



## Charter Global

# CASE STUDY – Efficient QA Automation: Streamlining Testing Processes for Agile Development

### About the Client

The client is an American media entity that owns and manages various brands, including Lonely Planet, CNET, ZDNet, The Points Guy, Healthline, and Bankrate. The company's primary focus lies in the operation of news, advisory, and review platforms.

### Project Goals

QA automation sanity testing typically revolves around quickly verifying critical functionalities of the software with a subset of tests to ensure that the recent changes haven't adversely affected its core functionality. Our primary goals are as follows:

- **Rapid Verification:** Quickly verify core functionalities after changes.
- **Focused Testing:** Target critical features for efficient testing.
- **Early Issue Detection:** Detect regressions promptly with automation.
- **Reduced Manual Effort:** Save time by automating sanity tests.
- **Improved Efficiency:** Speed up testing cycles for faster feedback.
- **Integration:** Integrate pipelines for automated testing.
- **Enhanced Release Confidence:** Boost confidence in stable releases.
- **Scalability:** Easily adapt tests to changing project requirements.

## Key Challenges

Without QA automation for sanity testing, several challenges can arise, impacting the efficiency and effectiveness of the testing process.

- Testing is done manually, requiring significant time and effort.
- Human error is more likely due to manual execution.
- Test coverage may be limited, leading to incomplete testing. Maintaining software quality becomes challenging without automation.

## Project Description

In our software development endeavor, we faced the challenge of conducting thorough and efficient testing of our web application while also keeping up with the agile nature of our development process. To tackle this obstacle head-on, we adopted a robust QA automation solution employing Selenium WebDriver alongside Java, TestNG, Maven, Apache POI, Jenkins, and Selenium Grid for parallel execution.

Selenium WebDriver played a pivotal role in our automation approach, empowering us to automate browser interactions and mimic user actions effortlessly. By harnessing the capabilities of Java, we crafted scalable and easily maintainable automation scripts, making full use of Java's object-oriented features and extensive libraries.

TestNG emerged as our preferred test framework, offering useful functionalities like test prioritization and parallel execution. We structured our test suites using TestNG annotations, defining test dependencies and managing test execution seamlessly.

Maven, serving as our project management tool, streamlined dependency management, build automation, and project structuring. It simplified the handling of project dependencies, facilitating the addition, updating, and removal of libraries and plugins as required. Additionally, Maven provided a standardized project structure, fostering consistency and collaboration among team members.

For data-driven testing, we integrated Apache POI into our automation framework. Apache POI enabled dynamic reading of test data from Excel spreadsheets, facilitating parameterized testing and efficient management of test data.

To automate testing further and enable continuous integration, we utilized Jenkins, a widely used continuous integration tool. Jenkins enabled us to schedule and trigger automated test executions, integrate with version control systems, and generate detailed test reports.

To ensure efficient test execution across various environments and browsers, we implemented parallel execution using Selenium Grid. Selenium Grid facilitated distributing test execution across multiple nodes, resulting in faster test cycles and broader test coverage.

To support pre-production and post-production sanity testing, we leveraged the flexibility of our automation framework. Pre-production sanity tests were executed before each deployment to verify critical functionalities and catch regressions early. Post-production sanity tests were periodically conducted in the production environment to monitor application health and performance post-deployment.

In summary, our implementation of QA automation significantly contributed to achieving comprehensive test coverage, faster feedback cycles, and enhanced software quality, thus contributing to our project's success.

## Results

In our project, **Extent Reports** streamlined our QA automation results, offering:

- **Clear Visuals:** Intuitive dashboards and charts improved result clarity.
- **Detailed Reports:** Comprehensive insights aided quick issue resolution.
- **Historical Analysis:** Archived data facilitated trend tracking and compliance.
- **Customization:** Tailored reports met project needs and stakeholder preferences.
- **Seamless Integration:** Automated report generation synced with our existing framework.
- **Enhanced Collaboration:** Shared reports fostered transparency and teamwork.
- **Adopting Extent Reports** bolstered our QA automation, enabling efficient testing and informed decision-making, pivotal to project success.

## Why Charter Global

Charter Global drives innovation in IT projects and business operations by defining strategy and providing consulting, digital solutions, custom development, and skilled resources. With an established customer base of Fortune 1000 industry leaders and over 100 successful project implementations, our experience, and proven methodologies enable our professionals to deliver industry-leading solutions in cloud technologies, open source, DevOps, mobility, CRM, AI/ML, AWS, SAP, Microsoft & Pega BPM.

## About Charter Global

Founded in 1994, Charter Global is an Atlanta-based Strategic Technology Services Partner. Our engagements are locally managed and globally executed. Our expert teams evolve technology vision to realize business outcomes. We have grown to be a team of nearly 1000 consulting professionals dedicated to mid-market business and enterprise success in an ever-evolving digital economy.

Over the past 28 years, we have developed a portfolio of over 100 project implementations. Our client experience spans a wide range of industries including pharma, manufacturing, telecom, finance, healthcare, media/entertainment, airline, energy, retail, and hospitality.