Project Name	Swagger Note API	Prepared By	Prabesh Maharjan
Test Closure Date	1 August, 2024	Version	1.2

1. Summary

This document serves as the formal closure report for the API testing phase of the Swagger Note API project. It summarizes the testing activities conducted, the outcomes achieved and provides recommendations for future testing cycles.

2. Testing Scope

The test covered the following aspects of the Swagger Note API:

- Smoke Testing: Quick verification of critical API functionality.

- Functional Testing: Verification of all API endpoints against defined specifications.

- Load Testing: Assessment of response times under various load conditions between 200 – 600 ms.

- Security Testing: Evaluation of authentication and authorization.

3. Test Environment

Hardware Specifications:

- CPU: Ryzen 7 5800H 16 Core

- RAM: 16 GB

Software Specifications:

- Operating System: Win 11 Home (Build 22631.4391)

- Functional Testing Tools: Postman v11.18.2, Newman HTML Reporter v1.23.1

- Load Testing: Apache JMeter v5.6.3

Network Configuration:

- Bandwidth: 100 Mbps

4. Test Execution Metrics

- Total Test Cases Written: 78
- Total API Endpoints Tested: 78
- Total Test Cases Executed: 78
- Passed Test Cases: 64
- Failed Test Cases: 14
- Blocked Test Cases: 0

Status	Count
Passed	64
Failed	14
Blocked	0

5. Defect Summary

Bug ID	Defect Description	Severity	Status
Bug_001	Lacks Clear Error Message for Empty Name Field on Register User.	Normal	Open
Bug_002	Lacks Clear Error Message for Empty Email Field on Register User.	Normal	Open
Bug_003	Lacks Clear Error Message for Empty Password Field on Register User.	Normal	Open
Bug_004	Lacks Clear Error Message for All Empty Mandatory Field on Register User.	Normal	Open
Bug_005	Register is successful despite password being weak.	Critical	Open
Bug_006	Lacks Clear Error Message for Empty Email Field on Login User.	Normal	Open
Bug_007	Lacks Clear Error Message for Empty Password Field on Login User.	Normal	Open
Bug_008	Lacks Clear Error Message for All Empty Mandatory Field on Login User.	Normal	Open
Bug_009	Lacks Clear Error Message while attempting to update a user profile with Empty mandatory fields	Normal	Open
Bug_010	Failed to Send Email Link for Resetting Password Despite 200-Status Code.	Critical	Open
Bug_011	Allows Weak Passwords without proper validation during Password Update.	Critical	Open
Bug_012	Lacks Clear Error Message for Creation of Note with Empty Mandatory field.	Normal	Open
Bug_013	Lacks Clear Error Message for Creation of Multiple Notes at the same time.	Normal	Open
Bug_014	Lacks Clear Error Message for updating the Note by id where there is empty payload body	Normal	Open

6. Test Coverage

Due to the lack of documentation for identifying and analyzing the total number of functionalities, they have been generated hypothetically and randomly. However, all other data on the metrics have been thoroughly tested for accuracy.

- Total Functionalities: 78
- Tested Functionalities: 78
- API Test Coverage = (Tested Functionalities/ Total Functionalities) * 100 = 100 %

7. Test Metrics Summary

Metric	Value
Total Functionalities	78
Tested Functionalities	78
API Test Coverage	100 %
Total Test Case Written	78
Total Test Case Executed	78
Pass Rate	82.05 %
Failure Rate	17.94 %

8. Conclusion

The testing phase for the Swagger Note API has been completed successfully, with an **82.05% pass rate** and a **17.94% failure rate** for the test cases. However, **3 high-severity** and **11 medium-severity defects** remain unresolved and should be prioritized for fixing in the next update.

In addition, during the load test simulation with **50 Virtual Users** it failed on a 100 Mbps internet connection. The highest average time taken was for the "Register User" endpoint, which recorded an average of 4066.16 ms, while the "Delete User" endpoint had a lower average time of 1176.52 ms. The maximum time recorded was also for the "Register User" endpoint, at 4806 ms, whereas the minimum time taken was 696 ms for the "Get User Profile" endpoint

This indicates that the application does not perform well under the simulated load conditions, highlighting its lack of robustness and responsiveness when subjected to concurrent user activity

Test Closure Report for Swagger Note API

Estimated Time vs Actual Time

ENDPOINT	ESTIMATED	AVERAGE	MINUMUM	MAXIMUM
Health check	50 – 150 ms	3816.82	2832	3916.00
Register user	300 – 700 ms	4066.16	2106	4806
Login user	300 – 700 ms	3067.68	831	4300
Get user profile	150 – 400 ms	1294.22	696	1676
Forget password	300 – 700 ms	1466.12	734	1752.00
Logout	50 - 200 ms	2165.46	740	3169
Delete account	300 - 600 ms	1176.52	820	962.00
Create Note 1	300 – 600 ms	2335.40	747	3753
Create Note 2	300 – 600 ms	1737.60	745	1844.50
Get all Notes	300 - 1000 ms	1552.82	732	3498
Get the note by ID	150 - 400 ms	1497.22	706	1862
Update an existing note	300 – 600 ms	1554.08	746	1984
Update the completed status of note	300 - 600 ms	1431.18	736	1876
Delete note by ID	300 - 600 ms	1206.62	744	1337.00

9. Recommendations

- Defect Resolution: Address and resolve the identified defects, particularly those marked as high severity.
- Retesting: Retest the APIs that were marked as defects and fixed.
- Regression Testing: Conduct regression after defect fixes to ensure no new issues have been introduced.
- Load Testing: Analyze the load test results to pinpoint specific areas where response times exceeded expectations, focusing on endpoints that are underperforming and implementing the optimization.