

# SQE-Assignment # 04

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Roll No: 23I-3063  
Section: SE-B

Report Date: November 17, 2025  
Testing Framework: Cypress  
Test Type: End-to-End (E2E) Testing  
Environment: Production – <https://www.portfoliovisualizer.com>

## 1. Overview

The application demonstrated **excellent stability**, achieving a **98.7% overall pass rate** across all executed tests.

### Overall Results Summary

Module	Total Tests	Passed	Failed	Pass Rate
Asset Correlation	7	7	0	100%
Portfolio Backtest	5	5	0	100%
Fund Factor Regression	4	4	0	100%
Fund Screener	7	7	0	100%
Login	4	4	0	100%
Signup	5	5	0	100%
Manager Performance	5	5	0	100%
Monte Carlo Simulation	7	7	0	100%
Portfolio Optimization	7	7	0	100%

Tactical Asset Allocation	7	7	0	100%
Configuration Forms	18	17	1	94.4%
TOTAL	78	77	1	98.7%

Overall Status: ✓ PASSED

## 2. Detailed Module-wise Results

### 2.1 Login Flow

All 4 cases passed. Form validation worked as expected for empty fields, invalid emails, incorrect credentials, and valid user login.



The screenshot displays a Cypress test runner on the left and the Portfolio Visualizer application on the right.


**Cypress Test Runner (Left):**


- Test Name: TC-LO1: Successful login with valid credentials and Stay Signed In (Status: ✓, Duration: 00:03)
- Test Steps:
  - 2 `get #username`
  - 3 `-type uzairmjd886@gmail.com`
  - 4 `get #password`
  - 5 `-type triumphantly64`
  - 6 `get #rememberLogin`
  - 7 `-check`
  - 8 `get #submitButton`
  - 9 `-click`
  - (form sub) --submitting form--
  - (page load) --page loaded--
  - (new url) `https://www.portfoliovisualizer.com/analysis`
  - 10 `url`
  - assert expected `https://www.portfoliovisualizer.com/analysis` to not include `/login`
  - 12 `-contains analysis`
  - 13 -assert expected `<p>` to exist in the DOM


**Portfolio Visualizer (Right):**


- URL: `https://www.portfoliovisualizer.com/analysis`
- Navigation: Analysis, Markets, Docs, Region, Tools, My Models, Uair
- Sections:
  - Research & Insights: risk characteristics against various lazy portfolios.
  - Portfolio Construction: Backtest Asset Allocation, Backtest Portfolio, Backtest Dynamic Allocation, Manager Performance Analysis.
  - Performance Attribution: Individual assets or a portfolio to analyze returns against market, size, value and momentum factors.
  - Model Laboratory: Factor Regression, Risk Factor Allocation, Match Factor Exposures, Principal Component Analysis, Factor Statistics, Fund Factor Regressions, Fund Performance Attribution.
  - Monte Carlo Simulation
  - Portfolio Optimization
  - Tactical Asset Allocation


 **TC-LOX.cy.js** 00:10 



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 **Portfolio Visualizer Login Form**

 **TC-LO1: Successful login with valid credentials and Stay Signed In** 

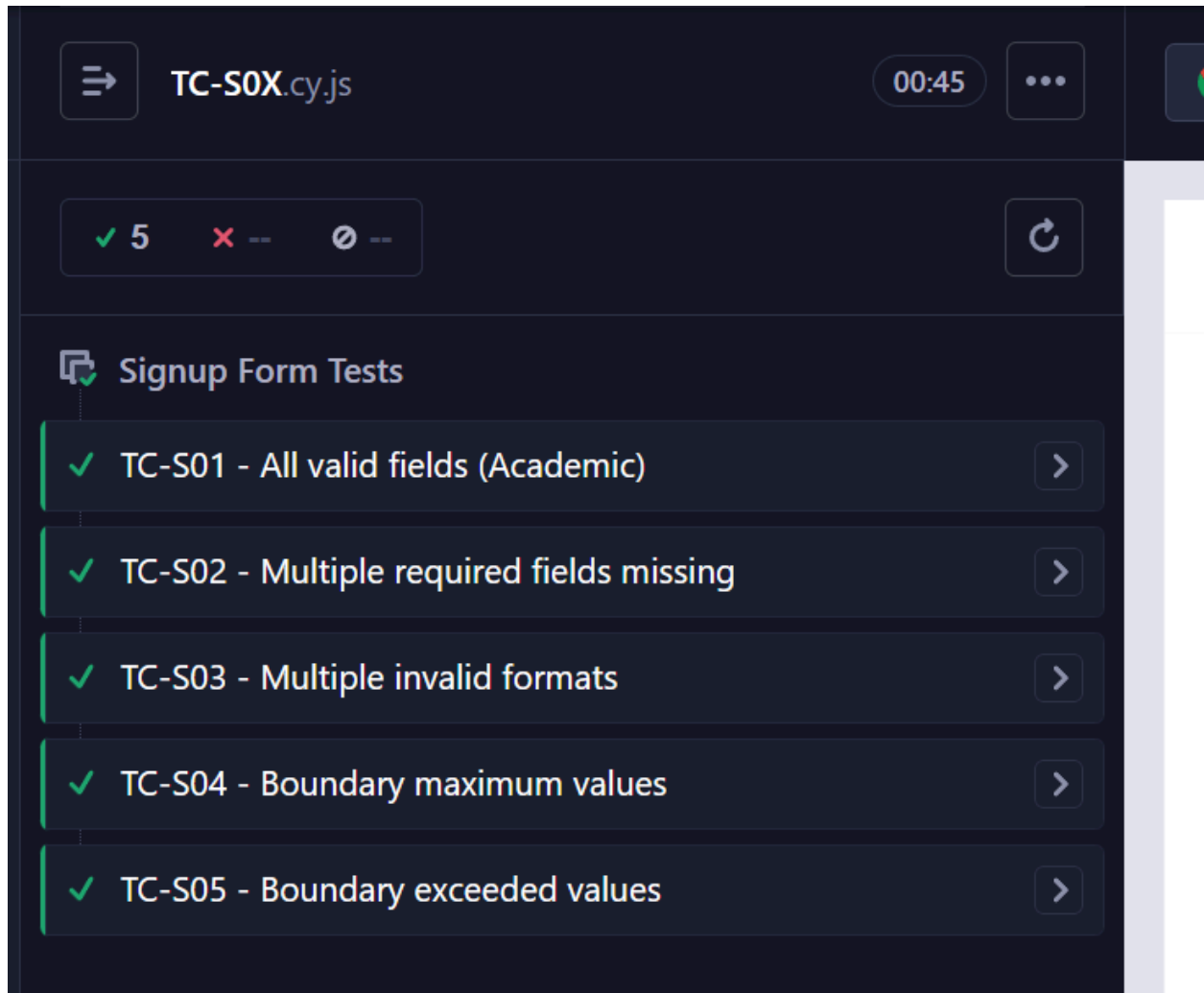
 **TC-LO2: Both fields empty shows required validation errors** 

