Enhancing Automation QA Engineering with Advanced AI Techniques in Complex Distributed Systems** |
| Type of the Article | **The article appears to be a research paper as it presents a structured study, including methodology, results, and discussions related to a specific scientific or technological topic.** |

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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 *(Please correct the manuscript and highlight that part in the manuscript. 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 paper provides a significant practical contribution to the field of automated quality assurance (QA), demonstrating how advanced artificial intelligence (AI) techniques can optimize the testing of complex distributed systems. By integrating an ensemble machine learning model into a real CI/CD pipeline (Jenkins), the study validates a 45% reduction in test execution time and a 32% drop in the missed defect rate while maintaining stable coverage. The empirical results, obtained in a microservices environment with 1,200 tests, provide a replicable framework for organizations seeking to modernize their QA processes. The innovative approach of dynamic test prioritization, with a focus on concurrency issues, addresses a critical need in the context of modern systems, guiding future research towards adaptive AI-based strategies.** |  |
| **Is the title of the article suitable?**  **(If not please suggest an alternative title)** | **Yes. The title correctly reflects the study's focus on improving automated QA processes through advanced AI techniques in a context of complex distributed systems (microservices).** |  |
| 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. | **The abstract covers the essential elements (purpose, methodology, results, and conclusions) and provides a clear overview of the research.** |  |
| Is the manuscript scientifically, correct? Please write here. | **The study explores the integration of artificial intelligence (AI) into automated quality assurance (QA) workflows for large-scale distributed software systems. An AI-based testing framework was developed, implemented in a real-world microservices environment, and key metrics (defect detection rates, test coverage, execution time) were compared with a conventional, manually maintained QA suite. The results showed a 45% reduction in test execution time, a 32% decrease in the defect rate missed, and a 35% increase in test efficiency reported by QA engineers. The main conclusion is that AI-based automation can significantly improve the speed and effectiveness of QA for complex distributed systems, leading to lower operational costs and faster release cycles.** |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.** | **References appear to be generally sufficient and include some recent publications. The reference list contains a mix of journal articles and conference proceedings, which is appropriate for a research paper of this nature. Several references are relatively recent, with publications from 2019, 2020, 2021, and even 2024. This indicates that the author is aware of and building upon current research in the field. The references cover relevant topics such as automation testing, AI in QA, risk-based test prioritization, and microservices.** |  |
| Is the language/English quality of the article suitable for scholarly communications? | **Overall, the quality of the English language is adequate for scientific communication. The language used is clear and precise, with appropriate terminology.**  **The article is generally well written, with few grammatical errors and a formal, academic style. The article is well structured, with clear titles and subtitles. The author demonstrates a good command of technical vocabulary.** |  |
| Optional/General comments | **Conciseness in wording: In some sections, sentences can be more concise. For example, instead of “demonstrates that integrating AI-based strategies into automated QA pipelines for large-scale distributed systems brings significant benefits,” you can use “integrating AI into QA for distributed systems brings significant benefits.” This would help streamline the text without losing important information.**  **Clarity in sentence structure: Some sentences can be restructured for greater clarity. For example, a complex sentence can be divided into two simpler sentences to improve readability. This would make it easier to understand the ideas presented.** | **Thank you very much for your constructive and detailed comments. I fully agree with your suggestions and appreciate your acknowledgment of my manuscript's contributions.**  **As suggested, I have:**   1. **Clarified the scientific importance of our study by explicitly highlighting how the integration of AI into automated QA processes provides significant efficiency gains and addresses critical concurrency-related issues in modern distributed systems.** 2. **Streamlined sentence structures throughout the manuscript to enhance readability and conciseness. For example, I simplified sentences such as "demonstrates that integrating AI-based strategies into automated QA pipelines for large-scale distributed systems brings significant benefits" to "integrating AI into QA for distributed systems brings significant benefits" as per your recommendation.** 3. **Restructured complex sentences by dividing them into simpler sentences to improve clarity and readability, facilitating easier comprehension of the presented ideas.**   **All these revisions have been clearly highlighted in the updated manuscript to reflect your valuable feedback.** |

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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)* |  |