

IT314 – Software Engineering

BACKEND TESTING

(UNIT, Mutation and Integration testing)

Unit testing:

```
timers can also cause this, ensure that .unref() was called

Test Suites: 60 passed, 60 total
Tests:       604 passed, 604 total
Snapshots:   0 total
Time:        6.824 s
Ran all test suites.
```

Mutation Testing:

1.sendMessage controller

Mutation testing output :

All files												
<div><div>Mutants</div><div>Tests</div></div>												
All files												
29												1
File / Directory	Mutation Score		Killed	Survived	Timeout	No coverage	Ignored	Runtime errors	Compile errors	Detected	Undetected	Total
	Of total	Of covered										
All files	96.67	96.67	29	1	0	0	5	0	0	29	1	35
sendMessage.controller.js	96.67	96.67	29	1	0	0	5	0	0	29	1	35

2.getPortfolioInsight controller

Mutation testing output :

All files

MutantsTests

All files

27

File / Directory	Mutation Score		Killed	Survived	Timeout	No coverage	Ignored	Runtime errors	Compile errors	Detected	Undetected	Total
	Of total	Of covered										
All files	100.00	100.00	27	0	0	0	7	0	0	27	0	34
js getPortfolioInsight.controller.js	100.00	100.00	27	0	0	0	7	0	0	27	0	34

User - Profile related DB Query:

376

File / Directory	Mutation Score		Killed	Survived	Timeout	No coverage	Ignored	Runtime errors	Compile errors	Detected	Undetected	Total
	Of total	Of covered										
All files	100.00	100.00	376	0	0	0	67	0	0	376	0	443
js deleteActiveSession.js	100.00	100.00	28	0	0	0	6	0	0	28	0	34
js findUser.js	100.00	100.00	14	0	0	0	3	0	0	14	0	17
js getSession.js	100.00	100.00	28	0	0	0	6	0	0	28	0	34
js insertActiveSession.js	100.00	100.00	47	0	0	0	6	0	0	47	0	53
js removeUser.js	100.00	100.00	14	0	0	0	3	0	0	14	0	17
js toggleAISuggestion.js	100.00	100.00	14	0	0	0	3	0	0	14	0	17
js updateActiveTime.js	100.00	100.00	14	0	0	0	3	0	0	14	0	17
js updatePassword.js	100.00	100.00	3	0	0	0	2	0	0	3	0	5
js updatePreferencesAndPersonalisation.js	100.00	100.00	50	0	0	0	8	0	0	50	0	58
js updateProfileImage.js	100.00	100.00	25	0	0	0	4	0	0	25	0	29
js updateProfileInfo.js	100.00	100.00	125	0	0	0	20	0	0	125	0	145
js userTransactions.js	100.00	100.00	14	0	0	0	3	0	0	14	0	17

File / Directory	Mutation Score		Killed	Survived	Timeout	No coverage	Ignored	Runtime errors	Compile errors	Detected	Undetected	Total
	Of total	Of covered										
All files	81.08	81.08	240	56	0	0	150	0	0	240	56	446
js forgotPassword.controller.js	80.67	80.67	121	29	0	0	75	0	0	121	29	225
js resetPassword.controller.js	81.51	81.51	119	27	0	0	75	0	0	119	27	221

User.model.js

(excluded mutations "ObjectLiteral", "ArrayDeclaration", "BooleanLiteral", because these are changing schema)

All files												
68												
File / Directory	Mutation Score		Killed	Survived	Timeout	No coverage	Ignored	Runtime errors	Compile errors	Detected	Undetected	Total
	Of total	Of covered										
All files	100.00	100.00	68	0	0	0	101	0	0	68	0	169
user.model.js	100.00	100.00	68	0	0	0	101	0	0	68	0	169

MiddleWares:

All files												
134												
File / Directory	Mutation Score		Killed	Survived	Timeout	No coverage	Ignored	Runtime errors	Compile errors	Detected	Undetected	Total
	Of total	Of covered										
All files	98.53	98.53	134	2	0	0	56	0	0	134	2	192
auth.middleware.js	100.00	100.00	38	0	0	0	27	0	0	38	0	65
verifyUserLoginGoogle.middleware.js	98.08	98.08	51	1	0	0	16	0	0	51	1	68
verifyUserLoginStatus.middleware.js	97.83	97.83	45	1	0	0	13	0	0	45	1	59

User-profile related controller

737												
25												
File / Directory	Mutation Score		Killed	Survived	Timeout	No coverage	Ignored	Runtime errors	Compile errors	Detected	Undetected	Total
	Of total	Of covered										
All files	96.72	96.72	380	25	357	0	196	0	0	737	25	958
activityAndSessionHistory.controller.js	100.00	100.00	27	0	18	0	4	0	0	45	0	49
clearActivityHistory.controller.js	100.00	100.00	12	0	0	0	4	0	0	12	0	16
dataAndPrivacy.controller.js	100.00	100.00	6	0	7	0	3	0	0	13	0	16
downloadActivityHistoryReport.controller.js	96.67	96.67	27	2	31	0	38	0	0	58	2	98
downloadPortfolioData.controller.js	87.29	87.29	47	15	56	0	28	0	0	103	15	146
getActivityAndSessionByToken.controller.js	100.00	100.00	12	0	1	0	3	0	0	13	0	16
getAllActivityHistory.controller.js	100.00	100.00	1	0	11	0	2	0	0	12	0	14
getAllSecurityAlerts.controller.js	100.00	100.00	7	0	7	0	2	0	0	14	0	16
getPreferencesAndPersonalisation.controller.js	66.67	66.67	7	4	1	0	2	0	0	8	4	14

