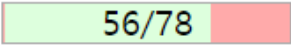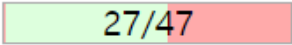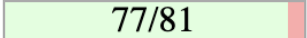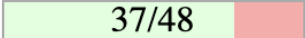# Task: Mutation Testing

We used Pitest as a mutation testing tool. Using Pitest, we were able to identify numerous classes with a mutation score lower than 70%, and we picked 4 out of them that had the most room for improvement.

Class 1 (ReservationController)
Mutation score before adding tests: 57%

Name	Line Coverage		Mutation Coverage	
ReservationController.java	72%	56/78	57%	27/47

Mutation score after adding tests: 77%

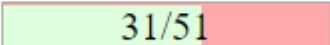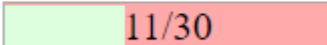|				
ReservationController.java	95%	77/81	77%	37/48

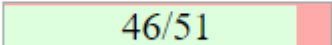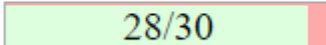Link to related commits:
- All Commits in MR:

https://gitlab.ewi.tudelft.nl/cse2115/2021-2022/sem-group-10b/sem-repo-10b/-/merge_requests/51/commits

Class 2 (Reservation)
Mutation score before adding tests: 37%

Name	Line Coverage		Mutation Coverage	
Reservation.java	61%	31/51	37%	11/30

Mutation score after adding tests: 93%

Name	Line Coverage		Mutation Coverage	
Reservation.java	90%	46/51	93%	28/30

Link to related commits:
- Main commit adding the tests part 1:

https://gitlab.ewi.tudelft.nl/cse2115/2021-2022/sem-group-10b/sem-repo-10b/-/commit/83ca06e086f791370f43942b8ecbe271012a9404
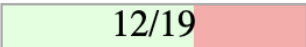- Main commit adding the tests part 2:

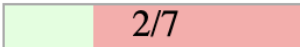https://gitlab.ewi.tudelft.nl/cse2115/2021-2022/sem-group-10b/sem-repo-10b/-/commit/d37c4c1243e4c1ddc8b7044a5d9824c81c500c98
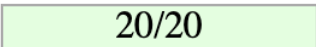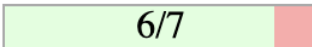- Fixing checkstyle / PMD:

https://gitlab.ewi.tudelft.nl/cse2115/2021-2022/sem-group-10b/sem-repo-10b/-/commit/c8c99a7b8dc6473ff87e6eea1d7240fca162471b

Class 3 (UserService)

Mutation score before adding tests:

Name	Line Coverage	Mutation Coverage
UserService.java	63% 12/19	29% 2/7

Mutation score after adding tests:

Name	Line Coverage	Mutation Coverage
UserService.java	100% 20/20	86% 6/7

Link to related commits:
- Main commit:
https://gitlab.ewi.tudelft.nl/cse2115/2021-2022/sem-group-10b/sem-repo-10b/-/commit/2490b78dce5420 5cfe6330dca018c3e81eeb013b
- Fixing checkstyle / PMD:
https://gitlab.ewi.tudelft.nl/cse2115/2021-2022/sem-group-10b/sem-repo-10b/-/commit/613ffe74bb8b4b6 1728de53cd44ac35f379bb891

Class 4 (UserController)

Mutation score before adding tests: 10%

Name	Line Coverage	Mutation Coverage
UserController.java	73% 16/22	10% 1/10

Mutation score after adding tests: 78%

Name	Line Coverage	Mutation Coverage
UserController.java	100% 21/21	78% 7/9

Link to related commits:
- Main commit:
https://gitlab.ewi.tudelft.nl/cse2115/2021-2022/sem-group-10b/sem-repo-10b/-/commit/40cbbf63e 0bbb8b42fdbc45780296c9d1132924d