

Advantages of AI to Develop the Quality Assurance Testing Process

Problem Statement:

Quality Assurance testing is critical phase in software development life cycle to confirm that functionality of system are designed as required.

Mostly, traditional QA methods fails in detecting defects early and meeting the demands of modern complex systems. Those limitations is leading to increasing costs, reducing efficiency and delays.

The integration of Artificial Intelligence into QA processes offers transformative potential that includes automation for repeated tasks, improving defect prediction and enhancing test coverage.

There are still major challenges such as the difficulty of working with older systems and legacy technologies. Addressing these problems is key to fully realizing the benefits of AI in QA testing.

This research looks at the current limits of AI based QA solutions and suggests new ways to overcome them. The aim is to improve how accurately defects are detected, make test automation more efficient, and create methods for smoothly integrating AI tools into different software systems.

Research Objectives:

1. To analyze the benefits and challenges of current AI-based QA tools, particularly in defect prediction and test automation.
2. To design a flexible AI framework that minimizes reliance on structured datasets while improving defect detection accuracy.
3. To evaluate the scalability and effectiveness of AI-driven tools in automating tests for dynamic software environments.
4. To propose practical solutions for integrating AI-powered tools with legacy systems to enhance usability and adoption.

To explore and propose AI-driven strategies that enhance the Quality Assurance testing process by addressing existing limitations.