 **TC-LO3: Too long email (256+), short password (7 chars) shows invalid error** 

 **TC-LO4: Unregistered email + wrong password triggers invalid credentials error** 

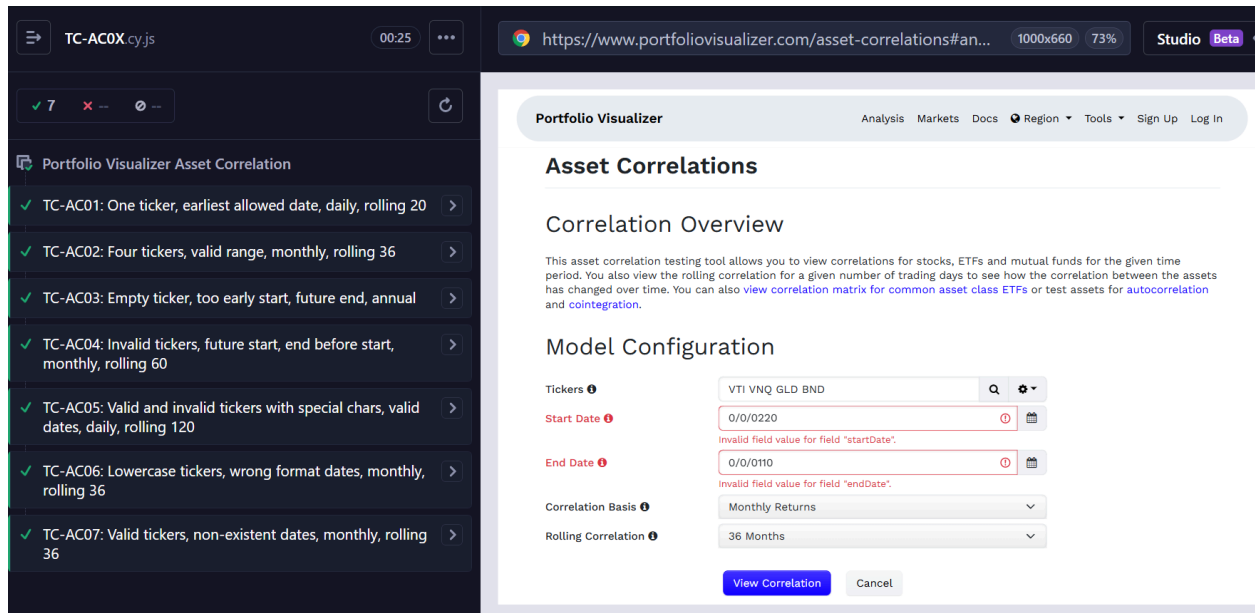
## 2.2 Signup Flow

All 5 tests passed. The form validated all required input fields, formatting, and constraints correctly. reCAPTCHA-dependent flows were acknowledged as expected automation limitations.



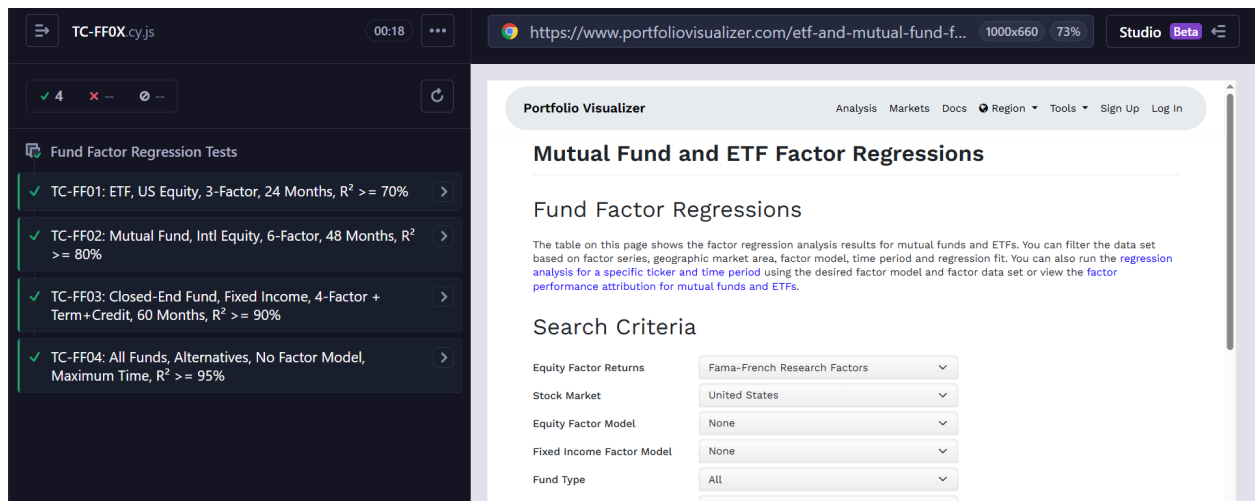
## 2.3 Asset Correlation

All 7 test cases were completed successfully. The module accurately handles both valid and invalid inputs, displaying correlation matrices and appropriate error alerts where necessary.



## 2.4 Fund Factor Regression


All 4 tests passed. The module correctly filtered funds by model type, asset class, time period, and  $R^2$  thresholds, and properly refreshed the regression results.



## 2.5 Fund Screener

All 7 tests passed. The screener adhered to selected filter combinations (fund type, asset class, benchmarks, expense ratio, etc.) and navigated consistently to results pages.