(66.67% because it was changing optional chaining)

JS	getProfile.controller.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	3	0	5	0	2	0	0	8	0	10
JS	login.controller.js	<div><div></div></div> 98.81	<div><div></div></div> 98.81	41	1	42	0	20	0	0	83	1	104
JS	sendUserQuery.controller.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	20	0	15	0	9	0	0	35	0	44
JS	sendUserSuggestion.controller.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	19	0	15	0	9	0	0	34	0	43
JS	toggleAISuggestion.controller.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	11	0	17	0	8	0	0	28	0	36
JS	updatePreferencesAndPersonalisation.controller.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	25	0	37	0	12	0	0	62	0	74
JS	updateProfileImage.controller.js	<div><div></div></div> 95.65	<div><div></div></div> 95.65	24	2	20	0	10	0	0	44	2	56
JS	updateProfileInfo.controller.js	<div><div></div></div> 99.40	<div><div></div></div> 99.40	91	1	74	0	40	0	0	165	1	206

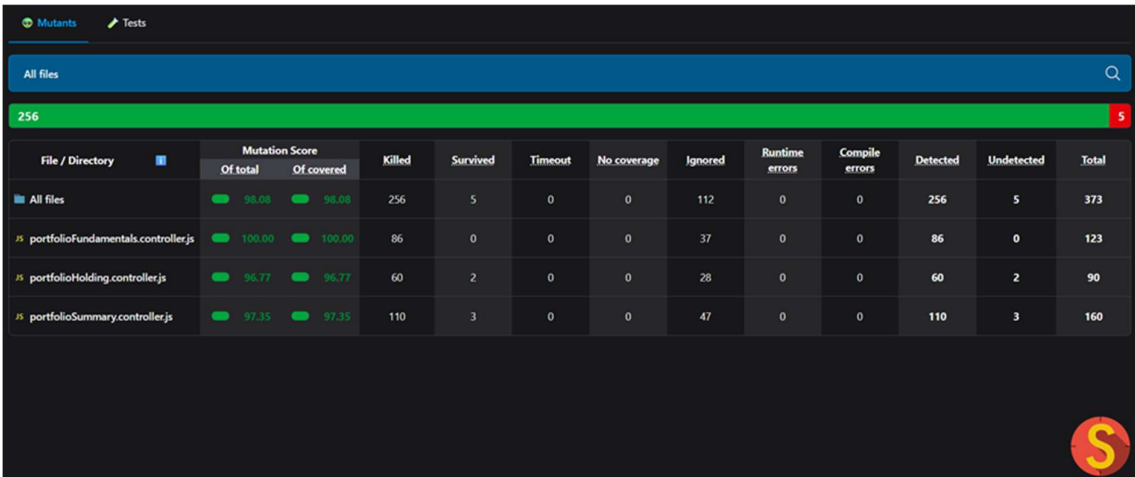
File / Directory	Mutation Score		Killed	Survived	Timeout	No coverage	Ignored	Runtime errors	Compile errors	Detected	Undetected	Total
	Of total	Of covered										
All files	<div><div></div></div> 81.08	<div><div></div></div> 81.08	240	56	0	0	150	0	0	240	56	446
JS forgotPassword.controller.js	<div><div></div></div> 80.67	<div><div></div></div> 80.67	121	29	0	0	75	0	0	121	29	225
JS resetPassword.controller.js	<div><div></div></div> 81.51	<div><div></div></div> 81.51	119	27	0	0	75	0	0	119	27	221

All files												
265												14
File / Directory	Mutation Score		Killed	Survived	Timeout	No coverage	Ignored	Runtime errors	Compile errors	Detected	Undetected	Total
	Of total	Of covered										
All files	<div><div></div></div> 94.98	<div><div></div></div> 94.98	265	14	0	0	167	0	0	265	14	446
JS checkToken.controller.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	34	0	0	0	24	0	0	34	0	58
JS deleteAccount.controller.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	24	0	0	0	15	0	0	24	0	39
JS loginWithGoogle.controller.js	<div><div></div></div> 84.52	<div><div></div></div> 84.52	71	13	0	0	51	0	0	71	13	135
JS logout.controller.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	34	0	0	0	29	0	0	34	0	63
JS registerOtpGeneration.controller.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	40	0	0	0	17	0	0	40	0	57
JS verifyAndRegister.controller.js	<div><div></div></div> 98.41	<div><div></div></div> 98.41	62	1	0	0	31	0	0	62	1	94

