

Transforming the Overall User Experience for India's Leading Investment Platform

Achieved **70%** increased test coverage and **60%** faster release cycles



Business

With a 10+ million customer base, the client is one of India's leading online investment platforms focused on catering to first-time investors and millennials. The platform provides objective evaluation and allows users to invest in stocks, mutual funds, gold, and various other investment portfolios.

Scenarios

The client was facing challenges on the journey to digital transformation and enabling a superior CX.

- Verifying functionalities with real-time data changes and complex workflows for stocks and other trading variations for every release.
- Identifying blocker issues within or at the end of the sprint was challenging due to a lack of process, making it difficult to pinpoint impacted regions resulting from app changes.
- Poor device coverage and compatibility issues with the app.
- Performing regression testing for a vast test case base was time-consuming and challenging.
- Numerous bug leakages occurred in the production environment.

Context

- Provided manual and automation solutions for the widely used trading app.
- Verified and validated scenarios associated with real-time data integration between NIFTY and SENSEX.
- Offered assistance with the digital transformation journey from web to mobile.
- Ensured an omnichannel experience across web and mobile channels.
- Increased automation coverage across the journey, reducing manual effort.

Overview

1

Application Portfolio

- Stocks
- Mutual Funds
- Gold & Others

2

Our Approach

- Functional Testing
- Test Automation
- Performance Testing

Solution

Based on the models and features in scope, we performed three different types of testing. Functional testing of the web, m-web platforms and mobile apps, test automation for CI, and performance testing of Android and iOS applications.

1. Application Portfolio



Stocks

In Scope Features

- Stocks listed in BSE and NSE.
- US stocks, IPOs, ETFs, and Gold Bonds.
- Trading options including Delivery, Intraday, Futures, and Options.
- Real-time technical charts and graphs for advanced level trading.
- Transactions with real-time charges and reports for advanced level trading.
- Access to top gainers and losers, along with a newsfeed.
- Dashboard featuring performance analytics.



Mutual Funds

In Scope Features

- Simplistic overview of best investment options.
- Tax-saving Mutual Funds with lock-in periods.
- Management of monthly SIP (Systematic Investment Plan) installments.
- Streamlined payment and auto-pay debit processes.
- Integration for importing funds from 3rd-party apps.
- Single-window tracking of all funds.
- Comprehensive dashboards for easy monitoring.



Gold & Others

In Scope Features

- Digital gold buy and sell options available.
- Streamlined purchase process for convenience.
- Thorough validation of documents, tax certificates, bonds, etc.
- Seamless and paperless KYC verification process with digital signatures.
- Effortless bank account linking and management for auto-pay, currency conversion, etc.
- Referral program for user engagement and growth.

Testing Types Performed For The Above



Functional Testing



Test Automation



Performance Testing

2. Our Approach



Integrated Delivery Environment



Analytics

End-to-end functional validations across web and mobile platforms

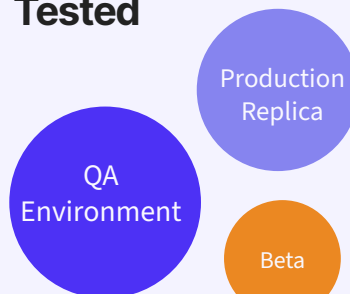
Regression Automation

- Customer onboarding process
- Stocks (till selection)
- Mutual Funds including purchasing
- Help & Support

Drill down approach for production issues

- Identify impact areas with the help of Crashlytics reports
- Customer reviews & detailed analysis of reports generated from various tools

Environments Tested



Functional Testing Of Web Platform

- Conducted end-to-end functional validations to ensure comprehensive testing coverage.
- Implemented testing with dynamic data changes using replica data from the production environment.
- Utilized a focused test approach to replicate critical conditions accurately.
- Early identification of hidden bugs was prioritized through corner case test execution.
- Validated every feature to ensure error-free data calculations and prevent leakage, particularly as it handles real-time monetary aspects.
- Developed test cases to accommodate dynamic data feeds and maintained test suites categorized by Individual feature, Regression, Smoke, Sanity, and PROD.
- Conducted omnichannel testing across the latest versions of Android and iOS platforms.
- Expanded device coverage through real device testing.