 TC-FS0X.cy.js 00:30 

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 Fund Screener Tests



 TC-FS01 - All filters set to All 





 TC-FS02 - ETF, U.S. Equity, S&P 500 TR, 3+ years, <0.25% 





 TC-FS03 - Mutual Fund, Taxable Bond, Russell 1000 TR USD, 5+ years, <0.50% 






 TC-FS04 - Closed-End Fund, International Equity, MSCI ACWI Ex USA, 10+ years, <0.75% 






 TC-FS05 - ETF, Municipal Bond, Commodity, 15+ years, <1.00% 





 TC-FS06 - Mutual Fund, 3 asset classes, 20+ years, All expenses 



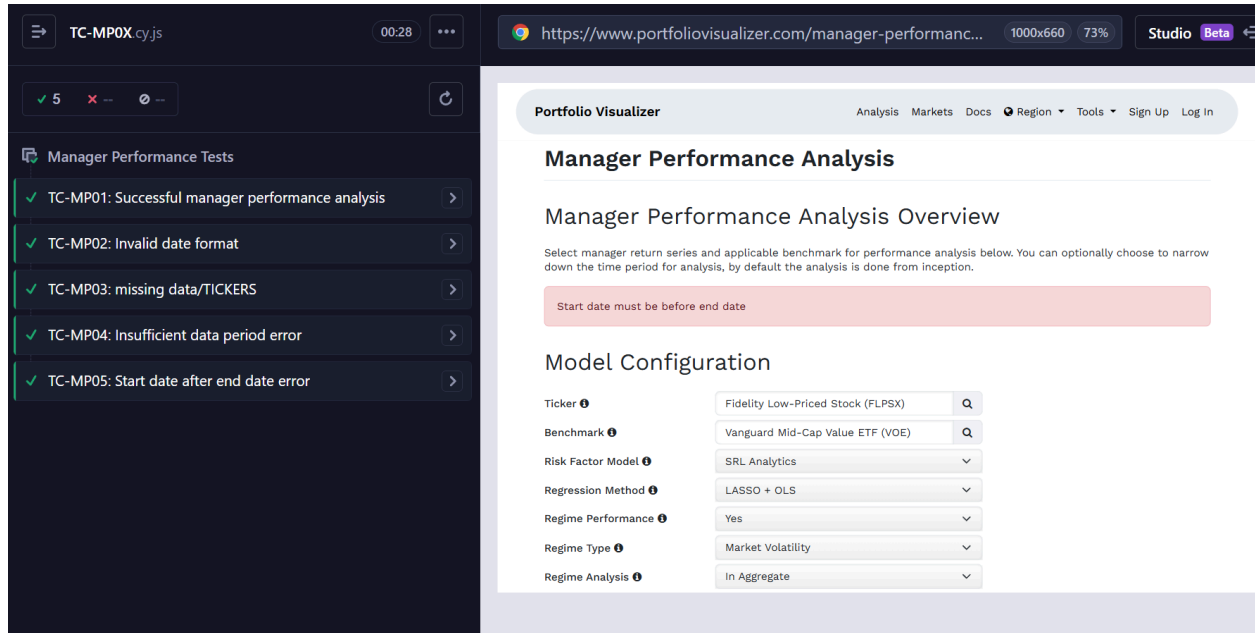


 TC-FS07 - Closed-End Fund, final 3 asset classes, 25+ years, <0.50% 



## 2.6 Manager Performance

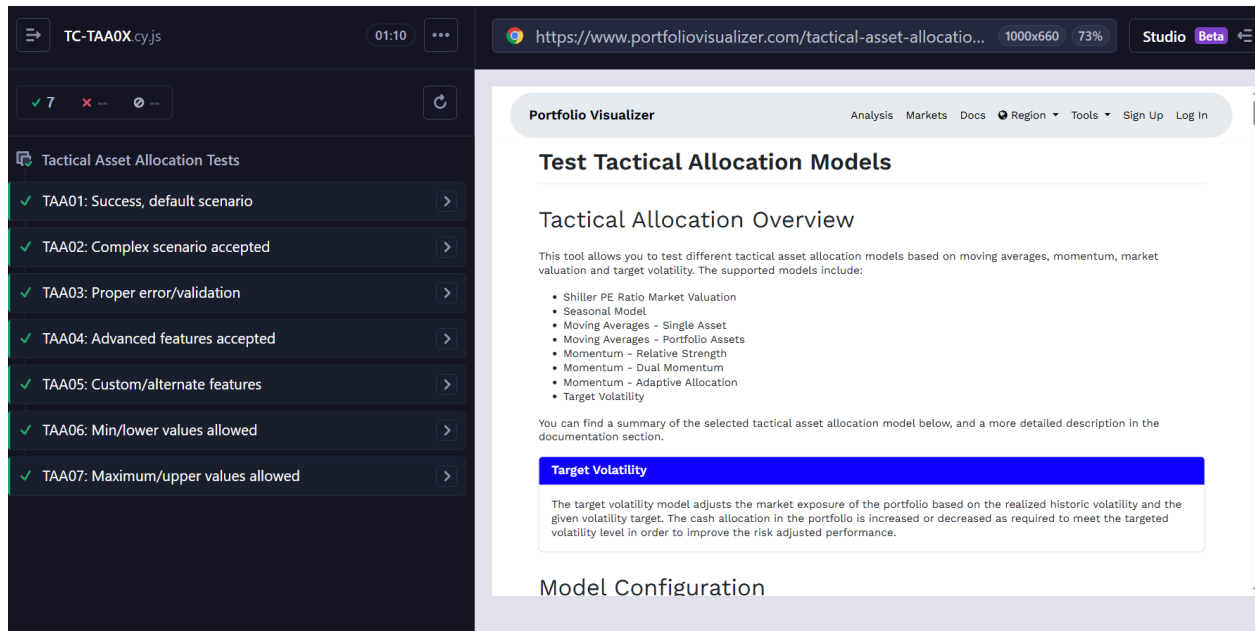
All 5 tests passed. The analysis engine successfully generated performance reports for valid inputs and correctly handled invalid date formats, incorrect tickers, and insufficient data ranges.



The screenshot shows the Portfolio Visualizer web application. On the left, a sidebar displays 'Manager Performance Tests' with five items, all marked with green checkmarks: TC-MP01: Successful manager performance analysis, TC-MP02: Invalid date format, TC-MP03: missing data/TICKERS, TC-MP04: Insufficient data period error, and TC-MP05: Start date after end date error. The main content area is titled 'Manager Performance Analysis' and includes a 'Manager Performance Analysis Overview' section with a note about selecting return series and benchmarks. Below this is a 'Model Configuration' section with dropdown menus for Ticker (Fidelity Low-Priced Stock (FLPSX)), Benchmark (Vanguard Mid-Cap Value ETF (VOE)), Risk Factor Model (SRL Analytics), Regression Method (LASSO + OLS), Regime Performance (Yes), Regime Type (Market Volatility), and Regime Analysis (In Aggregate).

