API Testing & Validation

This document presents the results of testing the API endpoints. Each section contains the request, the corresponding screenshot, and a short explanation.

1. Successful GET Request (All Transactions)

Request: Retrieve all transactions with valid credentials.

.*EN#", "financial_transaction_id": "", "service_center": "+250788110383", "fee": ""}, {"transaction_id": "", "type": "1", "amount"
"", "sender": "M-Money", "receiver": "", "timestamp": "31 Dec 2024 8:13:38 PM", "new_balance": "", "message": "*165*S*5000 RWF tran
ferred to Linda Green (250791666666) from 36521838 at 2024-12-31 20:13:31 . Fee was: 100 RWF. New balance: 80262 RWF. Kugura ama ini
e cg interineti kuri MoMo, Kanda *182*2*1# .*EN#", "financial_transaction_id": "", "service_center": "+250788110383", "fee": ""}, {"
ransaction_id": "11689124968", "type": "1", "amount": "", "sender": "M-Money", "receiver": "", "timestamp": "31 Dec 2024 11:57:02 PM
, "new_balance": "", "message": "TxId: 11689124968. Your payment of 14,000 RWF to Alex Doe 20492 has been completed at 2024-12-31 23
56:53. Your new balance: 66,262 RWF. Fee was 0 RWF.", "financial_transaction_id": "11689124968", "service_center": "+250788110383",
fee": ""}, {"transaction_id": "", "type": "1", "amount": "", "sender": "M-Money", "receiver": "", "timestamp": "1 Jan 2025 1:38:12 P
", "new_balance": "", "message": "*165*S*21000 RWF transferred to Samuel Carter (250790777777) from 36521838 at 2025-01-01 13:38:05
Fee was: 250 RWF. New balance: 45012 RWF. Kugura ama inite cg interineti kuri MoMo, Kanda *182*2*1# .*EN#", "financial_transaction_
d": "", "service_center": "+250788110383", "fee": ""}, {"transaction_id": "35592207581", "type": "1", "amount": "", "sender": "M-Mon
y", "receiver": "", "timestamp": "1 Jan 2025 8:45:08 PM", "new_balance": "", "message": "TxId: 35592207581. Your payment of 11,800 R
WF to Jane Smith 85059 has been completed at 2025-01-01 20:44:56. Your new balance: 33,212 RWF. Fee was 0 RWF.", "financial_transacti
n_id": "35592207581", "service_center": "+250788110383", "fee": ""}, {"transaction_id": "66251081197", "type": "1", "amount": "", "s
nder": "M-Money", "receiver": "", "timestamp": "2 Jan 2025 2:00:10 PM", "new_balance": "", "message": "You have received 343136 RWF
rom Robert Brown (*********683) on your mobile money account at 2025-01-02 14:00:02. Message from sender: . Your new balance:376348
RWF. Financial Transaction Id: 66251081197.", "financial_transaction_id": "66251081197", "service_center": "+250788110383", "fee": ""
, {"transaction_id": "17841214930", "type": "1", "amount": "", "sender": "M-Money", "receiver": "", "timestamp": "2 Jan 2025 2:03:56
PM", "new_balance": "", "message": "*162*TxId:17841214930*S*Your payment of 322726 RWF to WASAC with token 888931 has been completed
at 2025-01-02 14:03:47. Fee was 300 RWF. Your new balance: 53322 RWF . Message: - -. *EN#", "financial_transaction_id": "17841214930
, "service_center": "+250788110383", "fee": ""}, {"transaction_id": "", "type": "1", "amount": "", "sender": "M-Money", "receiver":
", "timestamp": "2 Jan 2025 2:11:06 PM", "new_balance": "", "message": "*165*S*3000 RWF transferred to Jane Smith (250790777777) fro
36521838 at 2025-01-02 14:10:38 . Fee was: 100 RWF. New balance: 50222 RWF. Kugura ama inite cg interineti kuri MoMo, Kanda *182*2*
.*EN#", "financial_transaction_id": "", "service_center": "+250788110383", "fee": ""}, {"transaction_id": "48873092706", "type": "
", "amount": "", "sender": "M-Money", "receiver": "", "timestamp": "2 Jan 2025 2:43:22 PM", "new_balance": "", "message": "TxId: 488
3092706. Your payment of 2,000 RWF to Alex Doe 29339 has been completed at 2025-01-02 14:43:15. Your new balance: 48,222 RWF. Fee wa
0 RWF.", "financial_transaction_id": "48873092706", "service_center": "+250788110383", "fee": ""}, {"transaction_id": "56839942126"
"type": "1", "amount": "", "sender": "M-Money", "receiver": "", "timestamp": "2 Jan 2025 2:53:29 PM", "new_balance": "", "message":
"TxId: 56839942126. Your payment of 300 RWF to Linda Green 43036 has been completed at 2025-01-02 14:53:18. Your new balance: 47,922
RWF. Fee was 0 RWF.", "financial_transaction_id": "56839942126", "service_center": "+250788110383", "fee": ""}, {"transaction_id": "
2394883480", "type": "1", "amount": "", "sender": "M-Money", "receiver": "", "timestamp": "2 Jan 2025 6:55:40 PM", "new_balance": ""
"message": "TxId: 82394883480. Your payment of 12,000 RWF to Linda Green 15355 has been completed at 2025-01-02 18:55:32. Your new
balance: 35,922 RWF. Fee was 0 RWF.", "financial_transaction_id": "82394883480", "service_center": "+250788110383", "fee": ""}, {"tra

```
PS C:\Users\frank\Searches\Group-5-C3> & C:/Users/frank/AppData/Local/Microsoft/WindowsApps/python3.13.exe c:/Users/frank/
Searches/Group-5-C3/http_server.py
Starting server at http://0.0.0.0:8000
127.0.0.1 - - [28/Sep/2025 03:00:16] "GET /transactions HTTP/1.1" 200 -
```

