National College of Ireland

Configuration Manual

MSc Research Project
MScCyb

Oisín O'Laighín
Student ID: x19483314

School of Computing
National College of Ireland

Supervisor: Rohit Verma

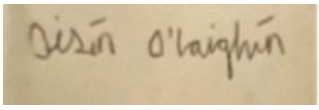
National College of Ireland

MSc Project Submission Sheet

School of Computing

Student Name:	Oisín O'Laighín
Student ID:	X19483314
Programme:	MScCyb1_B **Year:** 24/25
Module:	Practium 2
Lecturer:	Rohit Verma
Submission Due Date:	11/08/25
Project Title:	Configuration Manual for Cryptally
Word Count:	227 **Page Count:** 2

I hereby certify that the information contained in this (my submission) is information pertaining to research I conducted for this project. All information other than my own contribution will be fully referenced and listed in the relevant bibliography section at the rear of the project.
ALL internet material must be referenced in the bibliography section. Students are required to use the Referencing Standard specified in the report template. To use other author's written or electronic work is illegal (plagiarism) and may result in disciplinary action.

Signature: 

Date: 11/08/23

PLEASE READ THE FOLLOWING INSTRUCTIONS AND CHECKLIST

Attach a completed copy of this sheet to each project (including multiple copies)	□
Attach a Moodle submission receipt of the online project submission, to each project (including multiple copies).	□
You must ensure that you retain a HARD COPY of the project, both for your own reference and in case a project is lost or mislaid. It is not sufficient to keep a copy on computer.	□

Assignments that are submitted to the Programme Coordinator Office must be placed into the assignment box located outside the office.

Office Use Only	
Signature:	
Date:	

Penalty Applied (if applicable):	

Configuration Manual for CrypTally

Oisín O'Laighín
Student ID: x19483314

1 System Requirements

Python: 3.10+

Dependencies:
Pip install flask python-dotenv pyjwt bcrypt cryptogragraphy

2 Environment Setup

.env file
Create .env in the project root with:

- JWT_SECRET_KEY=your_secure_jwt_secret_here (approx. 32 chars)
- FERNET_KEY=your_fernet_key_here (Generated with "Fernet.generate_key()")

3 File Structure

/cryptally
    App.py
    .env

Data/
    Test_voters.csv (voter credentials)
    Votes.csv (encrypted votes)
    Vote_chain.csv (ledger)
    Voted_emails.txt (prevents double-voting)
    Used_tokens.txt (JWT cache)

Templates/
    Admin.html
    User.html

4 Initial Setup

4.1 Voter Registration

Put voters in test_vote.csv
Example:
voter1@example.com,$2b$12$hashed_password_here

To generate hashed passwords:
import bcrypt
hashed = bcrypt.hashpw(b"plaintext_password", bcrypt.gensalt()).decode()

4.2 Run

python app.py (Starts Flask server at http://localhost:5000)

5 Key EndPoints

Endpoint	Method	Description
/login	POST	Authenticate voters (returns JWT)
/vote	POST	Submit encrypted vote
/tally	GET	Decrypt and count votes
/verify_blockchain	GET	Validate blockchain integrity
/admin	GET	Admin dashboard (requires JWT)

6 Security

6.1 JWT Settings

Expiration adjusted in app.py (default is 10mins)
Should look like this:

```
payload = {
   "email": email,
   "exp": datetime.utcnow() + timedelta(minutes=10),
   "jti": str(uuid.uuid4())
}
```

6.2 Fernet

Rotate the keys every so often.
To generate a new one:

```
from cryptography.fernet import Fernet
Fernet.generate_key()  # Update in .env
```

Re-encrypt existing votes if needed.

7 Maintenance

7.1 Backup important files

Regular get backups of:

- vote_chain.csv (blockchain integrity)
- voted_emails.txt (prevent revoting)

7.2 Logging

Performance metrics are logged to performance_log.csv (format: timestamp,endpoint,duration_seconds).

Appendix A: Sample test_voters.csv

```
email,password
admin@example.com,$2b$12$E3ixOfnQV5/8TV8g1Qr0.9Xh5YJlX5xW3l6Dc6Dq9JkZ1JQa0n2mK
```

Appendix B: Generating Fernet Keys

```
from cryptography.fernet import Fernet
print(Fernet.generate_key().decode())  # Add to .env
```