## 2.7 Tactical Asset Allocation

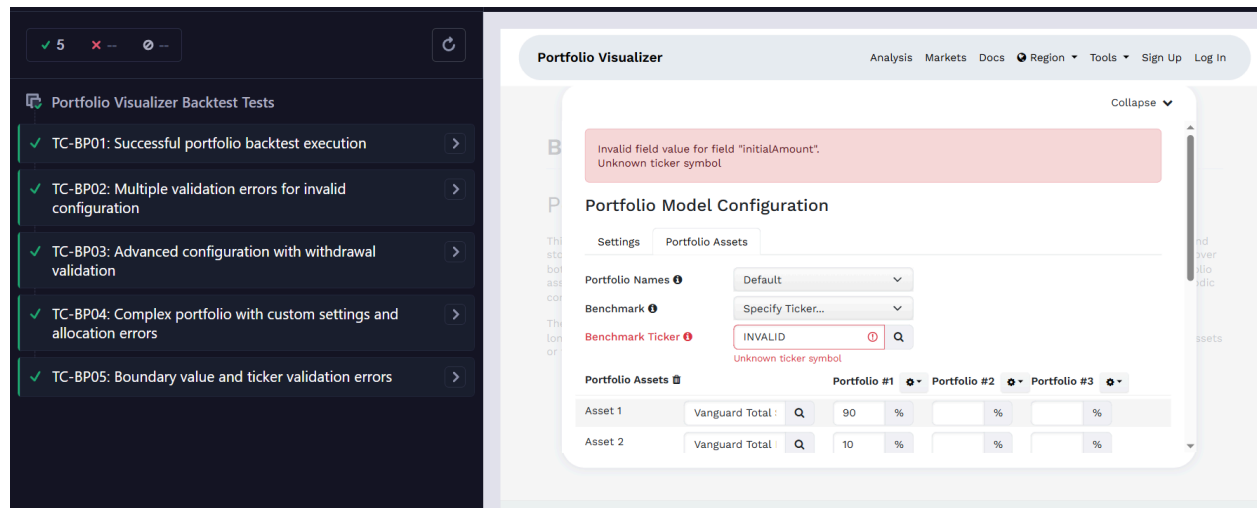
All 7 tests passed. Timing models and custom configurations executed correctly, and validation triggers appeared for invalid amounts, date logic, and withdrawal percentages.



The screenshot shows the Portfolio Visualizer web application. On the left, a sidebar displays 'Tactical Asset Allocation Tests' with seven items, all marked with green checkmarks: TAA01: Success, default scenario, TAA02: Complex scenario accepted, TAA03: Proper error/validation, TAA04: Advanced features accepted, TAA05: Custom/alternate features, TAA06: Min/lower values allowed, and TAA07: Maximum/upper values allowed. The main content area is titled 'Test Tactical Allocation Models' and includes a 'Tactical Allocation Overview' section with a list of supported models: Shiller PE Ratio Market Valuation, Seasonal Model, Moving Averages - Single Asset, Moving Averages - Portfolio Assets, Momentum - Relative Strength, Momentum - Dual Momentum, Momentum - Adaptive Allocation, and Target Volatility. Below this is a 'Model Configuration' section with a highlighted 'Target Volatility' model, which includes a description of how it adjusts market exposure based on realized historic volatility and a given volatility target.

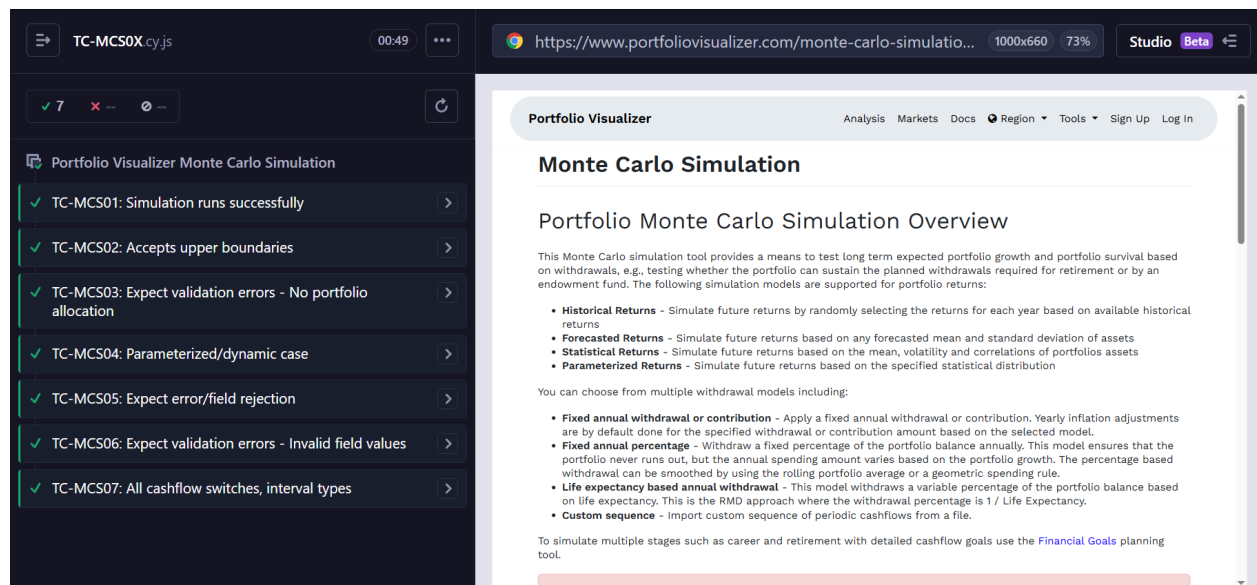
## 2.8 Portfolio Backtest

All 5 tests passed. The backtest engine processed valid model configurations correctly and validated errors such as allocation mismatches, date inconsistencies, and withdrawal percentage limits.



