

MUTATION TESTING:

Introduction

Mutation testing is performed to evaluate the effectiveness of the existing unit test suite. The approach introduces small changes ("mutants") into the source code to verify whether the tests detect the modifications. A killed mutant indicates strong test coverage; a survived mutant indicates weak or missing tests.

Tools & Frameworks Used

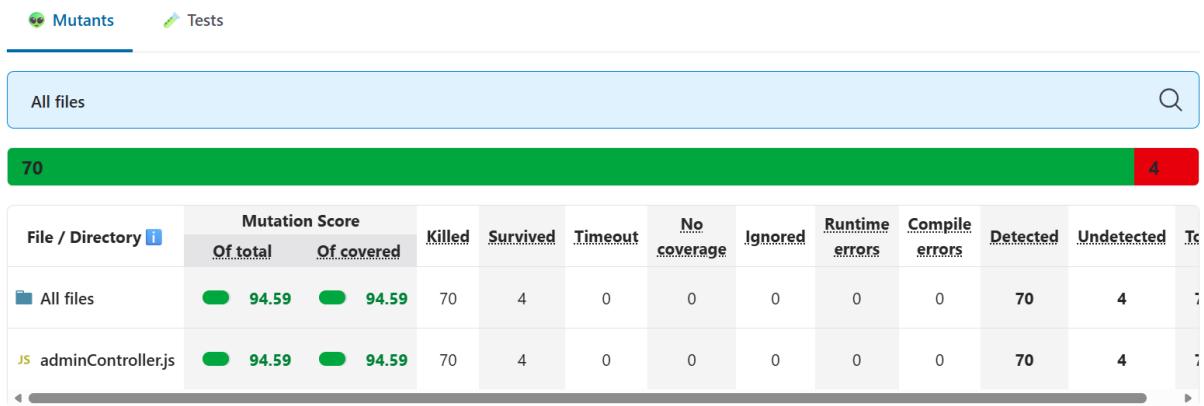
Language: JavaScript

Unit Testing Framework: Vitest

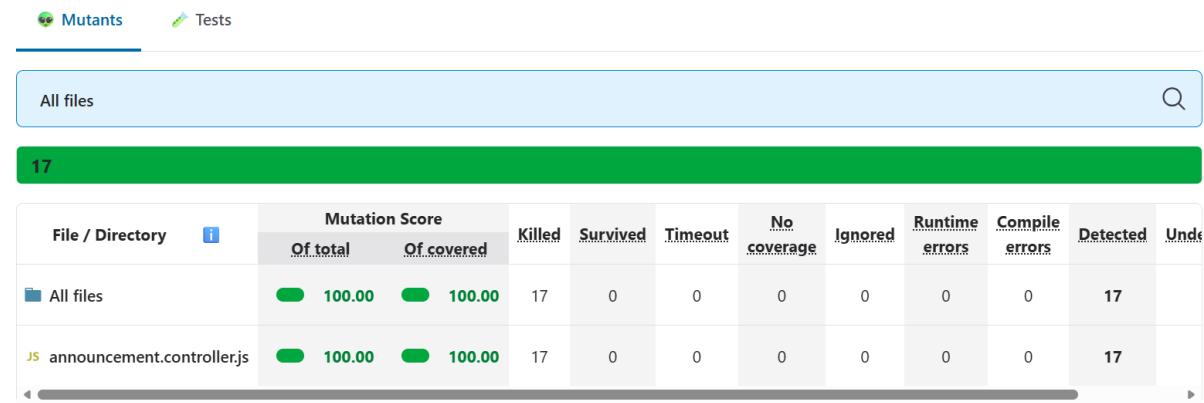
Mutation Testing Tool: Stryker

Project Type : Backend

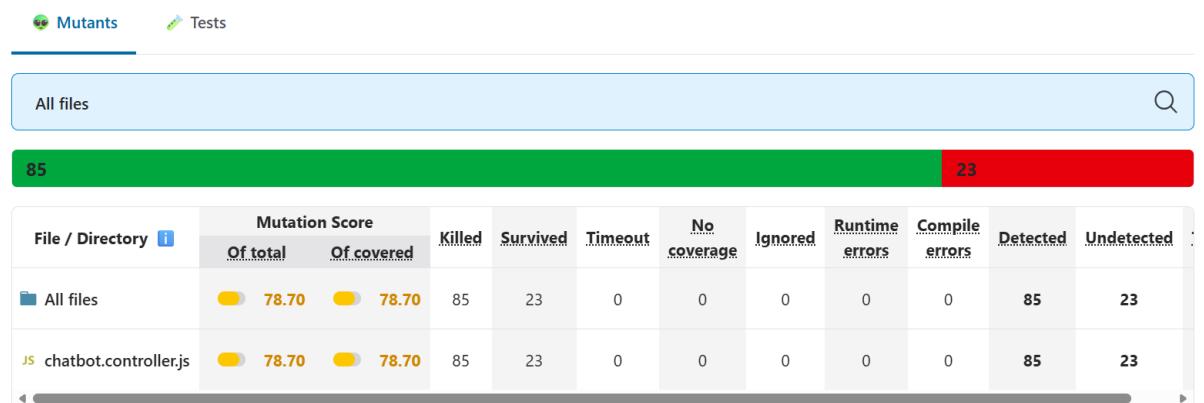
1. ADMIN CONTROLLER:



2. ANNOUNCEMENT CONTROLLER:



3. CONTROLLER:



4.propertyComparison.controller.js

Initial mutation score

File	% Mutation score						
	total	covered	# killed	# timeout	# survived	# no cov	# errors
All files	90.00	90.00	54	0	6	0	0
propertyComparison.controller.js	90.00	90.00	54	0	6	0	0

19:12:07 (22804) INFO HtmlReporter Your report can be found at: file:///C:/Users/NANDINI%20GADHVI/Desktop/testing/IT-314/Backend/reports/mutation.html

Final mutation score

Ran 1.15 tests per mutant on average.

File	% Mutation score						
	total	covered	# killed	# timeout	# survived	# no cov	# errors
All files	98.33	98.33	59	0	1	0	0
propertyComparison.controller.js	98.33	98.33	59	0	1	0	0

23:27:53 (5728) INFO HtmlReporter Your report can be found at: file:///C:/Users/NANDINI%20GADHVI/Desktop/testing/IT-314/Backend/reports/mutation.html

5.saveListing.controller.js

mutation score

Ran 1.60 tests per mutant on average.

File	% Mutation score						
	total	covered	# killed	# timeout	# survived	# no cov	# errors
All files	72.09	72.09	31	0	12	0	0
savedListing.controller.js	72.09	72.09	31	0	12	0	0

6. priceEstimator.controller.js

initial mutation score

Ran 2.21 tests per mutant on average.

File	% Mutation score						
	total	covered	# killed	# timeout	# survived	# no cov	# errors
All files	39.39	43.33	26	0	34	6	0
priceEstimator.controller.js	39.39	43.33	26	0	34	6	0

Final mutation score

Ran 4.73 tests per mutant on average.

File	% Mutation score						
	total	covered	# killed	# timeout	# survived	# no cov	# errors
All files	96.97	96.97	64	0	2	0	0
priceEstimator.controller.js	96.97	96.97	64	0	2	0	0