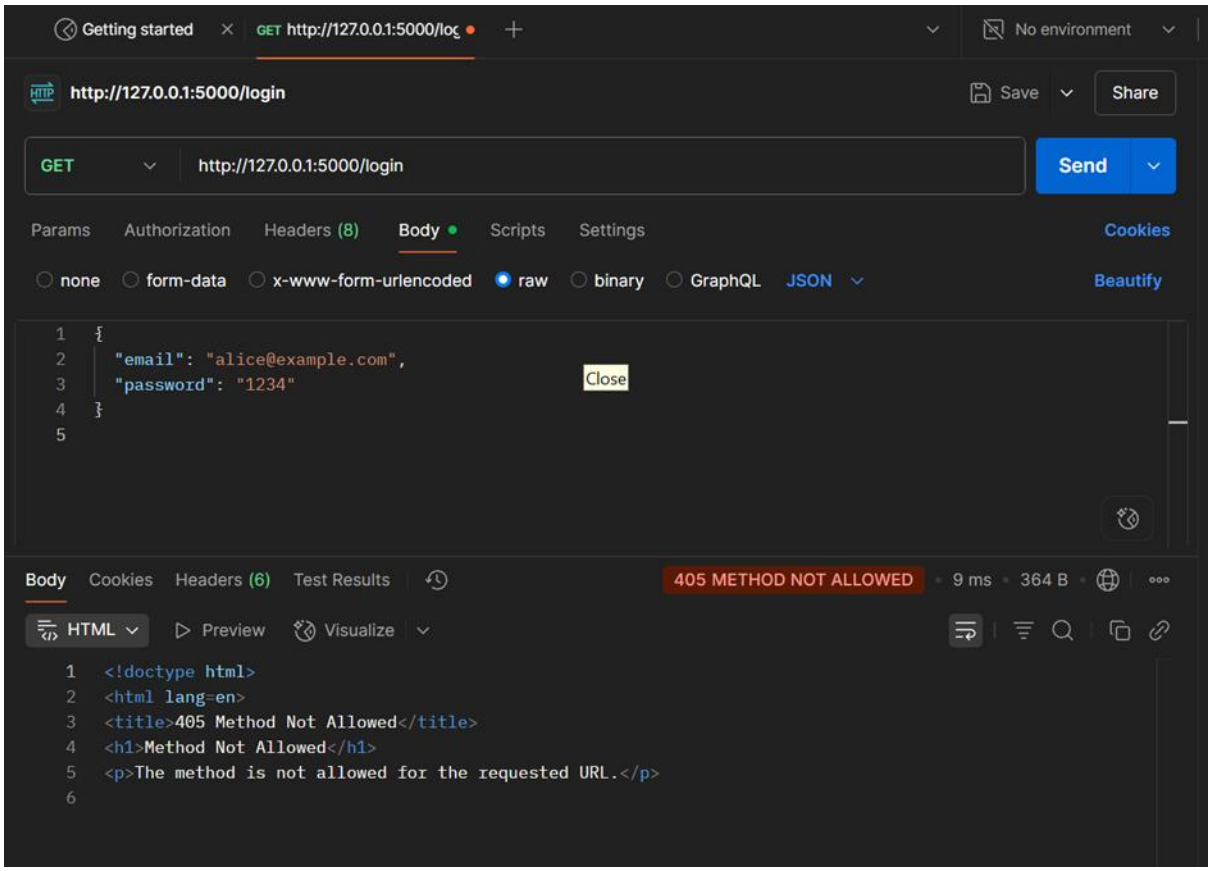
Appendix C: Versions

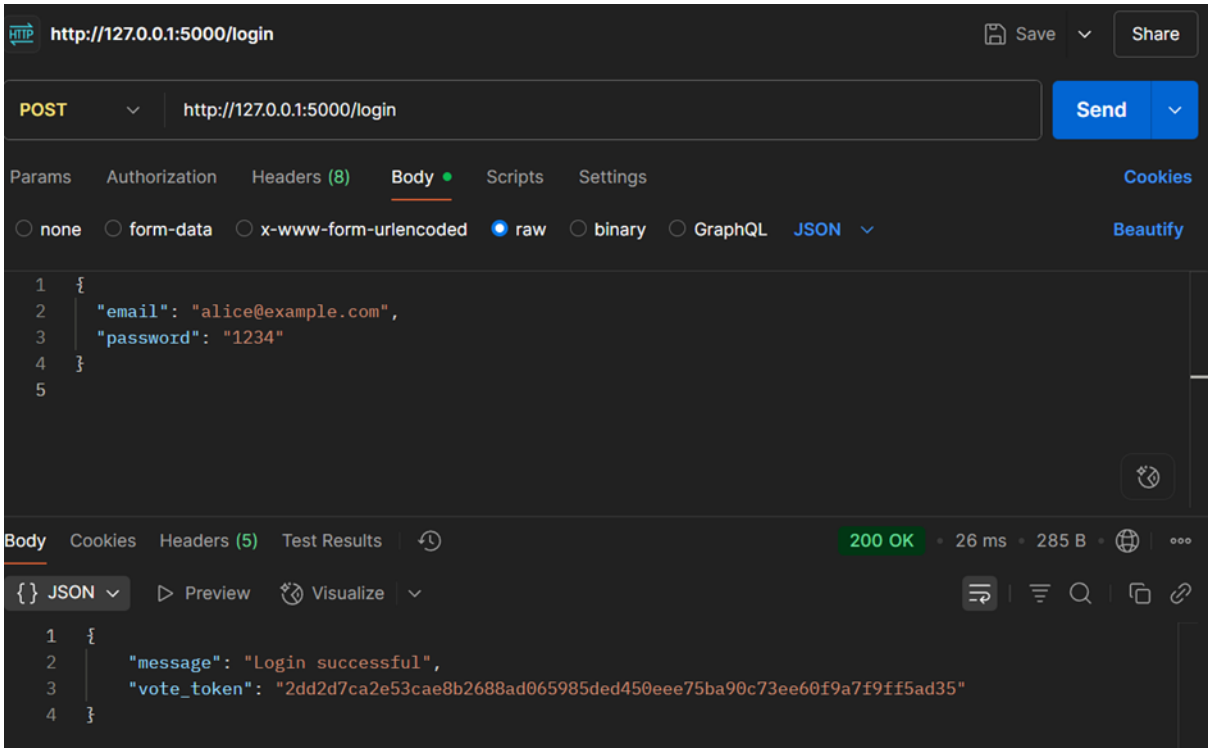
Versions

V1:function

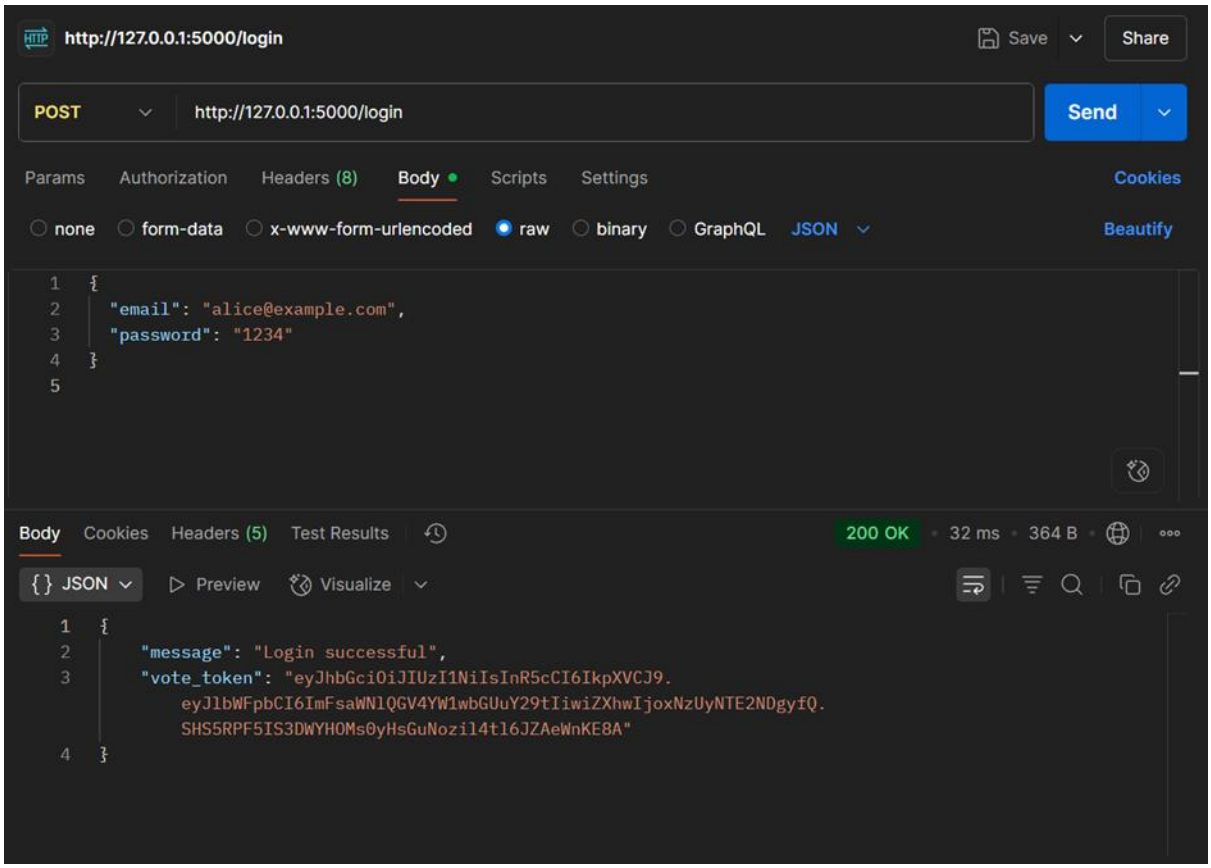
Not Found

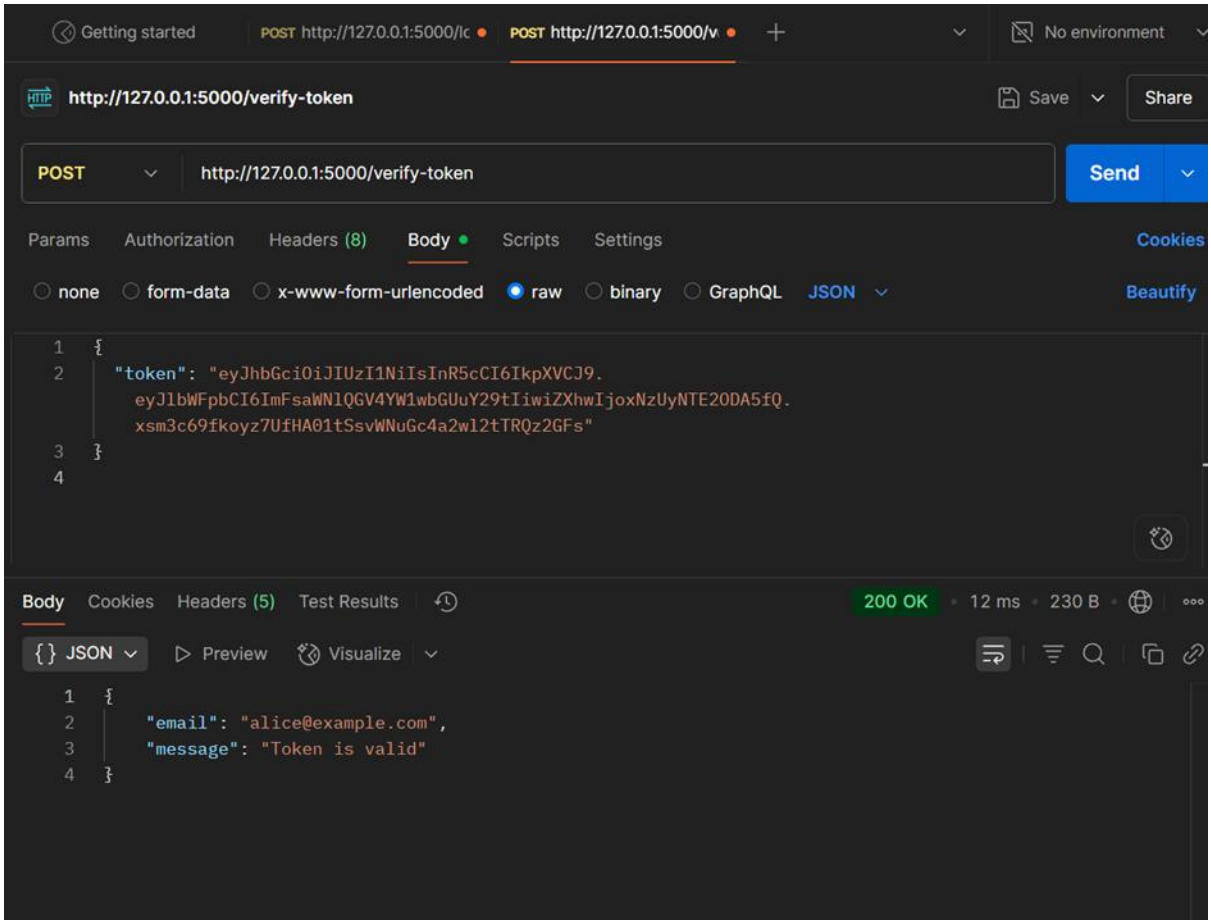
The requested URL was not found on the server. If you entered the URL manually please check your spelling and try again.



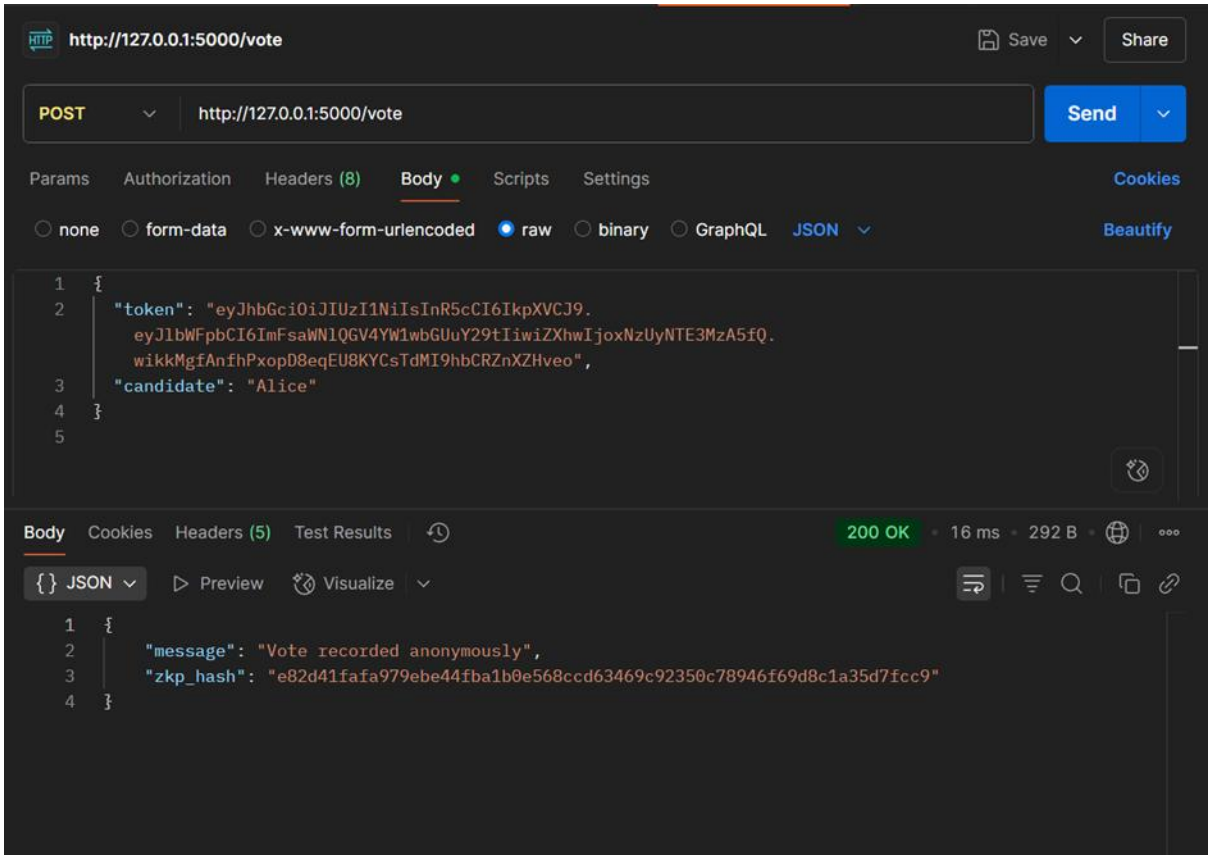

http://127.0.0.1:5000/login
Save
Share
POST
http://127.0.0.1:5000/login
Send
Params
Authorization
Headers (8)
Body
Scripts
Settings
Cookies
none
form-data
x-www-form-urlencoded
raw
binary
GraphQL
JSON
Beautify
{
"email": "alice@example.com",
"password": "1234"
}
Body
Cookies
Headers (5)
Test Results
200 OK
26 ms
285 B
{} JSON
Preview
Visualize
{
"message": "Login successful",
"vote_token": "2dd2d7ca2e53cae8b2688ad065985ded450eee75ba90c73ee60f9a7f9ff5ad35"
}