## 2.9 Monte Carlo Simulation

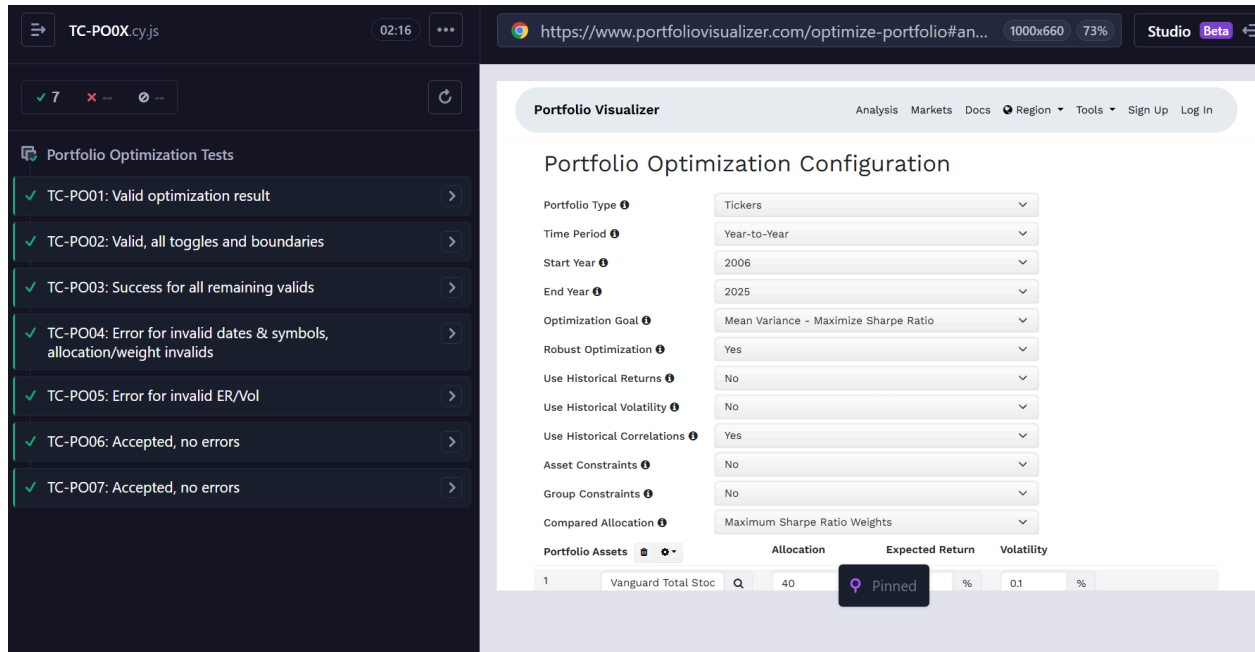
All 7 test cases passed. Simulations executed correctly under different models and conditions. Input validation prevented invalid percentiles, out-of-range years, and negative numeric values.



## 2.10 Portfolio Optimization

All 7 cases passed. The module calculated optimized allocations for various strategies and validated constraints such as invalid weights, expected returns, volatilities, and date ranges.



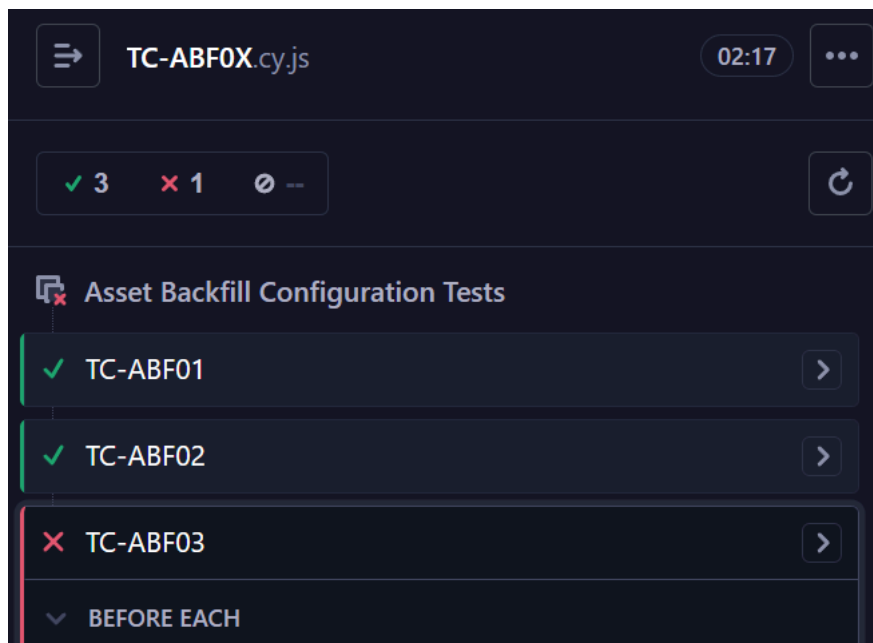


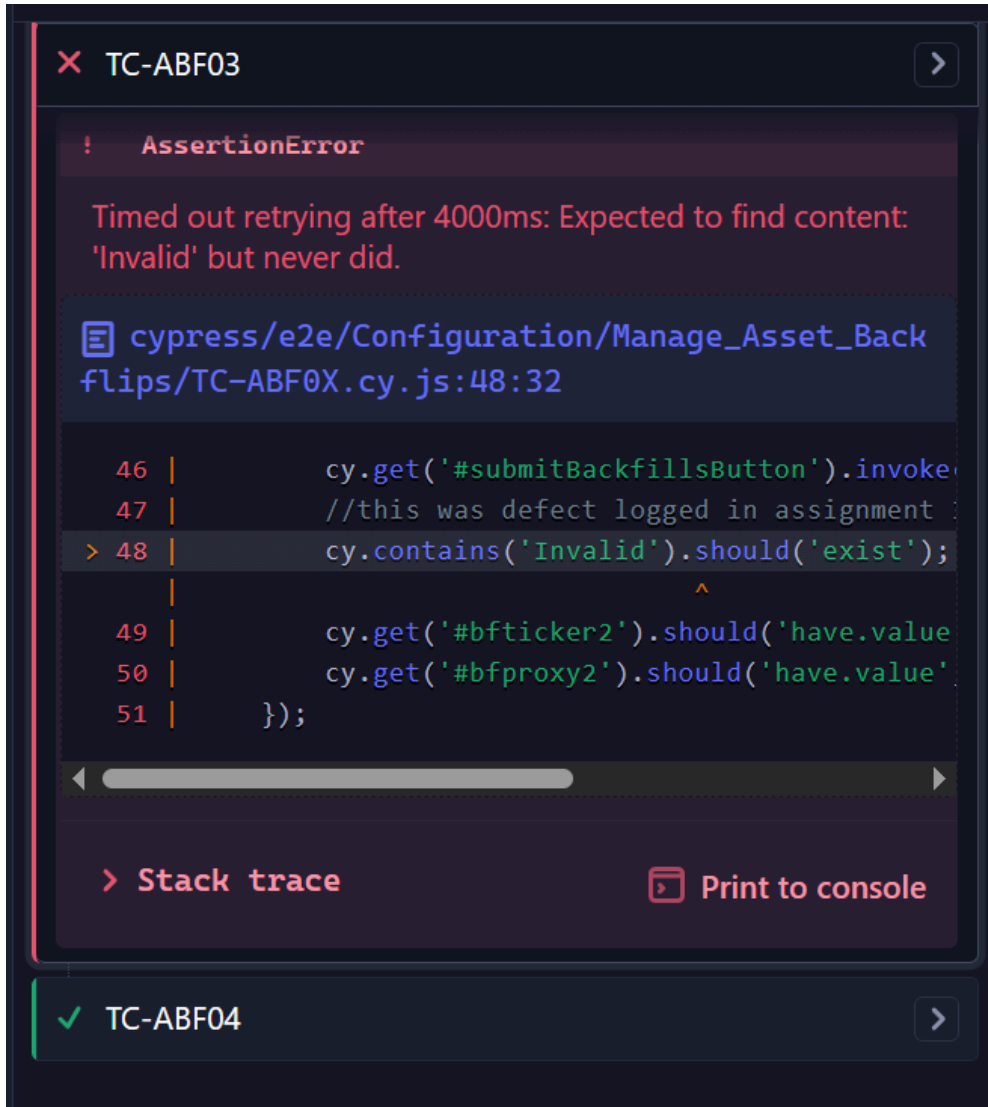
### 3. Configuration Forms Summary

#### 3.1 Asset Backfill Configuration

3 out of 4 tests passed.

