

# IT314 – Software Engineering

## BACKEND TESTING

(UNIT, Mutation and Integration testing)

Unit testing:

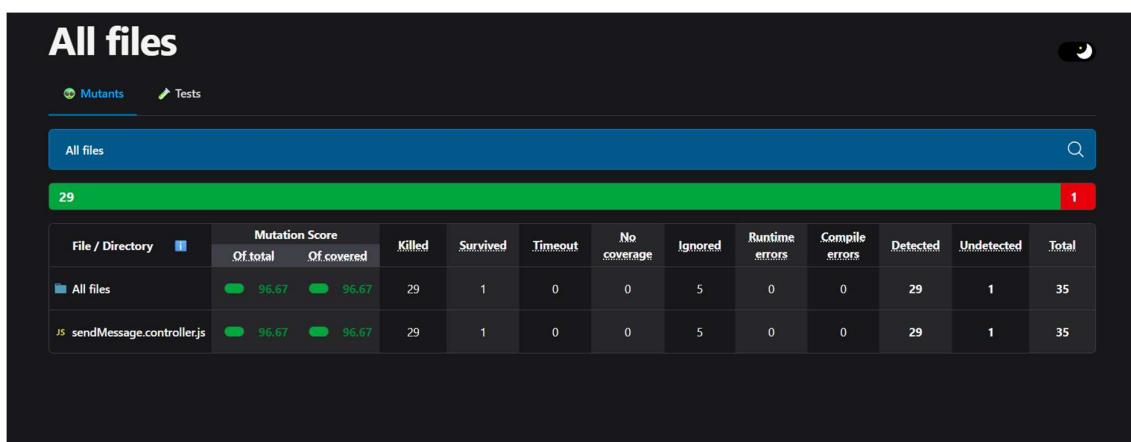
```
timers can also cause this, ensure that .unref() was called

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 :



## 2.getPortfolioInsight controller

Mutation testing output :

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

User - Profile related DB Query:

376															
		Mutation Score													
		File / Directory		Of total	Of covered	Killed	Survived	Timeout	No coverage	Ignored	Runtime errors	Compile errors	Detected	Undetected	Total
All files		■ 100.00	■ 100.00	376	0	0	0	0	67	0	0	376	0	443	
JS deleteUser.js		■ 100.00	■ 100.00	28	0	0	0	0	6	0	0	28	0	34	
JS getActiveSession.js		■ 100.00	■ 100.00	14	0	0	0	0	3	0	0	14	0	17	
JS insertActiveSession.js		■ 100.00	■ 100.00	28	0	0	0	0	6	0	0	28	0	34	
JS removeUser.js		■ 100.00	■ 100.00	14	0	0	0	0	3	0	0	14	0	17	
JS toggleAiSuggestion.js		■ 100.00	■ 100.00	14	0	0	0	0	3	0	0	14	0	17	
JS updateActiveTime.js		■ 100.00	■ 100.00	14	0	0	0	0	3	0	0	14	0	17	
JS updatePassword.js		■ 100.00	■ 100.00	3	0	0	0	0	2	0	0	3	0	5	
JS updatePreferencesAndPersonalisation.js		■ 100.00	■ 100.00	50	0	0	0	0	8	0	0	50	0	58	
JS updateProfileImage.js		■ 100.00	■ 100.00	25	0	0	0	0	4	0	0	25	0	29	
JS updateProfileInfo.js		■ 100.00	■ 100.00	125	0	0	0	0	20	0	0	125	0	145	
JS userTransactions.js		■ 100.00	■ 100.00	14	0	0	0	0	3	0	0	14	0	17	
File / Directory	■	Mutation Score		Of total	Of covered	Killed	Survived	Timeout	No coverage	Ignored	Runtime errors	Compile errors	Detected	Undetected	Total
All files		■ 81.08	■ 81.08	240	56	0	0	0	150	0	0	240	56	446	
JS forgotPassword.controller.js		■ 80.67	■ 80.67	121	29	0	0	0	75	0	0	121	29	225	
JS resetPassword.controller.js		■ 81.51	■ 81.51	119	27	0	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