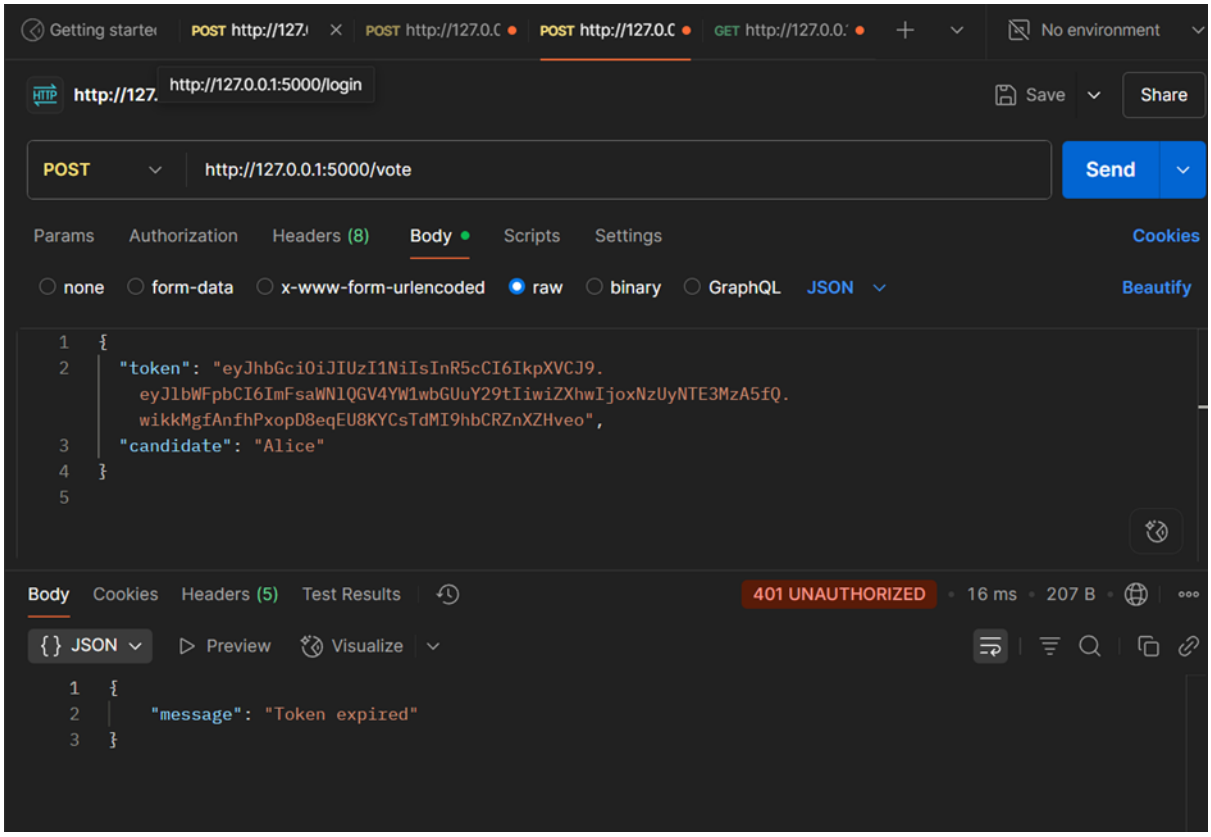
Version 2

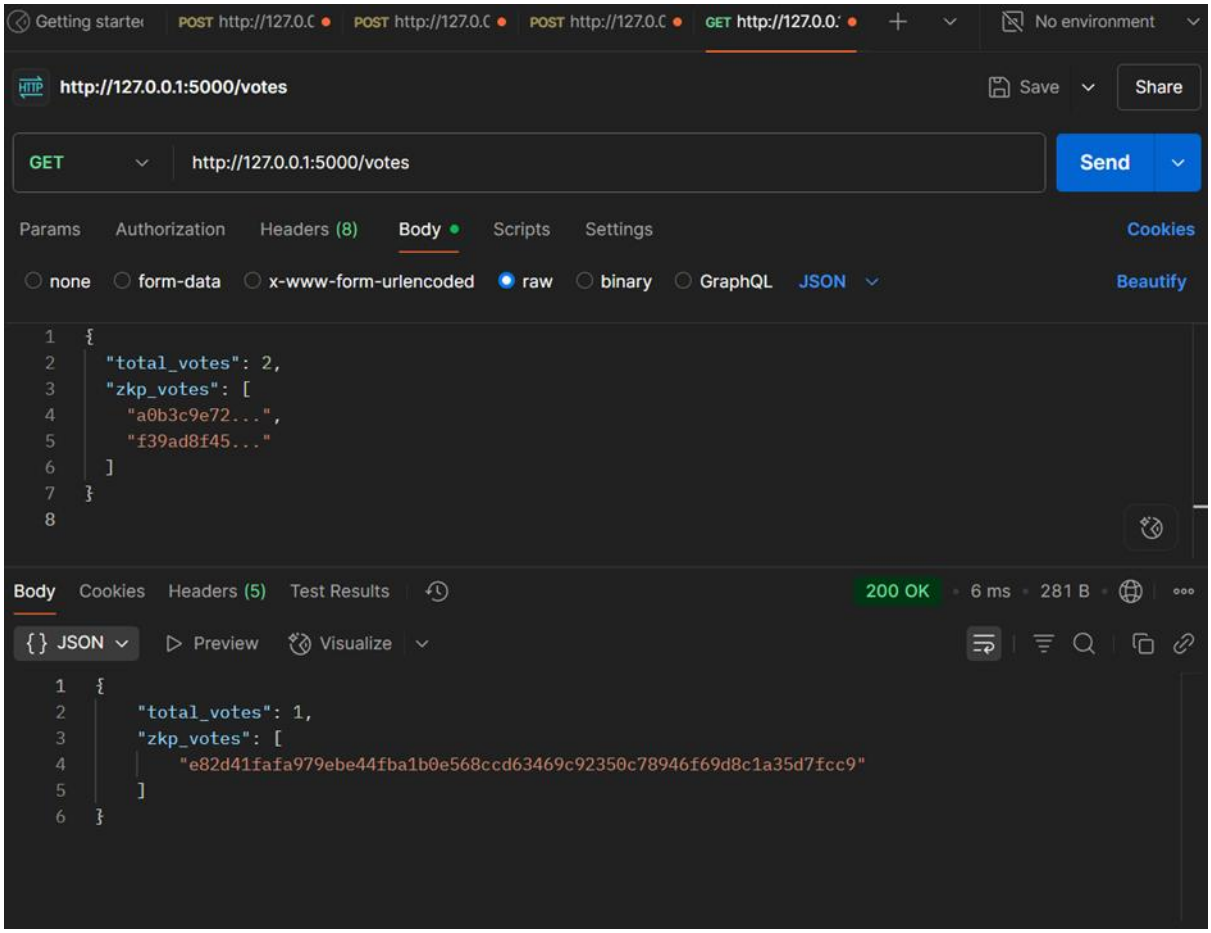

http://127.0.0.1:5000/login
Save
Share
POST
http://127.0.0.1:5000/login
Send
Params
Authorization
Headers (8)
Body
Scripts
Settings
Cookies
none
form-data
x-www-form-urlencoded
raw
binary
GraphQL
JSON
Beautify
{
"email": "alice@example.com",
"password": "1234"
}
Body
Cookies
Headers (5)
Test Results
200 OK
32 ms
364 B
JSON
Preview
Visualize
{
"message": "Login successful",
"vote_token": "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.
eyJlbWFpbCI6ImFsaWNlQGV4YW1wbGUuY29tIiwiZXhwIjoxNzUyNTE2NDgyfQ.
SHS5RPF5IS3DWYHOMs0yHsGuNozil4tl6JZAeWnKE8A"
}


Getting started
POST http://127.0.0.1:5000/lc
POST http://127.0.0.1:5000/v
No environment
http://127.0.0.1:5000/verify-token
Save
Share
POST
http://127.0.0.1:5000/verify-token
Send
Params
Authorization
Headers (8)
Body
Scripts
Settings
Cookies
none
form-data
x-www-form-urlencoded
raw
binary
GraphQL
JSON
Beautify
{
"token": "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.
eyJlbWFpbCI6ImFsaWNlQGV4YW1wbGUuY29tIiwiZXhwIjoxNzUyNTE2ODA5fQ.
xsm3c69fkoyz7UfHA01tSsvWNuGc4a2wl2tTRQz2GFs"
}
Body
Cookies
Headers (5)
Test Results
200 OK
12 ms
230 B
JSON
Preview
Visualize
{
"email": "alice@example.com",
"message": "Token is valid"
}

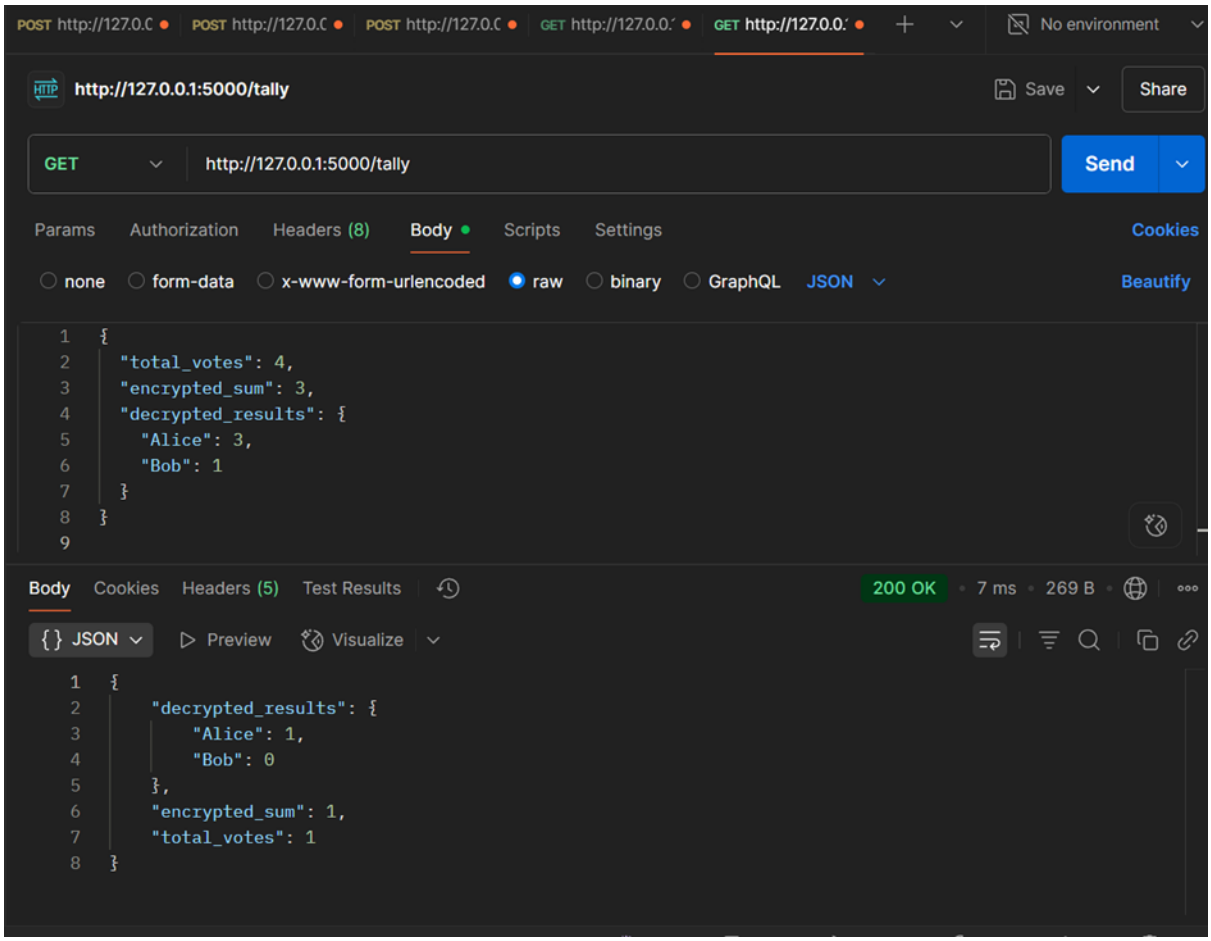
Version 3


http://127.0.0.1:5000/vote
Save
Share
POST
http://127.0.0.1:5000/vote
Send
Params
Authorization
Headers (8)
Body
Scripts
Settings
Cookies
none
form-data
x-www-form-urlencoded
raw
binary
GraphQL
JSON
Beautify
{
"token": "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.
eyJlbWFpbCI6ImFsaWN1QGV4YW1wbGUuY29tIiwiZXhwIjoxNzUyNTE3MzA5fQ.
wikkMgfAnfhPxopD8eqEU8KYCsTdMI9hbCRZnXZHveo",
"candidate": "Alice"
}
Body
Cookies
Headers (5)
Test Results
200 OK
16 ms
292 B
JSON
Preview
Visualize
{
"message": "Vote recorded anonymously",
"zkp_hash": "e82d41fafa979ebe44fba1b0e568ccd63469c92350c78946f69d8c1a35d7fcc9"
}