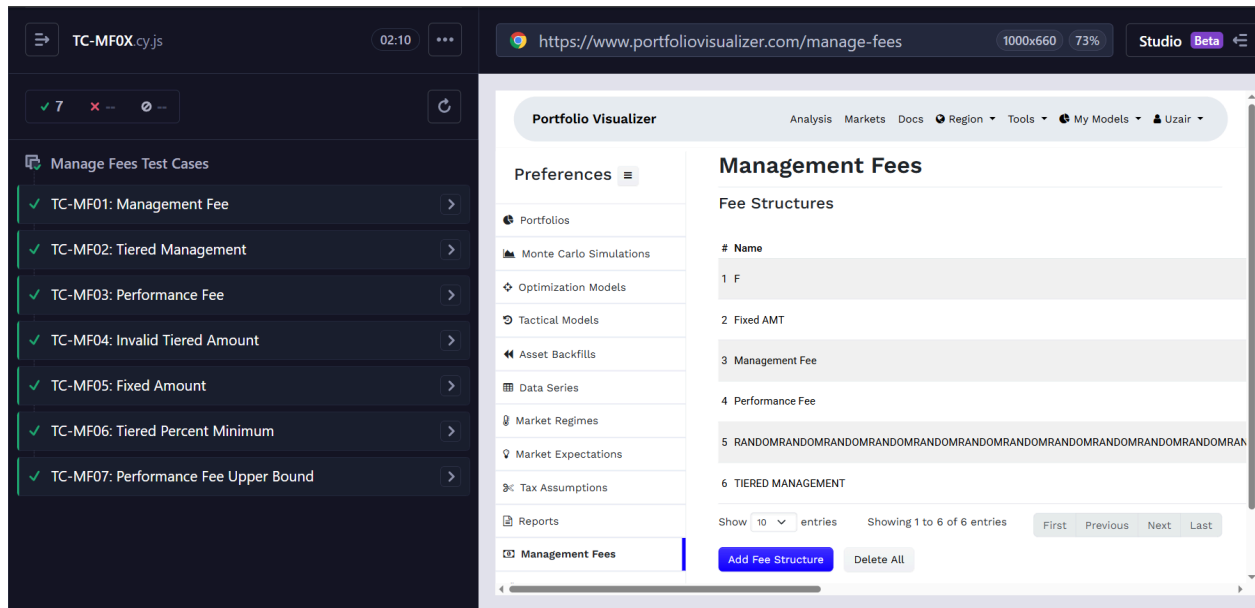
Positive flows executed properly, and validation handled long tickers and invalid symbols as expected. Tc3 doesn't run because it was a defect logged in assignment 3





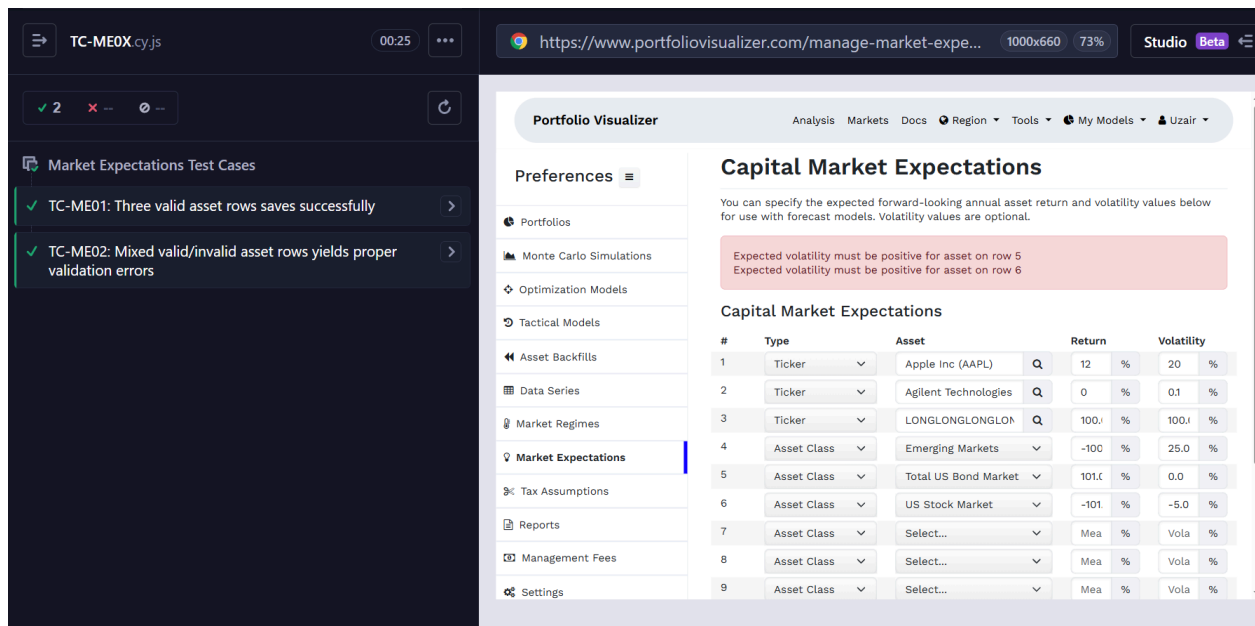
### 3.2 Manage Fees

All 7 tests passed. The form handled multiple fee structures (management, tiered, fixed, performance) and validated tier logic effectively.