JS 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
JS auth.middleware.js	100.00	100.00	38	0	0	0	27	0	0	38	0	65
JS verifyUserLoginGoogle.middleware.js	98.08	98.08	51	1	0	0	16	0	0	51	1	68
JS 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
JS activityAndSessionHistory.controller.js	100.00	100.00	27	0	18	0	4	0	0	45	0	49
JS clearActivityHistory.controller.js	100.00	100.00	12	0	0	0	4	0	0	12	0	16
JS dataAndPrivacy.controller.js	100.00	100.00	6	0	7	0	3	0	0	13	0	16
JS downloadActivityHistoryReport.controller.js	96.67	96.67	27	2	31	0	38	0	0	58	2	98
JS downloadPortfolioData.controller.js	87.29	87.29	47	15	56	0	28	0	0	103	15	146
JS getActivityAndSessionByToken.controller.js	100.00	100.00	12	0	1	0	3	0	0	13	0	16
JS getAllActivityHistory.controller.js	100.00	100.00	1	0	11	0	2	0	0	12	0	14
JS getAllSecurityAlerts.controller.js	100.00	100.00	7	0	7	0	2	0	0	14	0	16
JS 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)

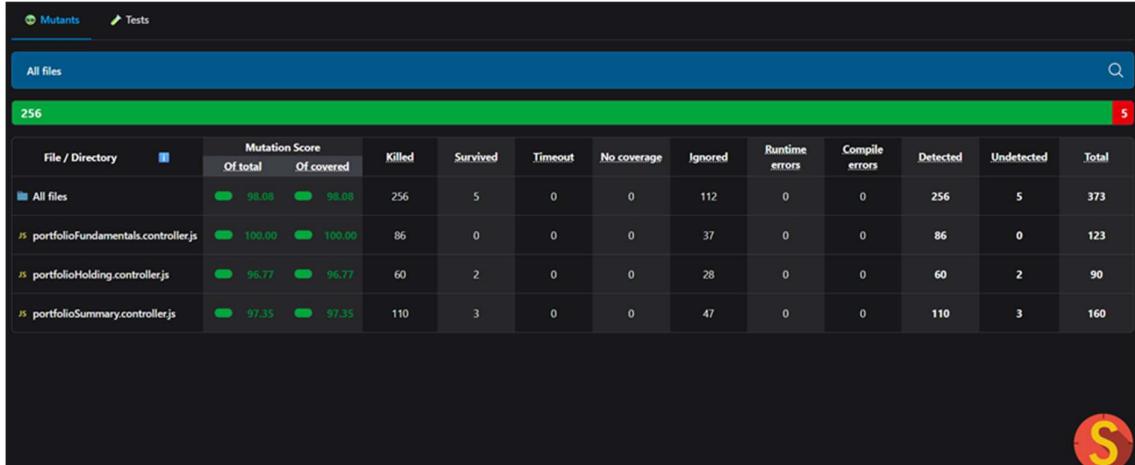
<code>JS getProfile.controller.js</code>	100.00	100.00	3	0	5	0	2	0	0	8	0	10		
<code>JS login.controller.js</code>	98.81	98.81	41	1	42	0	20	0	0	83	1	104		
<code>JS sendUserQuery.controller.js</code>	100.00	100.00	20	0	15	0	9	0	0	35	0	44		
<code>JS sendUserSuggestion.controller.js</code>	100.00	100.00	19	0	15	0	9	0	0	34	0	43		
<code>JS toggleAiSuggestion.controller.js</code>	100.00	100.00	11	0	17	0	8	0	0	28	0	36		
<code>JS updatePreferencesAndPersonalisation.controller.js</code>	100.00	100.00	25	0	37	0	12	0	0	62	0	74		
<code>JS updateProfileImage.controller.js</code>	95.65	95.65	24	2	20	0	10	0	0	44	2	56		
<code>JS updateProfileInfo.controller.js</code>	99.40	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
All files		81.08	81.08	240	56	0	0	150	0	0	240	56	446	
<code>JS forgotPassword.controller.js</code>		80.67	80.67	121	29	0	0	75	0	0	121	29	225	