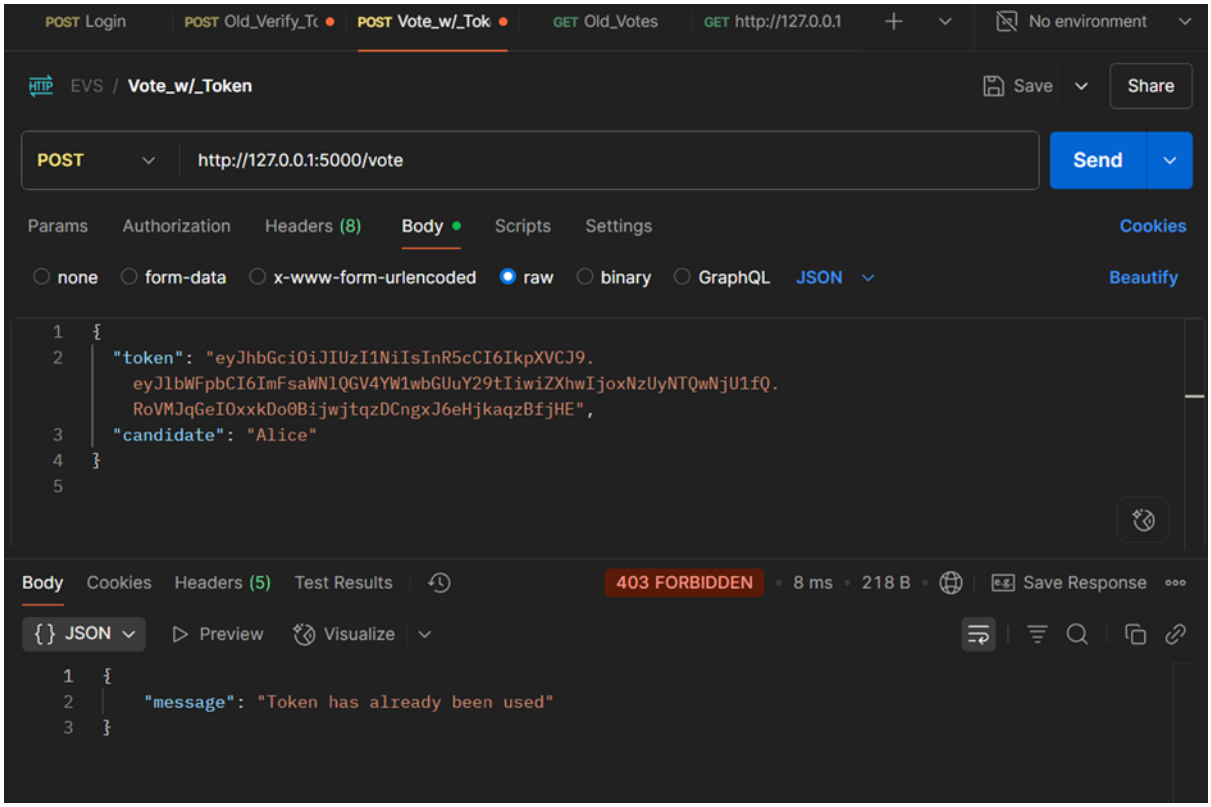

Getting starte
POST http://127.
POST http://127.0.0.1:5000/login
GET http://127.0.0.
No environment
http://127.
Save
Share
POST
http://127.0.0.1:5000/vote
Send
Params
Authorization
Headers (8)
Body
Scripts
Settings
Cookies
none
form-data
x-www-form-urlencoded
raw
binary
GraphQL
JSON
Beautify
{
"token": "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.
eyJlbWFpbCI6ImFsaWN1QGV4YW1wbGUuY29tIiwiZXhwIjoxNzUyNTE3MzA5fQ.
wikkMgfAnfhPxopD8eqEU8KYCsTdMI9hbCRZnXZHveo",
"candidate": "Alice"
}
Body
Cookies
Headers (5)
Test Results
401 UNAUTHORIZED
16 ms
207 B
JSON
Preview
Visualize
{
"message": "Token expired"
}


Getting starte
POST http://127.0.0
POST http://127.0.0
POST http://127.0.0
GET http://127.0.0.
No environment
http://127.0.0.1:5000/votes
Save
Share
GET
http://127.0.0.1:5000/votes
Send
Params
Authorization
Headers (8)
Body
Scripts
Settings
Cookies
none
form-data
x-www-form-urlencoded
raw
binary
GraphQL
JSON
Beautify
{
"total_votes": 2,
"zkp_votes": [
"a0b3c9e72...",
"f39ad8f45..."
]
}
Body
Cookies
Headers (5)
Test Results
200 OK
6 ms
281 B
{} JSON
Preview
Visualize
{
"total_votes": 1,
"zkp_votes": [
"e82d41fafa979ebe44fba1b0e568ccd63469c92350c78946f69d8c1a35d7fcc9"
]
}

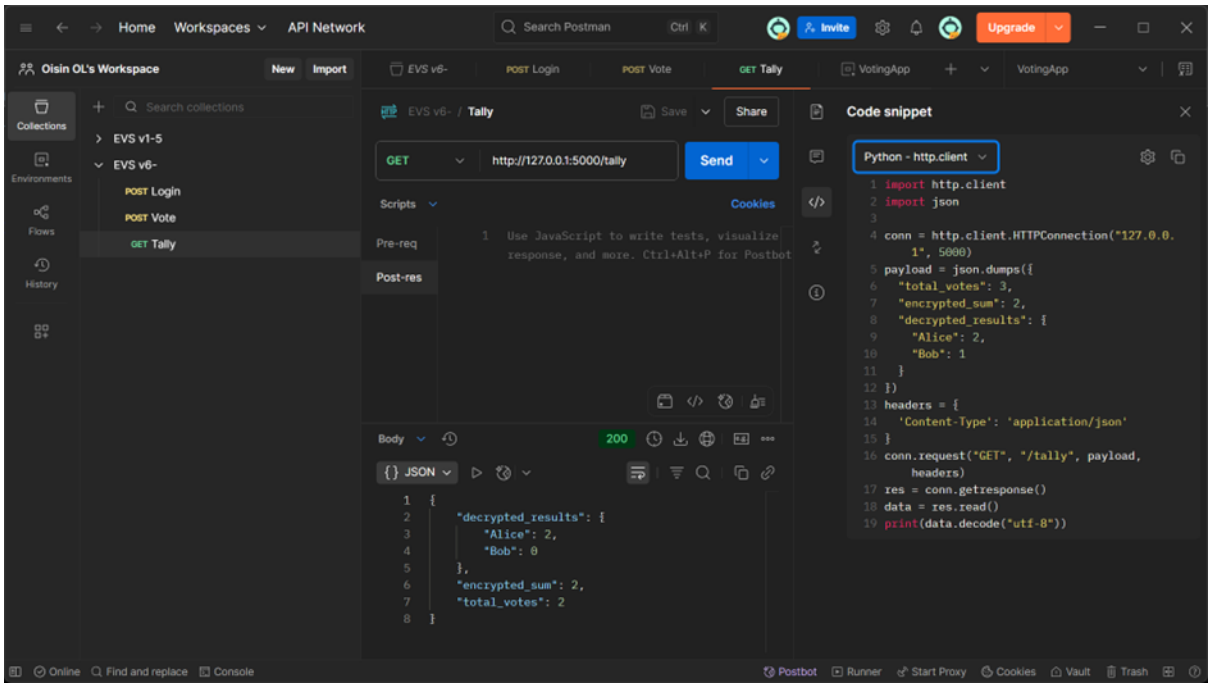
Version 4



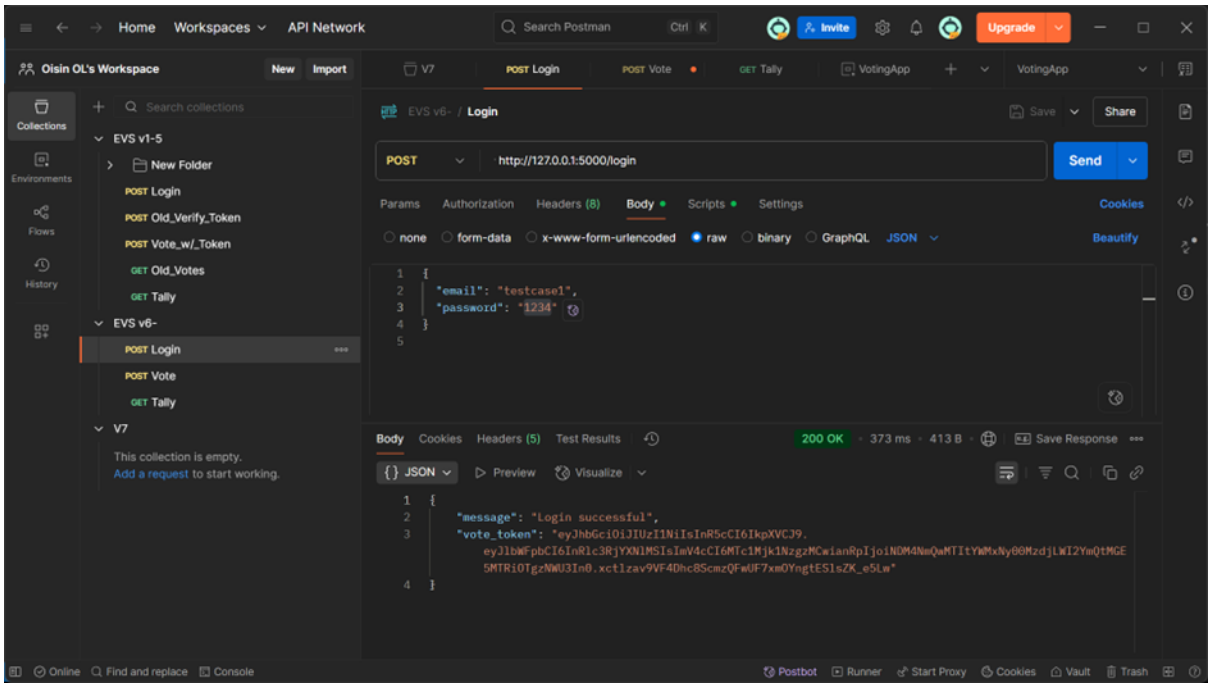
Version 5

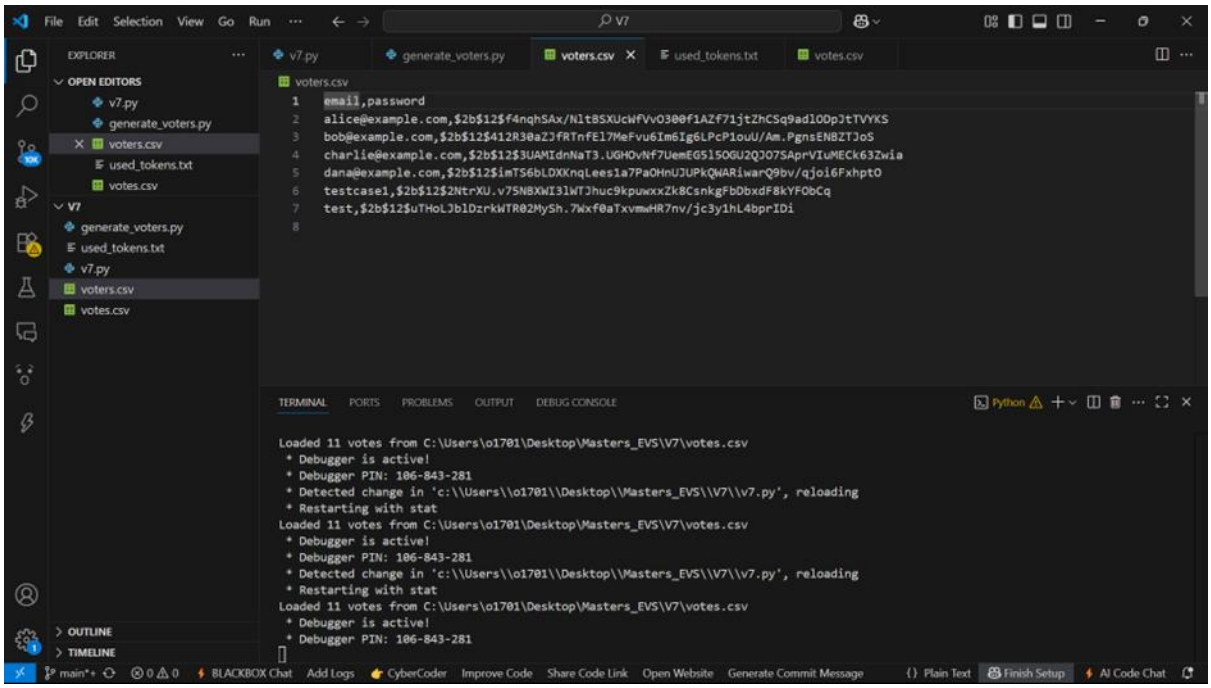

POST Login
POST Old_Verify_Tc
POST Vote_w/_Tok
GET Old_Votes
GET http://127.0.0.1
No environment
EVS / Vote_w/_Token
Save
Share
POST
http://127.0.0.1:5000/vote
Send
Params
Authorization
Headers (8)
Body
Scripts
Settings
Cookies
none
form-data
x-www-form-urlencoded
raw
binary
GraphQL
JSON
Beautify
{
"token": "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.
eyJlbWFpbCI6ImFsaWNlQGV4YW1wbGUuY29tIiwiZXhwIjoxNzUyNTQwNjU1fQ.
RoVMJqGeIOxxkDo0Bijwjtqz DCngxJ6eHjkaqzBfjHE",
"candidate": "Alice"
}
Body
Cookies
Headers (5)
Test Results
403 FORBIDDEN
8 ms
218 B
Save Response
{} JSON
Preview
Visualize
{
"message": "Token has already been used"
}