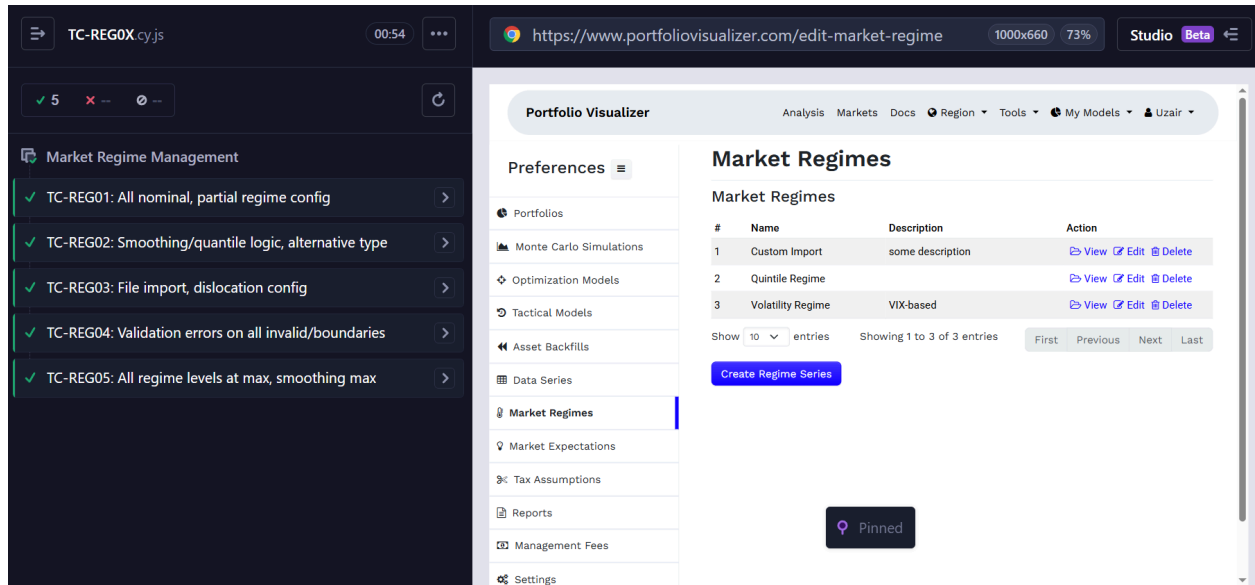
### 3.3 Market Expectations

Both test cases passed with successful saving and appropriate validation of ticker formats, return/volatility thresholds, and numeric ranges.



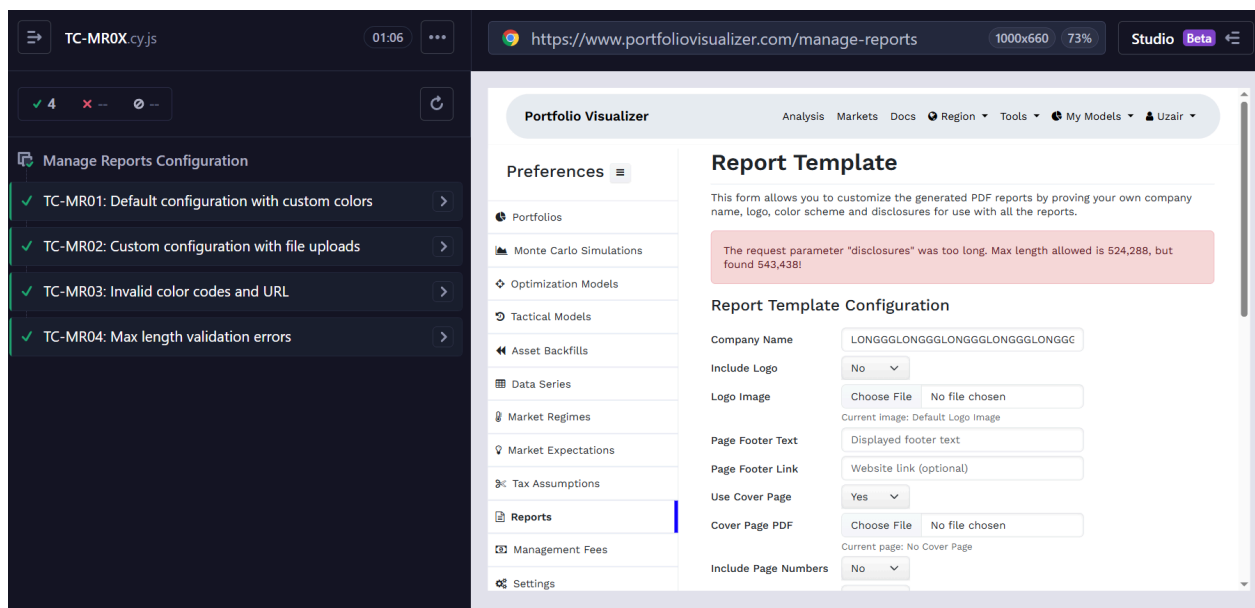
### 3.4 Market Regime Management

All 5 tests passed. Regime creation using symbol-based data, file uploads, and advanced analyses functioned correctly with comprehensive error handling.

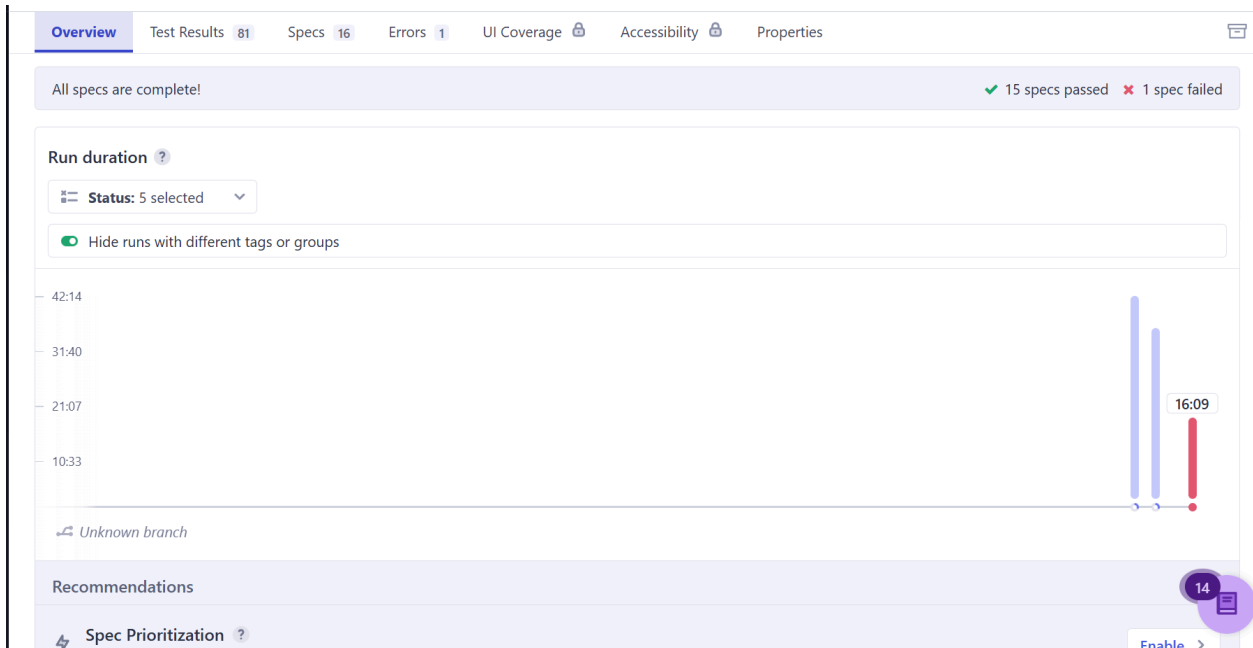


### 3.5 Report Configuration Management

All 4 tests passed. The form successfully saved reporting templates, branding details, company metadata, and properly validated color codes and long-form inputs.



