

Mutation Testing

Modules used for Mutation Testing:

- @stryker-mutator/mocha-runner
- stryker

Screenshot of mutation test report:

```
Windows PowerShell
Ran 0.85 tests per mutant on average.

File | % Mutation score | # killed | # timeout | # survived | # no cov | # errors
-----|-----|-----|-----|-----|-----|-----
total | covered
All files | 67.50 | 83.26 | 152 | 37 | 38 | 53 | 6
controllers | 62.05 | 78.53 | 109 | 30 | 38 | 47 | 5
  customTrip.js | 100.00 | 100.00 | 4 | 0 | 0 | 0 | 0
  myTrip.js | 63.16 | 88.89 | 20 | 4 | 3 | 11 | 1
  reviews.js | 64.52 | 90.91 | 14 | 6 | 2 | 9 | 1
  searchTrip.js | 40.00 | 44.44 | 6 | 2 | 10 | 2 | 1
  trip.js | 60.00 | 85.71 | 3 | 9 | 2 | 6 | 1
  user.js | 63.96 | 77.17 | 62 | 9 | 21 | 19 | 1
middlewares | 81.25 | 100.00 | 21 | 5 | 0 | 6 | 1
  auth.js | 100.00 | 100.00 | 8 | 1 | 0 | 0 | 1
  ensureAdmin.js | 100.00 | 100.00 | 13 | 4 | 0 | 0 | 0
  multerMiddleware.js | 0.00 | 0.00 | 0 | 0 | 0 | 6 | 0
routes | 100.00 | 100.00 | 22 | 2 | 0 | 0 | 0
  customTrip.js | 100.00 | 100.00 | 1 | 0 | 0 | 0 | 0
  myTripRoute.js | 100.00 | 100.00 | 3 | 0 | 0 | 0 | 0
  reviewRouter.js | 100.00 | 100.00 | 3 | 0 | 0 | 0 | 0
  searchTrip.js | 100.00 | 100.00 | 1 | 0 | 0 | 0 | 0
  tripRouter.js | 100.00 | 100.00 | 4 | 0 | 0 | 0 | 0
  user.js | 100.00 | 100.00 | 10 | 2 | 0 | 0 | 0

15:16:04 (4124) INFO HtmlReporter Your report can be found at: file:///D:/College/Sem%205/Software%20Engineering/Project/Wanderway/backend/reports/mutation/mutation.html
15:16:04 (4124) INFO MutationTestExecutor Done in 50 seconds.
PS D:\College\Sem 5\Software Engineering\Project\Wanderway\backend>
```

Detailed mutation report of controllers:

All files / controllers												
189												
38												
53												
File / Directory	Mutation Score		Killed	Survived	Timeout	No.coverage	Ignored	Runtime errors	Compile errors	Detected	Undetected	Total
	Of total	Of covered										
controllers	62.05	78.53	109	38	30	47	0	5	0	139	85	229
JS customTrip.js	100.00	100.00	4	0	0	0	0	0	0	4	0	4
JS myTrip.js	63.16	88.89	20	3	4	11	0	1	0	24	14	39
JS reviews.js	64.52	90.91	14	2	6	9	0	1	0	20	11	32
JS searchTrip.js	40.00	44.44	6	10	2	2	0	1	0	8	12	21
JS trip.js	60.00	85.71	3	2	9	6	0	1	0	12	8	21
JS user.js	63.96	77.17	62	21	9	19	0	1	0	71	40	112



Detailed mutation report of middlewares:

All files / middlewares

189

38

53

File / Directory	Mutation Score		Killed	Survived	Timeout	No.coverage	Ignored	Runtime errors	Compile errors	Detected	Undetected	Total
	Of total	Of covered										
middlewares	<div><div></div></div> 81.25	<div><div></div></div> 100.00	21	0	5	6	0	1	0	26	6	33
JS auth.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	8	0	1	0	0	1	0	9	0	10
JS ensureAdmin.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	13	0	4	0	0	0	0	17	0	17
JS multerMiddleware.js	<div><div></div></div> 0.00	<div><div></div></div> 0.00	0	0	0	6	0	0	0	0	6	6

Detailed mutation report of routes:

189									38		53		
File / Directory	Mutation Score		Killed	Survived	Timeout	No.coverage	Ignored	Runtime errors	Compile errors	Detected	Undetected	Total	
	Of total	Of covered											
routes	<div><div></div></div> 100.00	<div><div></div></div> 100.00	22	0	2	0	0	0	0	24	0	24	
JS customTrip.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	1	0	0	0	0	0	0	1	0	1	
JS myTripRoute.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	3	0	0	0	0	0	0	3	0	3	
JS reviewRouter.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	3	0	0	0	0	0	0	3	0	3	
JS searchTrip.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	1	0	0	0	0	0	0	1	0	1	
JS tripRouter.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	4	0	0	0	0	0	0	4	0	4	
JS user.js	<div><div></div></div> 100.00	<div><div></div></div> 100.00	10	0	2	0	0	0	0	12	0	12	