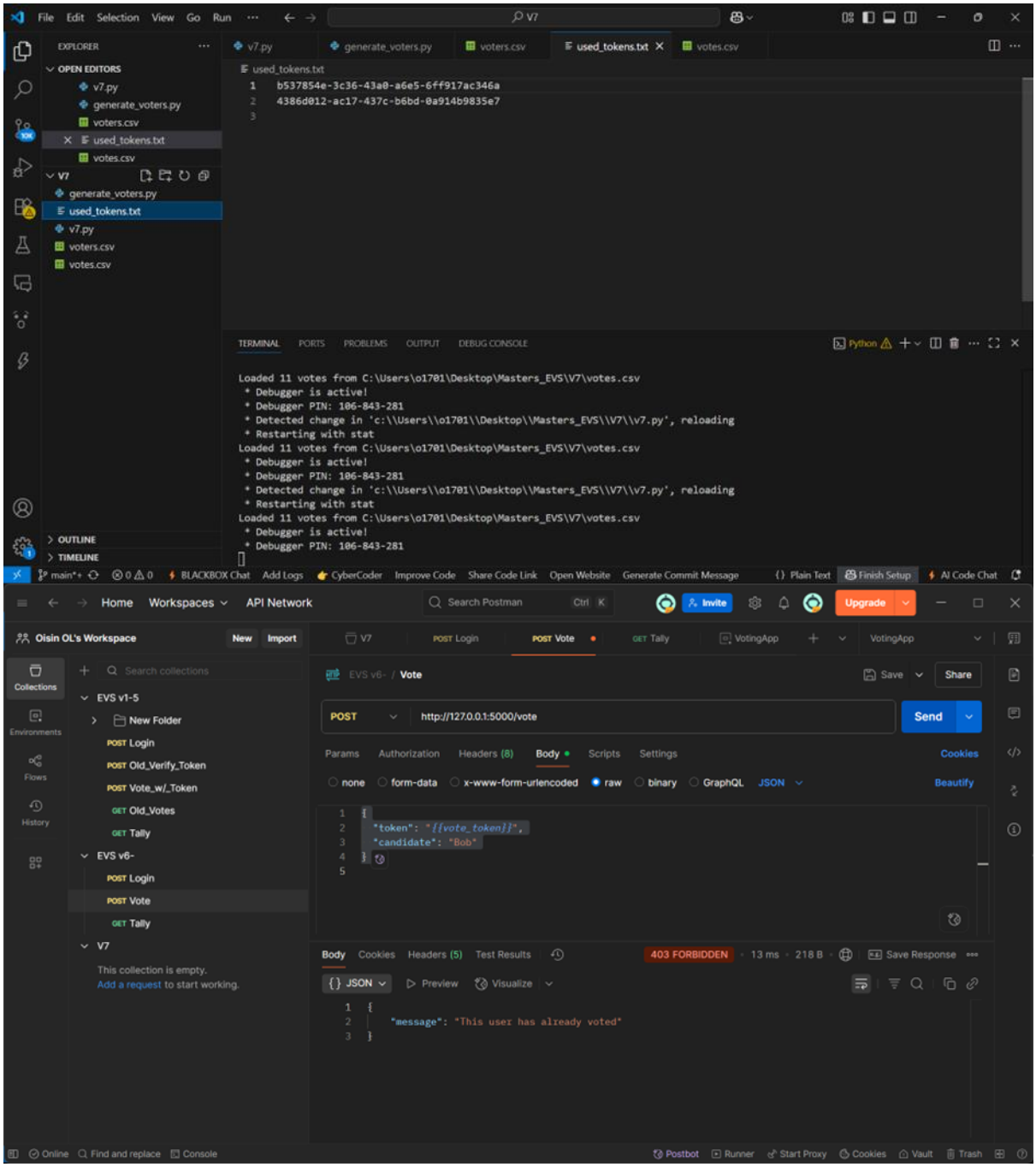
Version 6


Home
Workspaces
API Network
Search Postman
Invite
Upgrade
Oisin OL's Workspace
New
Import
Collections
Environments
Flows
History
EVS v1-5
EVS v6-
POST Login
POST Vote
GET Tally
EVS v6- / Tally
Save
Share
GET
http://127.0.0.1:5000/tally
Send
Scripts
Cookies
Pre-req
Post-res
Use JavaScript to write tests, visualize response, and more. Ctrl+Alt+P for Postbot
Body
200
{} JSON
{
"decrypted_results": {
"Alice": 2,
"Bob": 0
},
"encrypted_sum": 2,
"total_votes": 2
}
Code snippet
Python - http.client
import http.client
import json
conn = http.client.HTTPConnection("127.0.0.1", 5000)
payload = json.dumps({
"total_votes": 3,
"encrypted_sum": 2,
"decrypted_results": {
"Alice": 2,
"Bob": 1
}
})
headers = {
'Content-Type': 'application/json'
}
conn.request("GET", "/tally", payload, headers)
res = conn.getresponse()
data = res.read()
print(data.decode("utf-8"))
Online
Find and replace
Console
Postbot
Runner
Start Proxy
Cookies
Vault
Trash

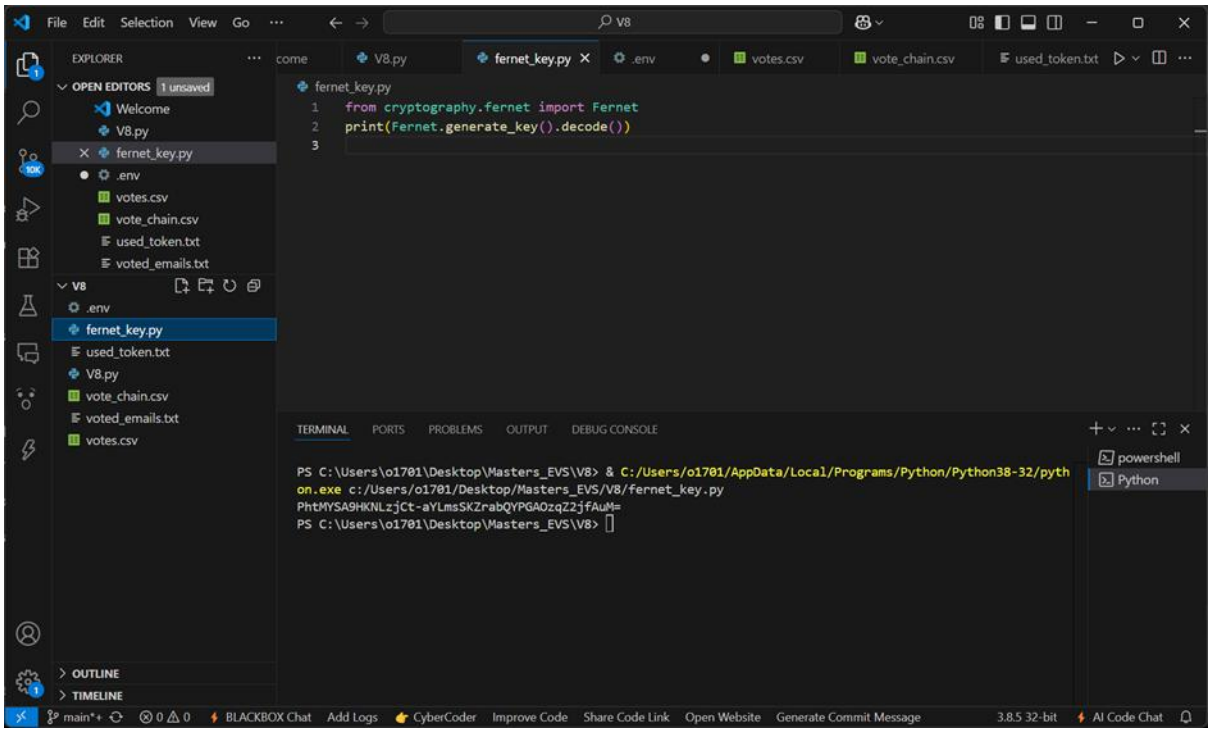
Version 7

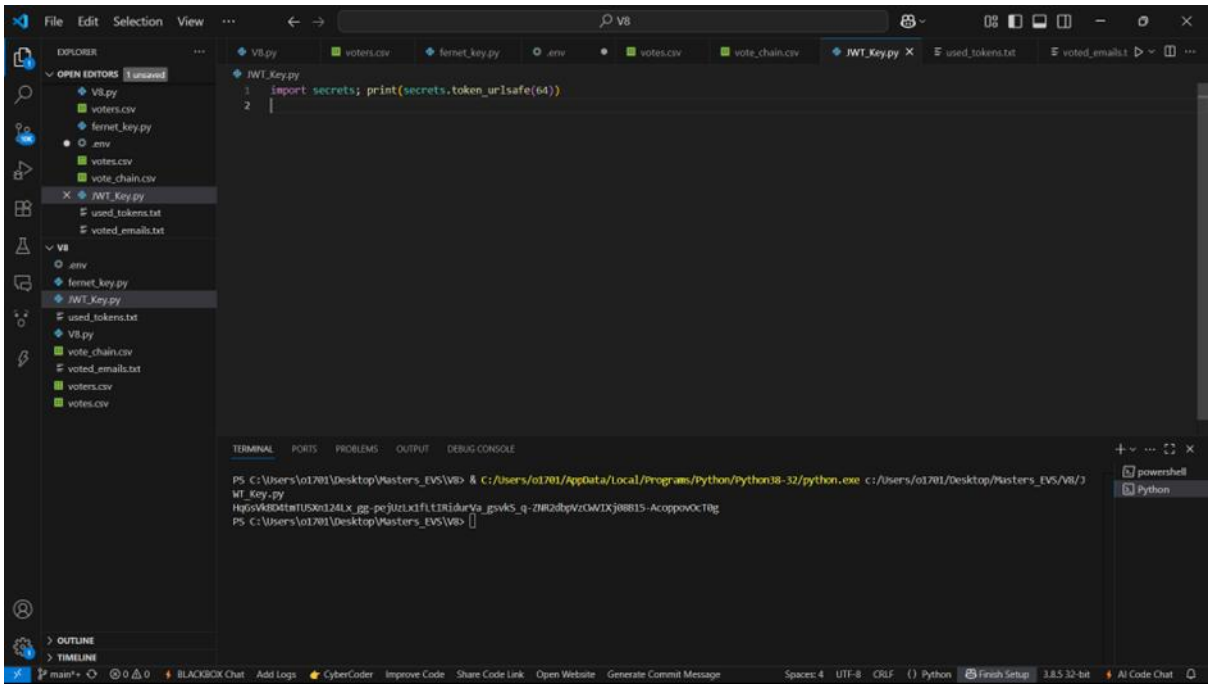

Home
Workspaces
API Network
Search Postman
Invite
Upgrade
Oisin OL's Workspace
New
Import
Collections
Environments
Flows
History
EVS v1-5
New Folder
POST Login
POST Old_Verify_Token
POST Vote_w/_Token
GET Old_Votes
GET Tally
EVS v6-
POST Login
POST Vote
GET Tally
V7
This collection is empty.
Add a request to start working.
EVS v6- / Login
Save
Share
POST
http://127.0.0.1:5000/login
Send
Params
Authorization
Headers (8)
Body
Scripts
Settings
Cookies
none
form-data
x-www-form-urlencoded
raw
binary
GraphQL
JSON
Beautify
{
"email": "testcase1",
"password": "1234"
}
Body
Cookies
Headers (5)
Test Results
200 OK
373 ms
413 B
Save Response
JSON
Preview
Visualize
{
"message": "Login successful",
"vote_token": "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.
eyJlbWFpbCI6InR1c3RjYXNlMSIsImV4cCI6MTc1Mjk1NzgzMCwianRpIjoiNDM4NmQwMTItYWMxNy00MzdjLWI2YmQtMGE
5MTRiOTgzNWU3In0.xctlzav9VF4Dhc8ScmzQFwUF7xmOYngtESlsZK_e5Lw"
}
Online
Find and replace
Console
Postbot
Runner
Start Proxy
Cookies
Vault
Trash

