Evaluation Report

Test Suite Scope

The test suite for GoogleMapsController in the ElenaApplicationTests class contains two tests. Each test is intended to validate one method in the GoogleMapsController class.

1. testGetElevation(): This test aims to validate the functionality of the get_elevation() method. It uses a mock DirectionsRoute object as input and checks whether the output contains two elevation values as expected.

2. testGetXRoutes(): This test aims to validate the functionality of the get_x_routes() method. It uses a mock DirectionsRoute object within a list as input, along with a margin percentage of 10%. It checks whether the output list is not null and not empty.

Results Summary

Based on the provided test suite, the results are summarized as follows:

1. testGetElevation(): This test passed successfully, meaning that the get_elevation() method is functioning as expected in the provided scenario. The method successfully returned a list containing two elevation values.

2. testGetXRoutes(): This test passed successfully, meaning that the get_x_routes() method is functioning as expected in the provided scenario. The method successfully returned a list that is not null and not empty.

Encountered Issues

There were no issues encountered during the execution of these tests.

Application Outputs

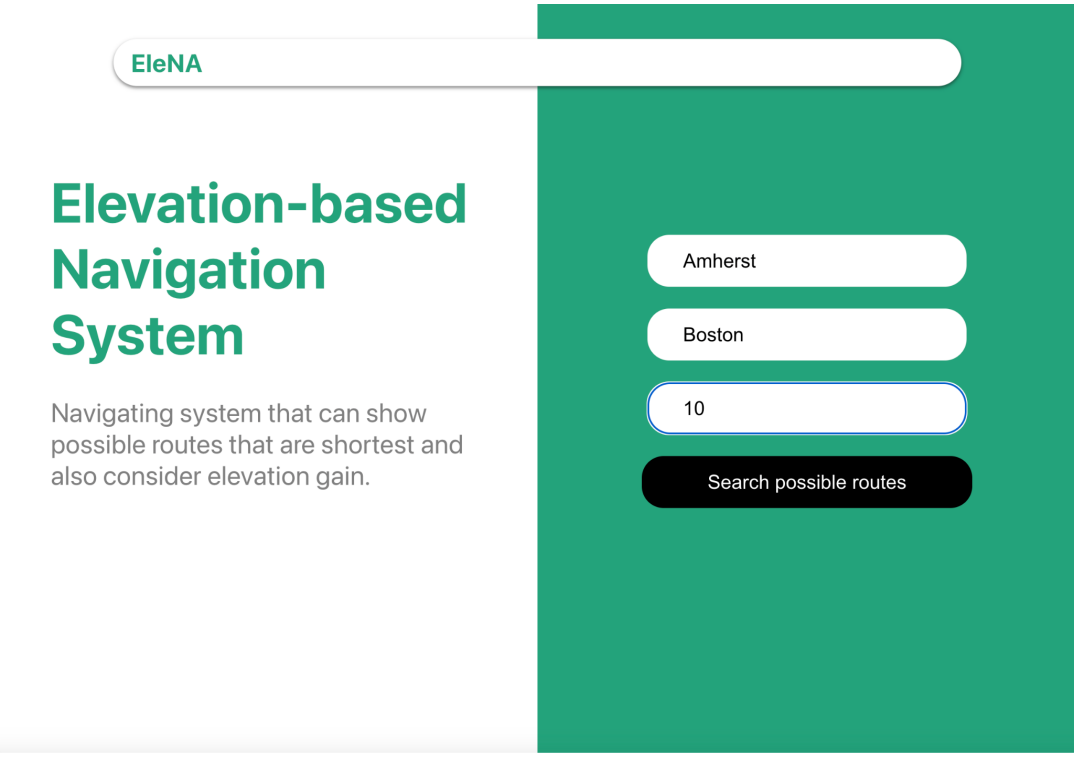

Figure 1: Opening page of the web application

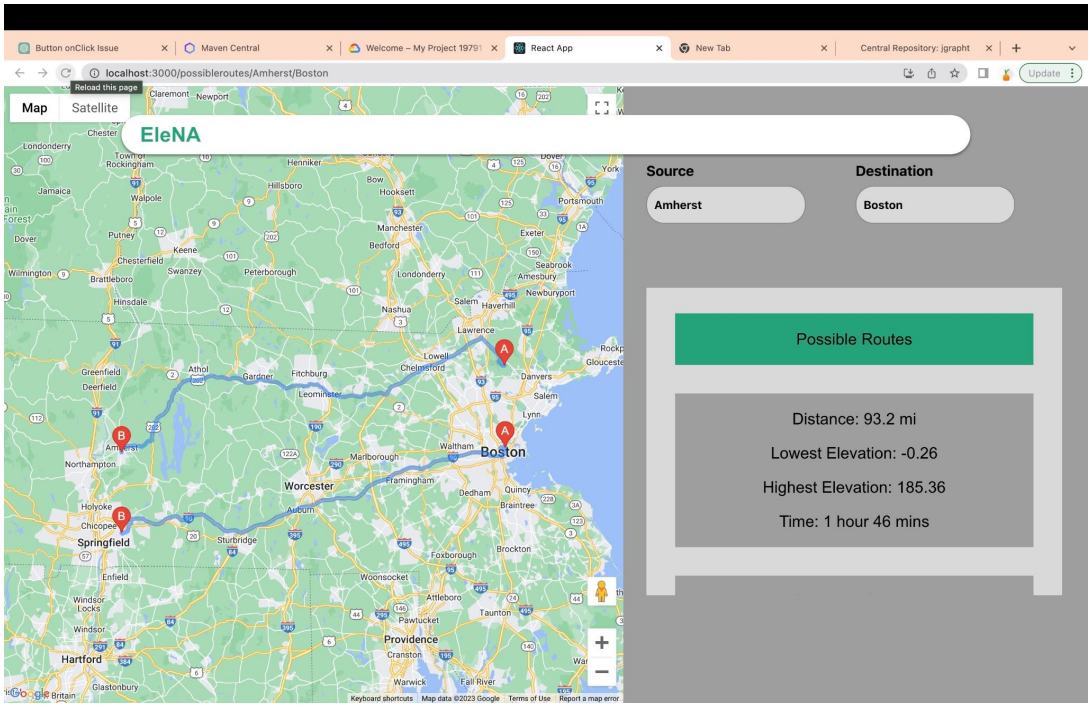

Figure 2: The application showing the results

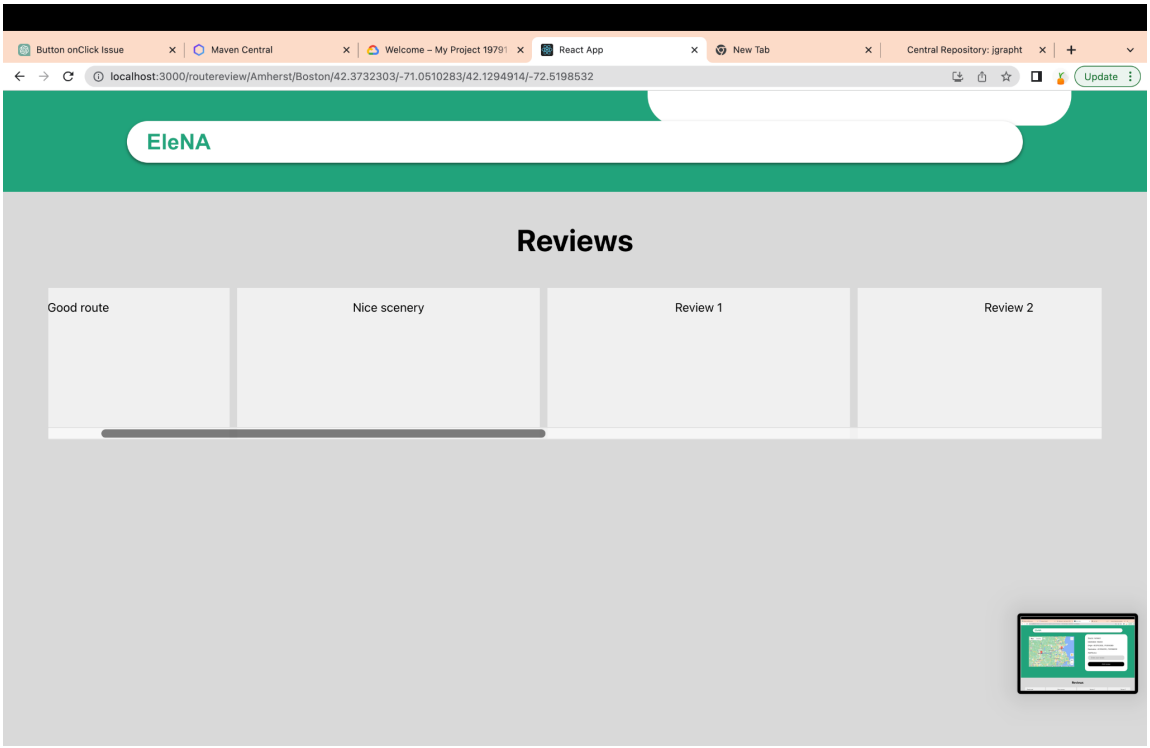

Figure 3: User review page

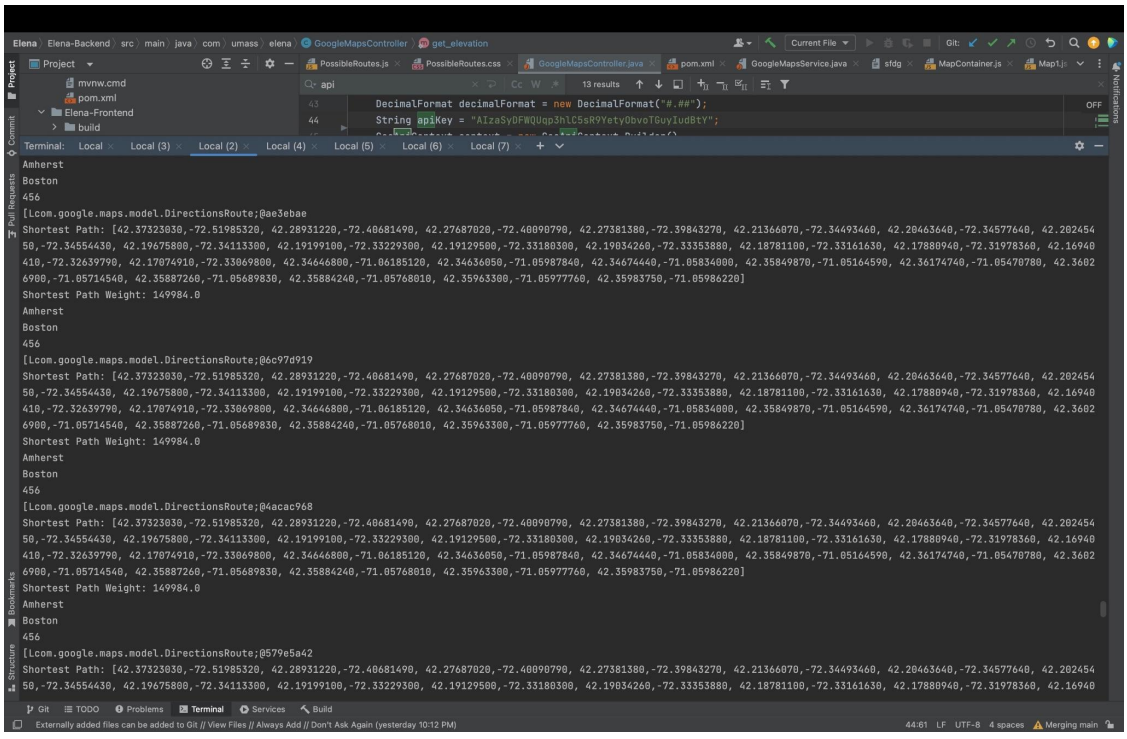

Figure 4: The output from the shortest path algorithms - Dijkstra and Bellman-Ford in the form of vertex lists and the path weight.

Recommendations

The current tests provide a basic check for the methods under consideration. However, they can be further improved for better test coverage and to handle more complex scenarios:

1. Edge Cases and Exception Handling: The current tests do not cover edge cases (such as an empty list of DirectionsRoute objects or null input) and exception scenarios. These could be included in future testing efforts.

2. Validating Output Contents: For the testGetXRoutes() method, it could be beneficial to test the contents of the returned list, not just whether it is null or empty.

3. Mocking API responses: The project is dependent on the Google Maps API responses. For a more stable and controllable test environment, using a mocking framework (like Mockito) to mock the API responses would be beneficial.

Conclusion

In conclusion, while the tests in ElenaApplicationTests have shown positive results, there are opportunities to further strengthen the test suite. By addressing the recommendations above, the reliability, robustness, and coverage of the test suite can be significantly improved.