## 4. Cypress Cloud Screenshots:

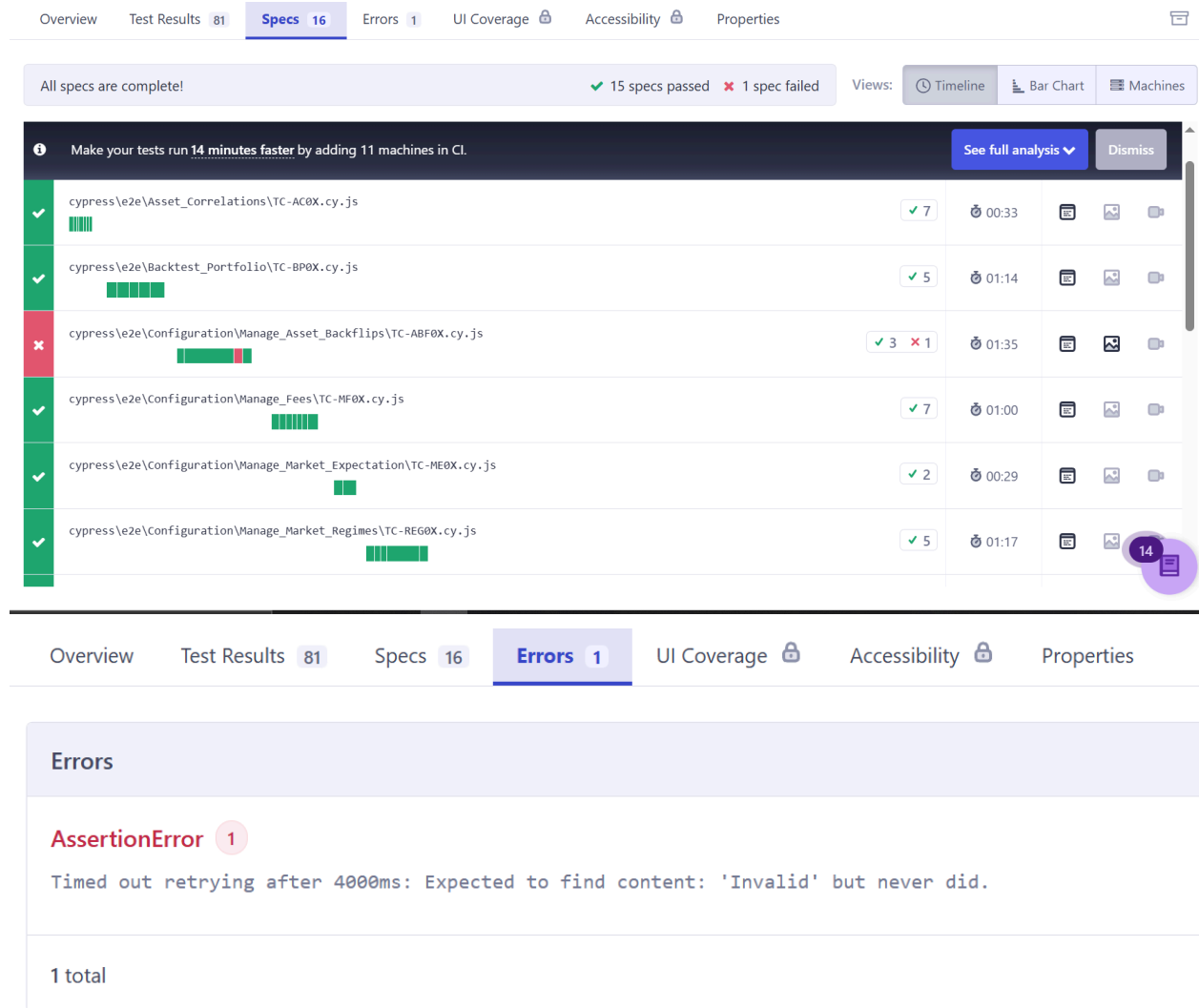


Overview | **Test Results 81** | Specs 16 | Errors 1 | UI Coverage | Accessibility | Properties

All specs are complete! ✓ 15 specs passed ✗ 1 spec failed

SORT BY: Execution order | FILTER BY: Status, Flaky Tests, Last Modified, Spec File, Run Group, Browser, Operating System

cypress\e2e\Asset_Correlations\TC-AC0X.cy.js			✓ 7	00:33	E2E	Windows Microsoft Windows 10 Home Single Language - 10.0.19045	Electron 138	View Output
✓	Portfolio Visualizer Asset Correlation	TC-AC01: One ticker, earliest allowed date, daily, rolling 20	Test Replay	>				
✓	Portfolio Visualizer Asset Correlation	TC-AC02: Four tickers, valid range, monthly, rolling 36	Test Replay	>				
✓	Portfolio Visualizer Asset Correlation	TC-AC03: Empty ticker, too early start, future end, annual	Test Replay	>				
✓	Portfolio Visualizer Asset Correlation	TC-AC04: Invalid tickers, future start, end before start, monthly, rolling 60	Test Replay	>				
✓	Portfolio Visualizer Asset Correlation	TC-AC06: Lowercase tickers, wrong format dates, monthly, rolling 36	Test Replay	>				
✓	Portfolio Visualizer Asset Correlation	TC-AC07: Valid tickers, non-existent dates, monthly, rolling 36	Test Replay	>				



## 5. Key Observations & Recommendations

- **High Application Stability:** With a 98.7% pass rate, the system is performing consistently across complex financial and analytical modules.
- **Strong Input Validation:** Almost all modules demonstrated precise and reliable validation handling.
- **Smooth Analytical Processing:** Core analytical modules (Optimization, Monte Carlo, Tactical Allocation) showed strong reliability in both calculations and user input handling.

- **Non-Automatable Scenarios:** reCAPTCHA and external service dependencies limit complete automation for certain flows, which is expected.