<code>JS resetPassword.controller.js</code>		81.51	81.51	119	27	0	0	75	0	0	119	27	221	
All files													14	
File / Directory	■	Mutation Score			Killed	Survived	Timeout	No coverage	Ignored	Runtime errors	Compile errors	Detected	Undetected	Total
All files		94.98	94.98	265	14	0	0	167	0	0	265	14	446	
<code>JS checkToken.controller.js</code>		100.00	100.00	34	0	0	0	24	0	0	34	0	58	
<code>JS deleteAccount.controller.js</code>		100.00	100.00	24	0	0	0	15	0	0	24	0	39	
<code>JS loginWithGoogle.controller.js</code>		84.52	84.52	71	13	0	0	51	0	0	71	13	135	
<code>JS logout.controller.js</code>		100.00	100.00	34	0	0	0	29	0	0	34	0	63	
<code>JS registerOtpGeneration.controller.js</code>		100.00	100.00	40	0	0	0	17	0	0	40	0	57	
<code>JS verifyAndRegister.controller.js</code>		98.41	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
All files		95.71	95.71	268	12	0	0	140	0	0	268	12	420	
<code>JS addTransaction.controller.js</code>		100.00	100.00	53	0	0	0	22	0	0	53	0	75	
<code>JS getNews.controller.js</code>		100.00	100.00	19	0	0	0	8	0	0	19	0	27	
<code>JS getPortfolioInsight.controller.js</code>		100.00	100.00	15	0	0	0	19	0	0	15	0	34	
<code>JS graphDataFromet.js</code>		85.71	85.71	18	3	0	0	14	0	0	18	3	35	
<code>JS portfolioCalculation.controller.js</code>		92.00	92.00	46	4	0	0	14	0	0	46	4	64	
<code>JS stockAllocation.controller.js</code>		100.00	100.00	31	0	0	0	7	0	0	31	0	38	
<code>JS userStockSummary.controller.js</code>		100.00	100.00	22	0	0	0	11	0	0	22	0	33	
<code>JS watchlist.controller.js</code>		92.75	92.75	64	5	0	0	45	0	0	64	5	114	

## Portfolio Related Controllers:



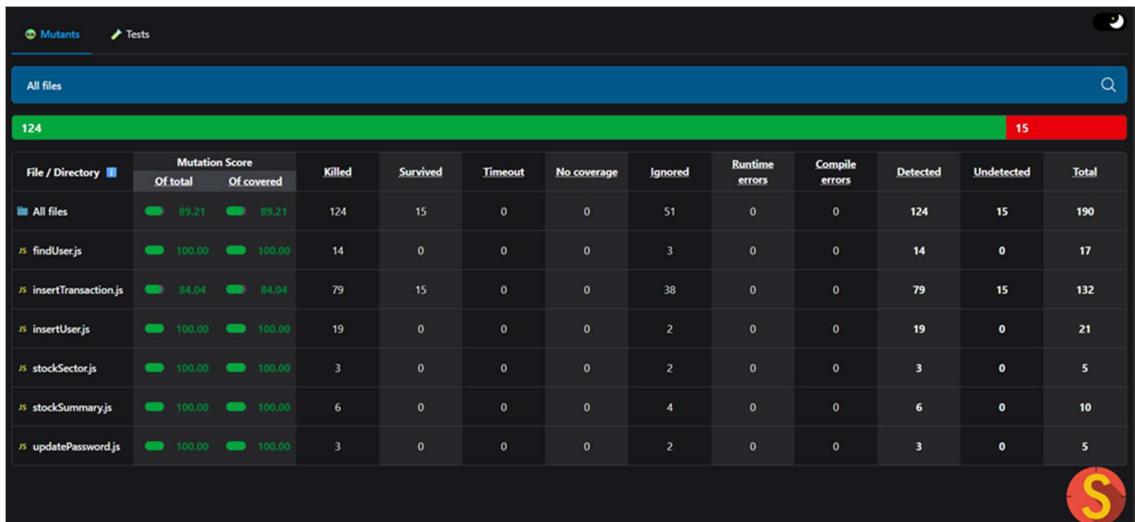
Mutants Tests

All files

256 | 5

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

## Dashboard DB:



Mutants Tests

All files

124 | 15

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