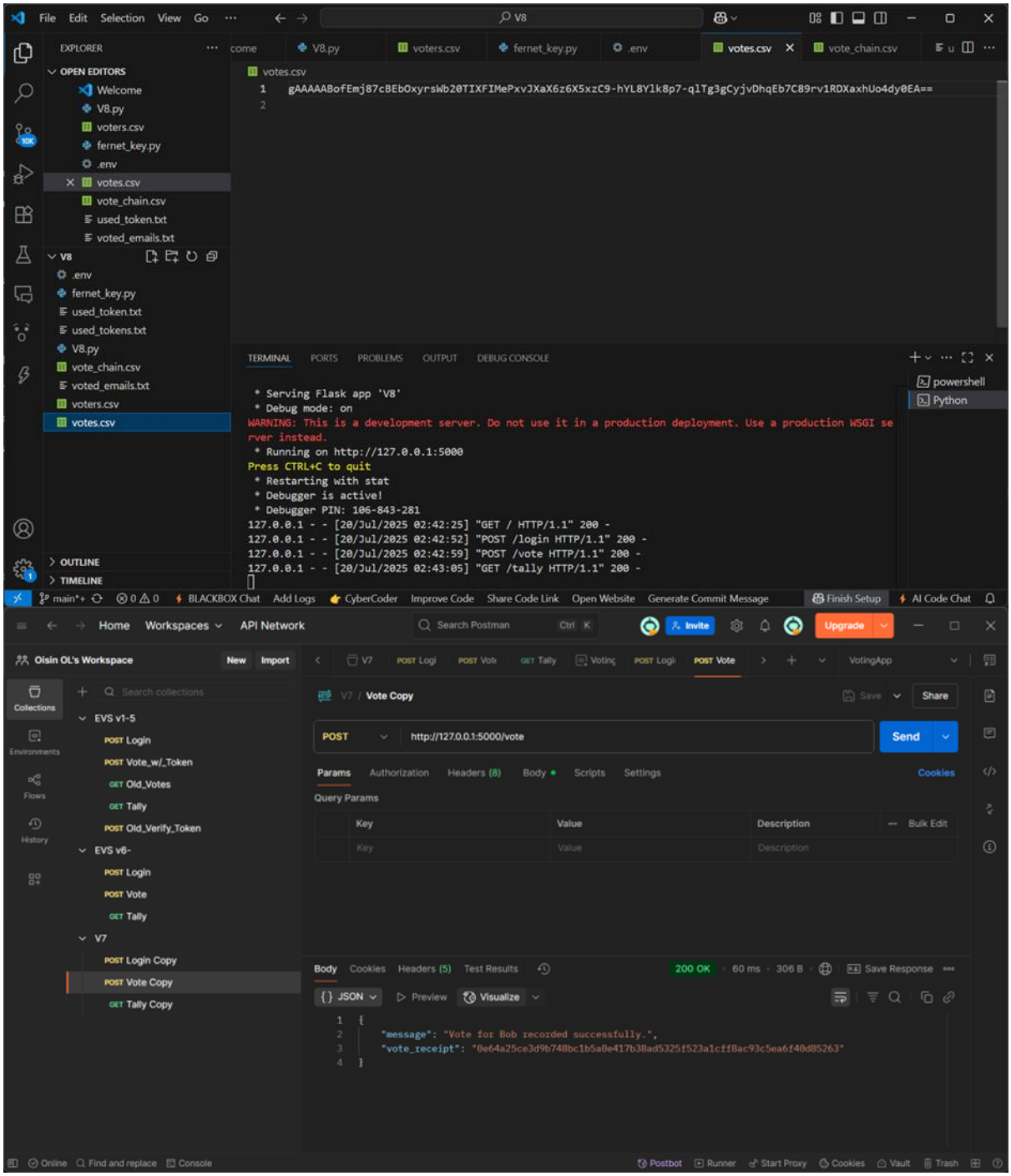

File
Edit
Selection
View
Go
Run
V7
EXPLORER
OPEN EDITORS
v7.py
generate_voters.py
voters.csv
used_tokens.txt
votes.csv
V7
generate_voters.py
used_tokens.txt
v7.py
voters.csv
votes.csv
v7.py
generate_voters.py
voters.csv
used_tokens.txt
votes.csv
voters.csv
email,password
alice@example.com,$2b$12$f4nqhSAx/Nlt8SXUcWfVvO30Of1AZf71jtZhCSq9adlODpJtTVYKS
bob@example.com,$2b$12$412R30aZJfRTnfEl7MeFvu6Im6Ig6LPcP1ouU/Am.PgnsENBZTJoS
charlie@example.com,$2b$12$3UAMIdnNaT3.UGHOvNf7UemEG5l5OGU2QJO7SAprVIuMECk63Zwia
dana@example.com,$2b$12$imTS6bLDXKnqLees1a7PaOHnUJUPkQWARiwarQ9bv/qjoi6FxhptO
testcase1,$2b$12$2NtrXU.v7SN8XWI3lWTJhuc9kpuwxxZk8CsnkgFbDbxdF8kYFObCq
test,$2b$12$uTHoLJblDzrkWTR02MySh.7Wxf0aTxvmwHR7nv/jc3y1hL4bprIDi
TERMINAL
PORTS
PROBLEMS
OUTPUT
DEBUG CONSOLE
Python
Loaded 11 votes from C:\Users\o1701\Desktop\Masters_EVS\V7\votes.csv
* Debugger is active!
* Debugger PIN: 106-843-281
* Detected change in 'c:\\Users\\o1701\\Desktop\\Masters_EVS\\V7\\v7.py', reloading
* Restarting with stat
Loaded 11 votes from C:\Users\o1701\Desktop\Masters_EVS\V7\votes.csv
* Debugger is active!
* Debugger PIN: 106-843-281
* Detected change in 'c:\\Users\\o1701\\Desktop\\Masters_EVS\\V7\\v7.py', reloading
* Restarting with stat
Loaded 11 votes from C:\Users\o1701\Desktop\Masters_EVS\V7\votes.csv
* Debugger is active!
* Debugger PIN: 106-843-281
OUTLINE
TIMELINE
main*+
BLACKBOX Chat
Add Logs
CyberCoder
Improve Code
Share Code Link
Open Website
Generate Commit Message
Plain Text
Finish Setup
AI Code Chat

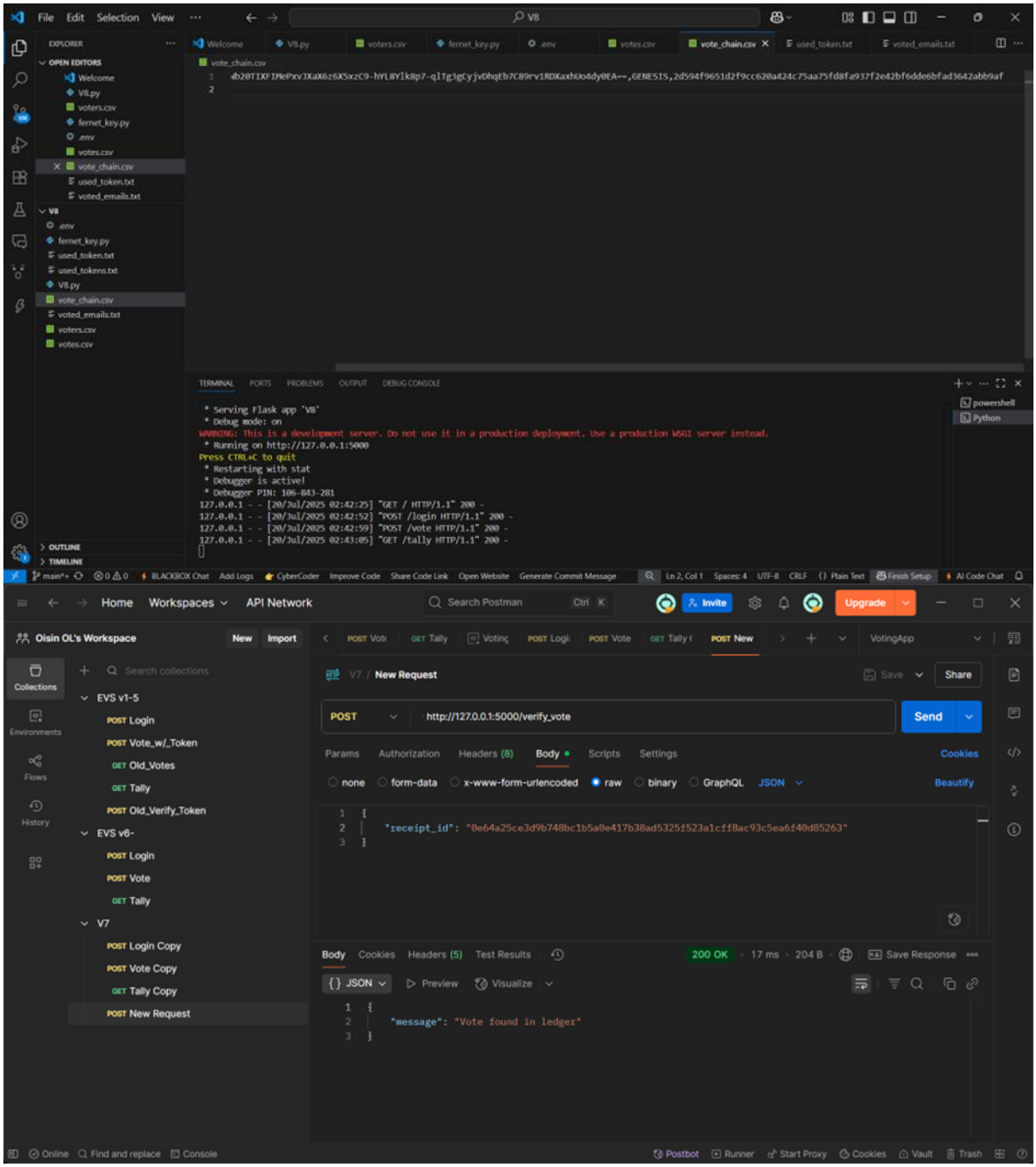

File Edit Selection View Go Run
EXPLORER
OPEN EDITORS
v7.py
generate_voters.py
voters.csv
used_tokens.txt
votes.csv
v7
generate_voters.py
used_tokens.txt
v7.py
voters.csv
votes.csv
OUTLINE
TIMELINE
v7.py
generate_voters.py
voters.csv
used_tokens.txt
votes.csv
used_tokens.txt
1 b537854e-3c36-43a0-a6e5-6ff917ac346a
2 4386d012-ac17-437c-b6bd-0a914b9835e7
3
TERMINAL PORTS PROBLEMS OUTPUT DEBUG CONSOLE
Python
Loaded 11 votes from C:\Users\o1701\Desktop\Masters_EVS\V7\votes.csv
* Debugger is active!
* Debugger PIN: 106-843-281
* Detected change in 'c:\\Users\\o1701\\Desktop\\Masters_EVS\\V7\\v7.py', reloading
* Restarting with stat
Loaded 11 votes from C:\Users\o1701\Desktop\Masters_EVS\V7\votes.csv
* Debugger is active!
* Debugger PIN: 106-843-281
* Detected change in 'c:\\Users\\o1701\\Desktop\\Masters_EVS\\V7\\v7.py', reloading
* Restarting with stat
Loaded 11 votes from C:\Users\o1701\Desktop\Masters_EVS\V7\votes.csv
* Debugger is active!
* Debugger PIN: 106-843-281
main* BLACKBOX Chat Add Logs CyberCoder Improve Code Share Code Link Open Website Generate Commit Message Plain Text Finish Setup AI Code Chat
Home Workspaces API Network
Search Postman Ctrl K
Invite
Upgrade
Oisin OL's Workspace
New Import
Collections
Environments
Flows
History
Search collections
EVS v1-5
New Folder
POST Login
POST Old_Verify_Token
POST Vote_w/_Token
GET Old_Votes
GET Tally
EVS v6-
POST Login
POST Vote
GET Tally
V7
This collection is empty.
Add a request to start working.
V7
POST Login
POST Vote
GET Tally
VotingApp
VotingApp
EVS v6- / Vote
Save
Share
POST
http://127.0.0.1:5000/vote
Send
Params Authorization Headers (8) Body Scripts Settings
Cookies
none form-data x-www-form-urlencoded raw binary GraphQL JSON
Beautify
1 {
2 "token": "{{vote_token}}",
3 "candidate": "Bob"
4 }
5
Body Cookies Headers (5) Test Results
403 FORBIDDEN
13 ms
218 B
Save Response
{} JSON
Preview
Visualize
1 {
2 "message": "This user has already voted"
3 }
Online Find and replace Console
Postbot Runner Start Proxy Cookies Vault Trash