Test Automation For CI

- Utilized monkeyrunner and video optimizer tools for app performance analysis.
- Identified and addressed issues related to memory leakage.
- Conducted network performance analysis by navigating through various screens on different networks.
- Performed app break-even point analysis by gradually increasing user loads and implementing bulk user load scenarios.
- Published a comprehensive analysis report with recommendations for performance improvement.

Performance Testing Of Mobile - Android & iOS

- Implemented an in-house framework using Selenium and Appium for test automation.
- Developed custom libraries and assets to effectively manage dynamic changes in applications.
- Created a comprehensive regression suite comprising 500 test cases.
- Utilized generated test data to replicate critical scenarios in test automation.
- Executed automated test suites for every release cycle.
- Validated data display, graphs, and other analytical dashboard features using locators during trading hours.
- Ran regression suites across 8 devices for every release.

Best Practices Followed

1. Conducted regular interactions with Dev and Business Analysts to ensure alignment.
2. Established a review and approval process for testing services projects.
3. Enhanced the existing test bank and facilitated test case creation.
4. Adopted a collaborative approach to address project blockers effectively.
5. Provided late-night support for unplanned releases when necessary.
6. Created a detailed automation framework document and test scripts for regression suites.
7. Implemented a drill-down approach to uncover production issues.
8. Developed a reporting system to deliver project insights to stakeholders.

Key Benefits

Qapitol's solution transformed the platform, enhancing its intuitiveness and overall application quality, resulting in a much-improved user experience. Our solution matched the competency of other market players, leading to increased customer retention.



70% increase in test covered with end-to-end testing of both web and mobile platforms



60% faster release cycles and reduced regression cycles through automation



50% increase in customer base and play store downloads



30% better application performance with NFR implementation

Outcomes

- ✔ **Fixed production issues surfaced when there was a significant impact on a large user base.**
 - Engaged in continuous monitoring of customer reviews on PlayStore and Twitter.
 - Conducted multiple rounds of testing to replicate and validate bugs reported by customers.
 - Delivered detailed analysis reports to development teams for prompt fixes.
 - Successfully mitigated 50% of the impactful bugs in the live environment.
- ✔ **Worked on frequent app crashes without clear causative factors.**
 - Collaborated closely with Dev teams to pinpoint device-specific issues using Crashlytics data.
 - Monitored app functionality across various devices by creating user personas to simulate real-time user behaviors.
 - Expanded device coverage to include frequently crashing devices and ensured builds functioned properly on them.
- ✔ **Facilitated the reproduction of production issues.**
 - Successfully debugged and reproduced production issues, aiding developers in their resolution using Crashlytics events.
 - Provided detailed reports to Dev teams to streamline automated testing processes.
- ✔ **Provided device coverage.**
 - Recognized a high crash rate among Redmi devices, coinciding with a substantial user base.
 - Expanded device coverage by incorporating widely used Redmi devices into the testing list.
- ✔ **Stopped changes with unresolved bugs to production.**
 - Implemented a risk factor analysis approach for every unresolved bug, providing detailed insights into impacted areas.
 - Publishing these reports before each release facilitated developer understanding of affected areas.
- ✔ **Reduced frequent & unplanned releases with less time to test every feature.**
 - Developed a comprehensive test suite comprising standard and major functionalities, automating them to adapt to frequent and unplanned releases.

Reach Us



GLOBAL HQ – BENGALURU
Gopalan Innovation Mall,
22, 5th Floor, Bannerghatta Main Road,
Sarakki Industrial Layout, 3rd Phase,
J.P Nagar, Bengaluru, Karnataka 560076

GURGAON
Innov8, 3rd Floor,
CLC Tower Plot 146,
Sector 44, Gurugram,
Haryana – 122003