**API Testing Report**

**Project Name:** FinanceMan Dashboard

**Testing Type:** API Testing

**Tested By:** Stephen Chitaranjan B

**Test Date:** December 13, 2024

**Testing Tool:** Postman

### **Summary**

The objective of this API testing is to validate the functionality, reliability, and security of the backend services for the FinanceMan Dashboard. This includes authentication, retrieving financial data, transaction history, search functionality, and error handling.

**Test Cases Executed**

| **Test Case ID** | **Test Case Description** | **Status** | **Expected Outcome** | **Actual Outcome** |
| --- | --- | --- | --- | --- |
| API\_TC001 | Verify user login functionality | Passed | Status code 200, authentication token returned | Status code 200, token returned |
| API\_TC002 | Verify user logout functionality | Passed | Status code 200, success message returned | Status code 200, success message received |
| API\_TC003 | Verify retrieval of user financial data | Passed | Status code 200, correct financial data (balance) | Status code 200, balance and expenses data received |
| API\_TC004 | Verify retrieval of transaction history | Passed | Status code 200, transaction list returned | Status code 200, transaction details received |
| API\_TC005 | Verify search functionality for transactions | Passed | Status code 200, filtered list based on search keyword | Status code 200, correct search results returned |
| API\_TC006 | Verify error handling for invalid inputs | Passed | Status code 400, appropriate error message | Status code 400, error message displayed |

### **Execution Summary**

* Total Test Cases Executed: 6
* Test Cases Passed: 6
* Test Cases Failed: 0
* Test Cases Blocked: 0
* Test Cases Skipped: 0

### **Test Results Overview**

* **Authentication API (API\_TC001)**: The user login functionality was tested successfully, with correct responses for valid login credentials, including the expected authentication token.
* **Logout API (API\_TC002)**: The user logout functionality was tested and returned the expected response, confirming the logout operation was successful.
* **Financial Data API (API\_TC003)**: The financial data retrieval was successful, with the correct balance, income, and expenses data returned for the user.
* **Transaction History API (API\_TC004)**: The transaction history API returned the correct list of transactions, including the transaction amount, type, and date.
* **Search API (API\_TC005)**: The search API functionality worked correctly, returning a list of filtered transactions based on the search keyword (e.g., "Rent").
* **Error Handling API (API\_TC006)**: The error handling was tested with invalid inputs (e.g., empty fields or incorrect parameters), and the system correctly responded with a 400 error code and appropriate error messages.

**Performance Testing Results**

* **Response Time for Each API:**
  + Authentication API: 1.2 seconds
  + Financial Data API: 1.5 seconds
  + Transaction History API: 1.8 seconds
  + Search API: 1.0 seconds
  + Error Handling API: 0.8 seconds
* **Conclusion:** All APIs responded within an acceptable time frame (under 2 seconds), which indicates good performance.

### **Security Testing**

* **Authentication**: All endpoints requiring authentication returned a 401 Unauthorized status when the authentication token was not included or invalid.
* **Input Validation**: The system correctly rejected invalid inputs such as empty fields, invalid parameters, and negative values, ensuring robust error handling.
* **Data Protection**: Sensitive data (such as the authentication token and financial data) was handled securely, and no sensitive information was exposed in the API responses.

### **Next Steps & Recommendations**

1. **Regression Testing**: After any future updates or changes to the backend services, it is recommended to run a full regression suite to ensure no existing functionality is broken.
2. **Performance Testing**: While the current performance is acceptable, further load testing should be conducted to verify the APIs' performance under heavy traffic.
3. **Security Testing**: Further security assessments, such as penetration testing and vulnerability scans, should be conducted regularly to ensure the security of sensitive data.

### **Conclusion**

The FinanceMan Dashboard APIs have passed all functional tests with a 100% success rate. The APIs are reliable, secure, and perform within the expected parameters. All the required functionality, including authentication, data retrieval, transaction history, and error handling, works as expected.

**Tested By**:  
Stephen Chitaranjan B  
Test Lead  
13/12/2024