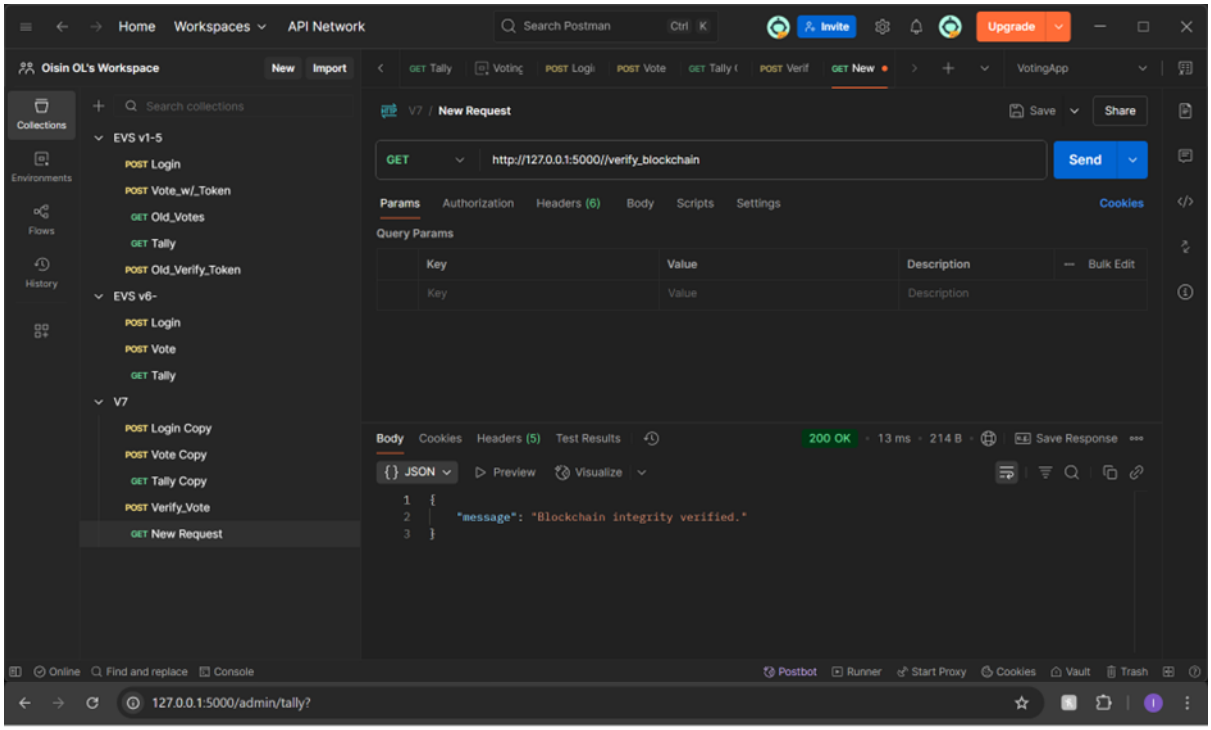
Version 8


File Edit Selection View Go
V8
EXPLORER
OPEN EDITORS 1 unsaved
Welcome
V8.py
fernet_key.py
.env
votes.csv
vote_chain.csv
used_token.txt
voted_emails.txt
V8
.env
fernet_key.py
used_token.txt
V8.py
vote_chain.csv
voted_emails.txt
votes.csv
V8.py
fernet_key.py
.env
votes.csv
vote_chain.csv
used_token.txt
fernet_key.py
1 from cryptography.fernet import Fernet
2 print(Fernet.generate_key().decode())
3
TERMINAL PORTS PROBLEMS OUTPUT DEBUG CONSOLE
PS C:\Users\o1701\Desktop\Masters_EVS\V8> & C:/Users/o1701/AppData/Local/Programs/Python/Python38-32/python.exe c:/Users/o1701/Desktop/Masters_EVS/V8/fernet_key.py
PhtMYSA9HKNLzjCt-aYLmsSKZrabQYPGAOzqZ2jfAuM=
PS C:\Users\o1701\Desktop\Masters_EVS\V8>
powershell
Python
OUTLINE
TIMELINE
main*+ 0 0 BLACKBOX Chat Add Logs CyberCoder Improve Code Share Code Link Open Website Generate Commit Message 3.8.5 32-bit AI Code Chat


File Edit Selection View
V8
EXPLORER
OPEN EDITORS 1 unsaved
V8.py
voters.csv
fernet_key.py
.env
votes.csv
vote_chain.csv
JWT_Key.py
used_tokens.txt
voted_emails.txt
V8
.env
fernet_key.py
JWT_Key.py
used_tokens.txt
V8.py
vote_chain.csv
voted_emails.txt
voters.csv
votes.csv
JWT_Key.py
1 import secrets; print(secrets.token_urlsafe(64))
2
TERMINAL PORTS PROBLEMS OUTPUT DEBUG CONSOLE
PS C:\Users\o1701\Desktop\Masters_EVS\V8> & C:/Users/o1701/AppData/Local/Programs/Python/Python38-32/python.exe c:/Users/o1701/Desktop/Masters_EVS/V8/JWT_Key.py
HqGsVkBDdtmTUSXn124Lx_gg-peJUziXifltIRidurVa_gsvkS_q-ZNR2dbpVzCaVIXj08B15-AcoppovOcT0g
PS C:\Users\o1701\Desktop\Masters_EVS\V8>
powershell
Python
OUTLINE
TIMELINE
main*+ 0 0 BLACKBOX Chat Add Logs CyberCoder Improve Code Share Code Link Open Website Generate Commit Message Spaces: 4 UTF-8 CRLF Python Finish Setup 3.8.5 32-bit AI Code Chat


File Edit Selection View Go
V8
EXPLORER
OPEN EDITORS
Welcome
V8.py
voters.csv
fernet_key.py
.env
votes.csv
vote_chain.csv
used_token.txt
voted_emails.txt
V8
.env
fernet_key.py
used_token.txt
used_tokens.txt
V8.py
vote_chain.csv
voted_emails.txt
voters.csv
votes.csv
OUTLINE
TIMELINE
votes.csv
1 gAAAAABofEmj87cBEbOxyrsWb20TIXFIMePxvJXaX6z6X5xzC9-hYL8Ylk8p7-qlTg3gCyjvDhqEb7C89rv1RDXaxhUo4dy0EA==
2
TERMINAL PORTS PROBLEMS OUTPUT DEBUG CONSOLE
powershell
Python
* Serving Flask app 'V8'
* Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on http://127.0.0.1:5000
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 106-843-281
127.0.0.1 - - [20/Jul/2025 02:42:25] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [20/Jul/2025 02:42:52] "POST /login HTTP/1.1" 200 -
127.0.0.1 - - [20/Jul/2025 02:42:59] "POST /vote HTTP/1.1" 200 -
127.0.0.1 - - [20/Jul/2025 02:43:05] "GET /tally HTTP/1.1" 200 -
main* BLACKBOX Chat Add Logs CyberCoder Improve Code Share Code Link Open Website Generate Commit Message Finish Setup AI Code Chat
Home Workspaces API Network
Search Postman Ctrl K
Invite Upgrade
Oisin OL's Workspace
New Import
Collections Environments Flows History
EVS v1-5
POST Login
POST Vote_w/_Token
GET Old_Votes
GET Tally
POST Old_Verify_Token
EVS v6-
POST Login
POST Vote
GET Tally
V7
POST Login Copy
POST Vote Copy
GET Tally Copy
V7 / Vote Copy
Save Share
POST http://127.0.0.1:5000/vote
Send
Params Authorization Headers (8) Body Scripts Settings Cookies
Query Params
Key Value Description Bulk Edit
Body Cookies Headers (5) Test Results
200 OK 60 ms 306 B Save Response
JSON Preview Visualize
{
"message": "Vote for Bob recorded successfully.",
"vote_receipt": "0e64a25ce3d9b748bc1b5a0e417b38ad5325f523a1cff8ac93c5ea6f40d85263"
}
Online Find and replace Console
Postbot Runner Start Proxy Cookies Vault Trash


File Edit Selection View
V8
vote_chain.csv
4b20TIXFIMePxvJXaX6z6X5xzC9-hYL8Y1k8p7-qlTg1gCyjvOhqEb7C89rv1RDXaxhUo4dy0EA==,GENESIS,2d594f9651d2f9cc620a424c75aa75fd8fa937f2e42bf6dde6bfad3642abb9af
TERMINAL PORTS PROBLEMS OUTPUT DEBUG CONSOLE
* Serving Flask app 'V8'
* Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on http://127.0.0.1:5000
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 106-843-281
127.0.0.1 - - [20/Jul/2025 02:42:25] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [20/Jul/2025 02:42:52] "POST /login HTTP/1.1" 200 -
127.0.0.1 - - [20/Jul/2025 02:42:59] "POST /vote HTTP/1.1" 200 -
127.0.0.1 - - [20/Jul/2025 02:43:05] "GET /tally HTTP/1.1" 200 -
Home Workspaces API Network
Search Postman Ctrl K
Invite Upgrade
Oisin OL's Workspace New Import
Collections Environments Flows History
EVS v1-5
POST Login
POST Vote_w/_Token
GET Old_Votes
GET Tally
POST Old_Verify_Token
EVS v6-
POST Login
POST Vote
GET Tally
V7
POST Login Copy
POST Vote Copy
GET Tally Copy
POST New Request
V7 / New Request
Save Share
POST http://127.0.0.1:5000/verify_vote
Send
Params Authorization Headers (8) Body Scripts Settings
Cookies
none form-data x-www-form-urlencoded raw binary GraphQL JSON
Beautify
{
"receipt_id": "0e64a25ce3d9b748bc1b5a0e417b38ad5325f523a1cff8ac93c5ea6f40d85263"
}
Body Cookies Headers (5) Test Results
200 OK 17 ms 204 B Save Response
{} JSON Preview Visualize
{
"message": "Vote found in ledger"
}