The request returned all stored transactions successfully with status code **200 OK**. The response body contained a list of transactions in JSON format.

2. Unauthorized Request (Wrong Credentials)

Request: Access the API using invalid credentials.

```
C:\Users\frank>curl -u Tom:alu@321 http://127.0.0.1:8080/transactions
401 Unauthorized
```

The API returned status code **401 Unauthorized**, showing that authentication is enforced and only valid credentials work.

3. Successful POST Request (Create Transaction)

Request: Add a new transaction.

```
C:\Users\frank>curl.exe -u admin:alu@123 -X POST http://localhost:8080/transactions -H "Content-Type: application/json" -d "{ \"trans
action_id\":\"987654321\", \"type\":\"deposit\", \"amount\":\"3800\", \"sender\":\"M-Money\", \"receiver\":\"Jane Smith\", \"timestam
p\":\"01 Oct 2025 12:45:00 PM\", \"new_balance\":\"98000\", \"message\":\"TxId: 987654321. Your payment of 3,800 RWF to Jane Smith ha
s been completed at 2025-10-01 12:45:00. Your new balance: 98,000 RWF. Fee was 0 RWF.\", \"financial_transaction_id\":\"987654321\",
\"service_center\":\"+250788110383\", \"fee\":\"0\" }"
{"transaction_id": "987654321", "type": "deposit", "amount": "3800", "sender": "M-Money", "receiver": "Jane Smith", "timestamp": "01
Oct 2025 12:45:00 PM", "new_balance": "98000", "message": "TxId: 987654321. Your payment of 3,800 RWF to Jane Smith has been complete
d at 2025-10-01 12:45:00. Your new balance: 98,000 RWF. Fee was 0 RWF.", "financial_transaction_id": "987654321", "service_center": "
+250788110383", "fee": "0"}
C:\Users\frank>
```

The new transaction was created successfully with status code **201 Created**. The response body displayed the newly created record.

4. Successful PUT Request (Update Transaction)

Request: Update transaction with ID.

```
C:\Users\frank>curl.exe -u admin:alu@123 -X PUT http://localhost:8080/transactions/987654321 -H "Content-Type: application/json" -d "
{\"transaction_id\":\"987654321\",\"type\":\"deposit\",\"amount\":\"4000\",\"sender\":\"M-Money\",\"receiver\":\"Jane Smith\",\"times
tamp\":\"01 Oct 2025 12:45:00 PM\",\"new_balance\":\"98400\",\"message\":\"TxId: 987654321. Your payment of 4,000 RWF to Jane Smith h
as been updated.\",\"financial_transaction_id\":\"987654321\",\"service_center\":\"+250788110383\",\"fee\":\"0\"}"
{"transaction_id": "987654321", "type": "deposit", "amount": "4000", "sender": "M-Money", "receiver": "Jane Smith", "timestamp": "01
Oct 2025 12:45:00 PM", "new_balance": "98400", "message": "TxId: 987654321. Your payment of 4,000 RWF to Jane Smith has been updated.
", "financial_transaction_id": "987654321", "service_center": "+250788110383", "fee": "0"}
C:\Users\frank>
C:\Users\frank>
C:\Users\frank>curl.exe -u admin:alu@123 http://localhost:8080/transactions/987654321
{"transaction_id": "987654321", "type": "deposit", "amount": "4000", "sender": "M-Money", "receiver": "Jane Smith", "timestamp": "01
Oct 2025 12:45:00 PM", "new_balance": "98400", "message": "TxId: 987654321. Your payment of 4,000 RWF to Jane Smith has been updated.
", "financial_transaction_id": "987654321", "service_center": "+250788110383", "fee": "0"}
C:\Users\frank>
```

The transaction was updated successfully.

5. Successful DELETE Request (Remove Transaction)

Request: Delete an existing transaction.

```
C:\Users\frank>curl.exe -u admin:alu@123 -X DELETE http://localhost:8080/transactions/987654321
Transaction deleted
C:\Users\frank>curl.exe -u admin:alu@123 http://localhost:8080/transactions/987654321
Transaction not found
C:\Users\frank>
```

The transaction was deleted successfully. The response was confirmed with a success message.

Summary

- Authentication is enforced (only valid credentials succeed).

- CRUD operations (**Create, Read, Update, Delete**) are all functioning correctly.

- Error handling is clear and descriptive (e.g., Unauthorized requests return proper errors).