Dashboard related Controllers:

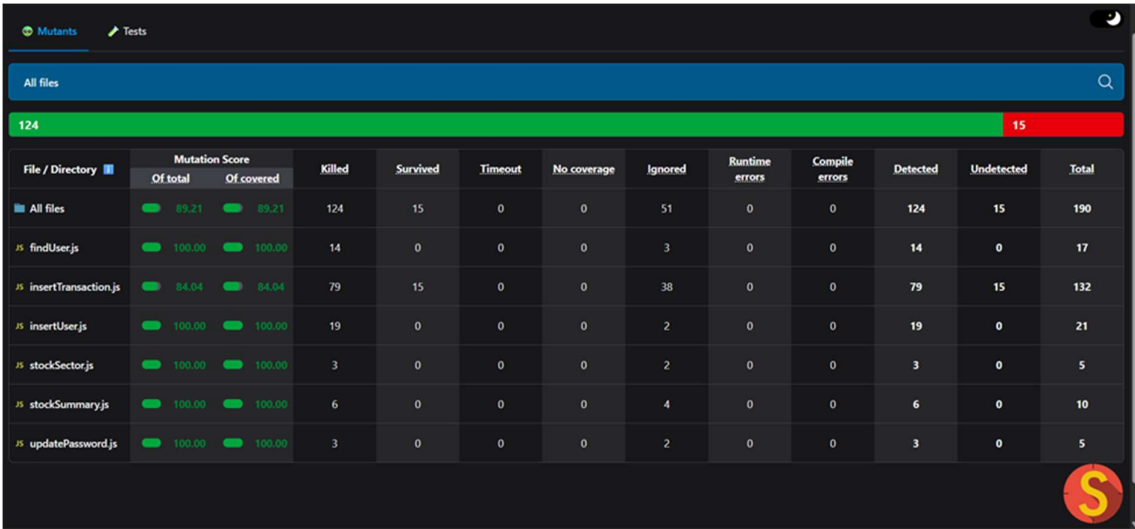
File / Directory	Mutation Score		Killed	Survived	Timeout	No coverage	Ignored	Runtime errors	Compile errors	Detected	Undetected	Total
	Of total	Of covered										
All files	<div><div></div></div> 95.71	<div><div></div></div> 95.71	268	12	0	0	140	0	0	268	12	420
JS addTransaction.controller.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	53	0	0	0	22	0	0	53	0	75
JS getNews.controller.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	19	0	0	0	8	0	0	19	0	27
JS getPortfolioInsight.controller.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	15	0	0	0	19	0	0	15	0	34
JS graphDataFromet.js	<div><div></div></div> 85.71	<div><div></div></div> 85.71	18	3	0	0	14	0	0	18	3	35
JS portfolioCalculation.controller.js	<div><div></div></div> 92.00	<div><div></div></div> 92.00	46	4	0	0	14	0	0	46	4	64
JS stockAllocation.controller.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	31	0	0	0	7	0	0	31	0	38
JS userStockSummary.controller.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	22	0	0	0	11	0	0	22	0	33
JS watchlist.controller.js	<div><div></div></div> 92.75	<div><div></div></div> 92.75	64	5	0	0	45	0	0	64	5	114

Portfolio Related Controllers:



File / Directory	Mutation Score		Killed	Survived	Timeout	No coverage	Ignored	Runtime errors	Compile errors	Detected	Undetected	Total
	Of total	Of covered										
All files	98.08	98.08	256	5	0	0	112	0	0	256	5	373
portfolioFundamentals.controller.js	100.00	100.00	86	0	0	0	37	0	0	86	0	123
portfolioHolding.controller.js	96.77	96.77	60	2	0	0	28	0	0	60	2	90
portfolioSummary.controller.js	97.35	97.35	110	3	0	0	47	0	0	110	3	160

Dashboard DB:



File / Directory	Mutation Score		Killed	Survived	Timeout	No coverage	Ignored	Runtime errors	Compile errors	Detected	Undetected	Total
	Of total	Of covered										
All files	89.21	89.21	124	15	0	0	51	0	0	124	15	190
findUser.js	100.00	100.00	14	0	0	0	3	0	0	14	0	17
insertTransaction.js	84.04	84.04	79	15	0	0	38	0	0	79	15	132
insertUser.js	100.00	100.00	19	0	0	0	2	0	0	19	0	21
stockSector.js	100.00	100.00	3	0	0	0	2	0	0	3	0	5
stockSummary.js	100.00	100.00	6	0	0	0	4	0	0	6	0	10
updatePassword.js	100.00	100.00	3	0	0	0	2	0	0	3	0	5

Integration Testing (tested by postman)

<https://chirayudodiya-917510.postman.co/workspace/chirayu-dodiya's-Workspace~f5d51dc8-bcb5-47fe-87e4-7bb54c2249ec/collection/48334070-b4bd1d8a-5662-40ec-8e90-b78979b05b8a?action=share&creator=48334070>