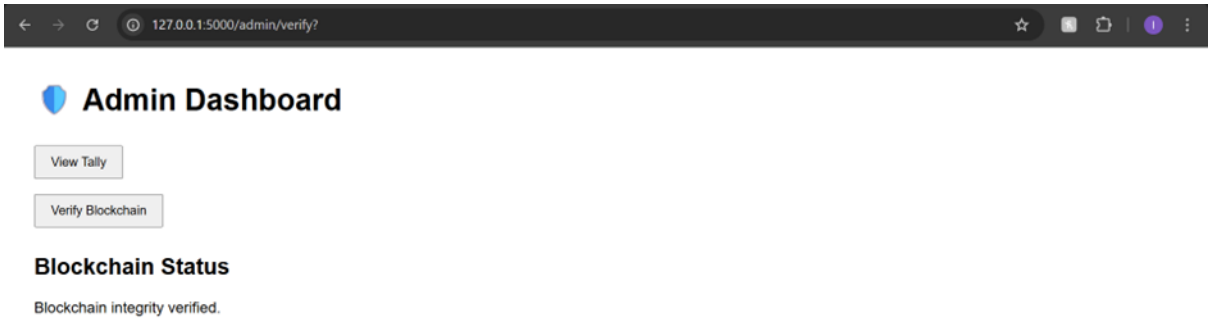
Admin Dashboard

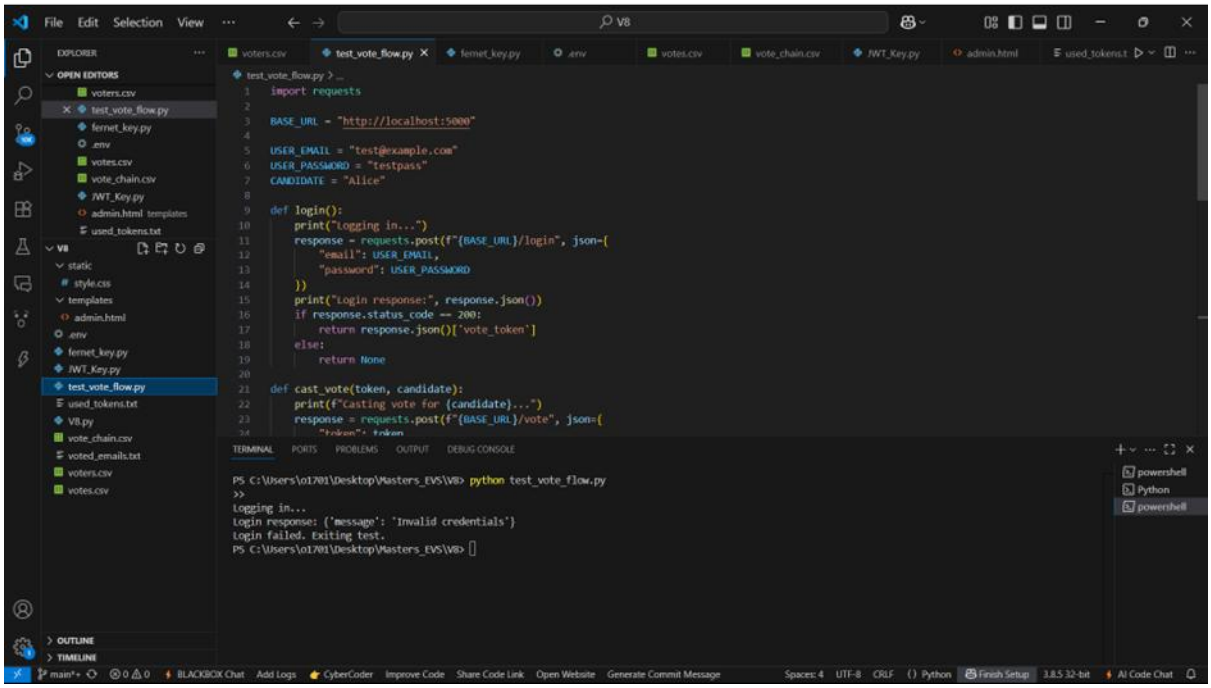
View Tally

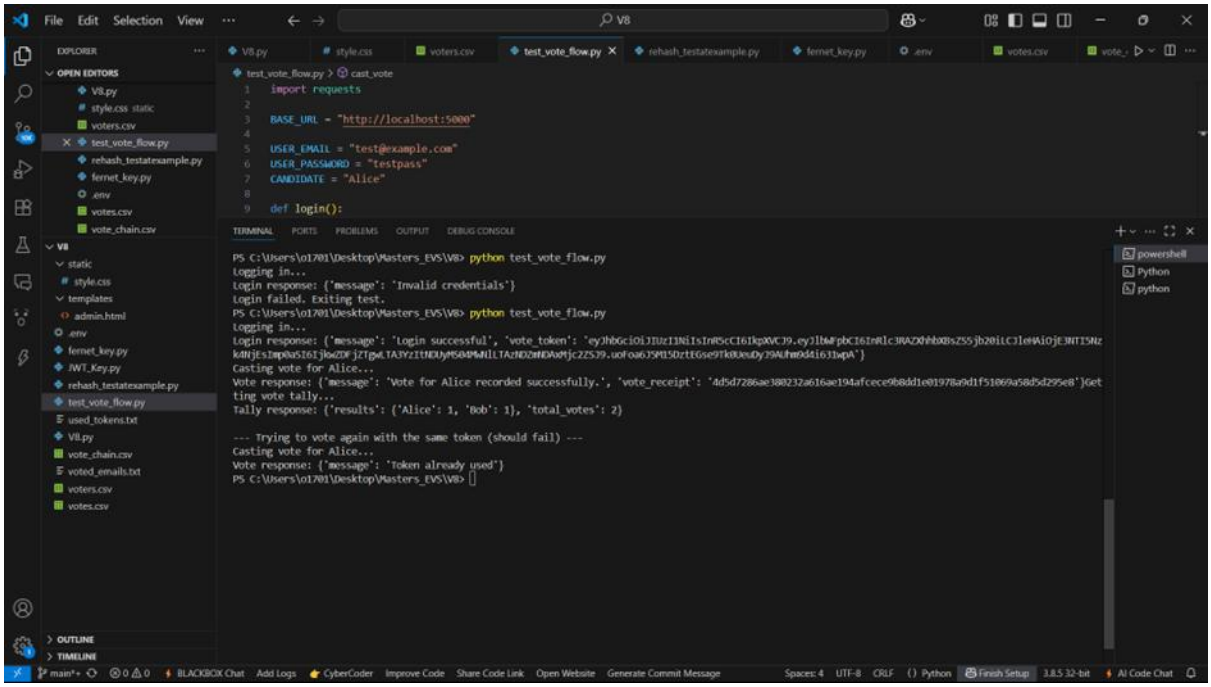
Vote Tally


```
{
  "results": {
    "Alice": 0,
    "Bob": 1
  },
  "total_votes": 1
}
```

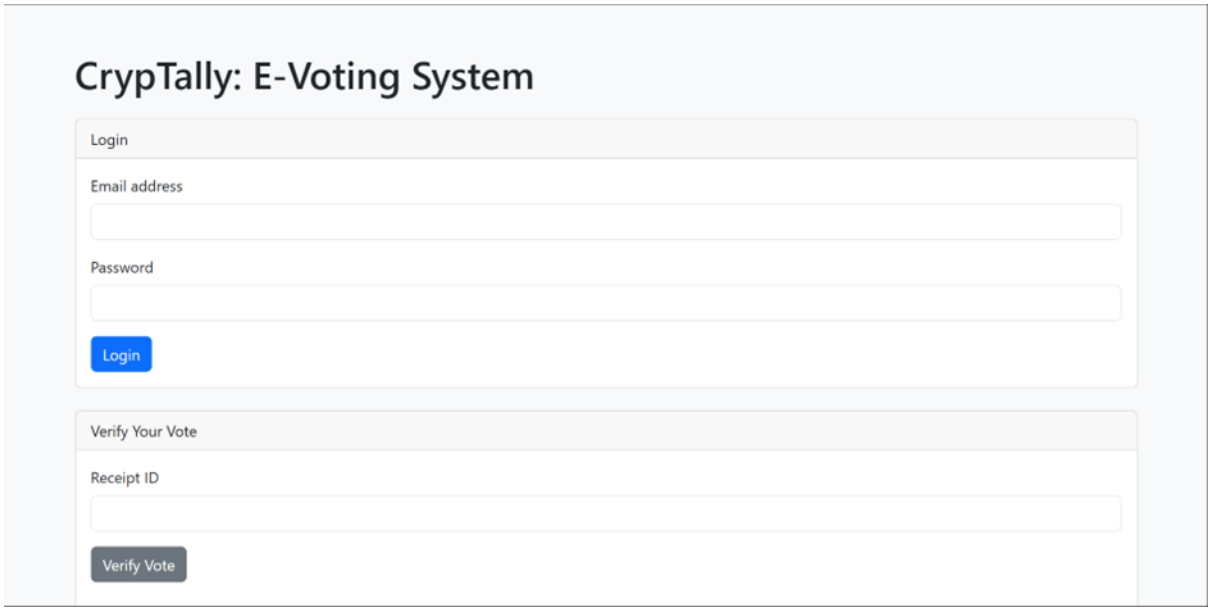

Verify Blockchain

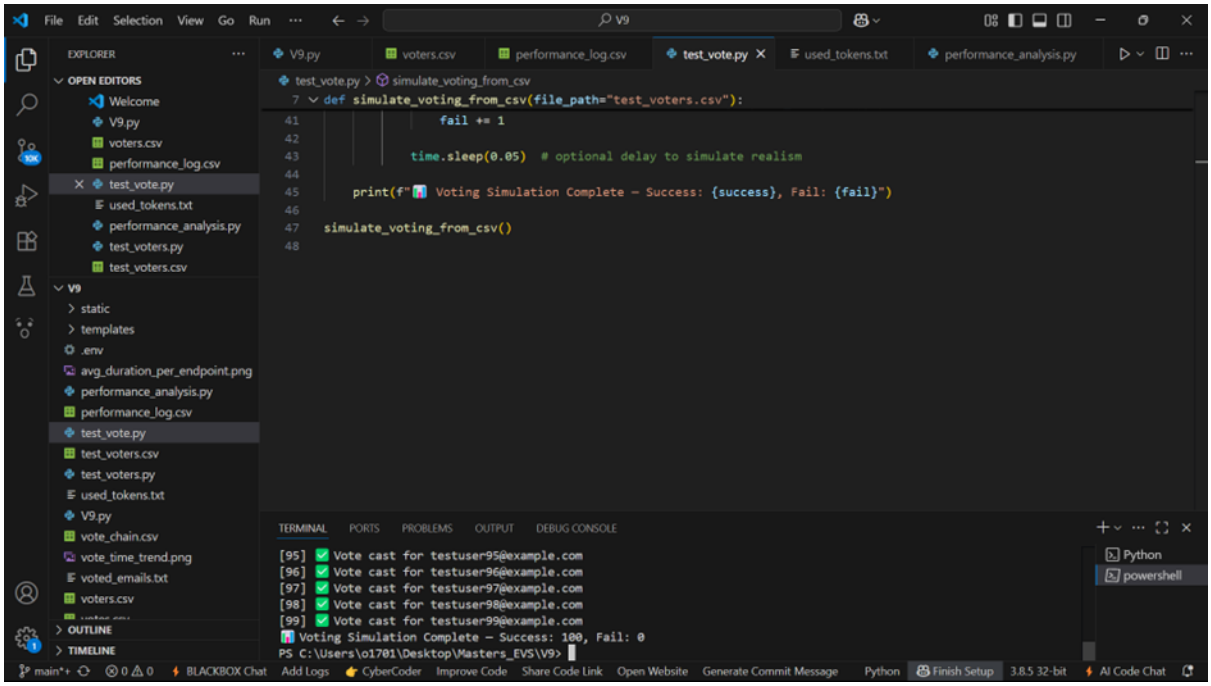

127.0.0.1:5000/admin/verify?
Admin Dashboard
View Tally
Verify Blockchain
Blockchain Status
Blockchain integrity verified.


File Edit Selection View
V8
EXPLORER
OPEN EDITORS
voters.csv
test_vote_flow.py
fernet_key.py
.env
votes.csv
vote_chain.csv
JWT_Key.py
admin.html templates
used_tokens.txt
V8
static
style.css
templates
admin.html
.env
fernet_key.py
JWT_Key.py
test_vote_flow.py
used_tokens.txt
V8.py
vote_chain.csv
voted_emails.txt
voters.csv
votes.csv
OUTLINE
TIMELINE
import requests
BASE_URL = "http://localhost:5000"
USER_EMAIL = "test@example.com"
USER_PASSWORD = "testpass"
CANDIDATE = "Alice"
def login():
print("Logging in...")
response = requests.post(f"{BASE_URL}/login", json={
"email": USER_EMAIL,
"password": USER_PASSWORD
})
print("Login response:", response.json())
if response.status_code == 200:
return response.json()['vote_token']
else:
return None
def cast_vote(token, candidate):
print(f"Casting vote for {candidate}...")
response = requests.post(f"{BASE_URL}/vote", json={
TERMINAL PORTS PROBLEMS OUTPUT DEBUG CONSOLE
PS C:\Users\o1701\Desktop\Masters_EVS\V8> python test_vote_flow.py
>>
Logging in...
Login response: {'message': 'Invalid credentials'}
Login failed. Exiting test.
PS C:\Users\o1701\Desktop\Masters_EVS\V8>
powershell
Python
powershell


File Edit Selection View
V8
EXPLORER
OPEN EDITORS
V8.py
style.css static
voters.csv
test_vote_flow.py
rehash_testatexample.py
fernet_key.py
.env
votes.csv
vote_chain.csv
V8
static
style.css
templates
admin.html
.env
fernet_key.py
JWT_Key.py
rehash_testatexample.py
test_vote_flow.py
used_tokens.txt
V8.py
vote_chain.csv
voted_emails.txt
voters.csv
votes.csv
OUTLINE
TIMELINE
test_vote_flow.py > cast_vote
import requests
BASE_URL = "http://localhost:5000"
USER_EMAIL = "test@example.com"
USER_PASSWORD = "testpass"
CANDIDATE = "Alice"
def login():
TERMINAL PORTS PROBLEMS OUTPUT DEBUG CONSOLE
PS C:\Users\o1701\Desktop\Masters_EVS\V8> python test_vote_flow.py
Logging in...
Login response: {'message': 'Invalid credentials'}
Login failed. Exiting test.
PS C:\Users\o1701\Desktop\Masters_EVS\V8> python test_vote_flow.py
Logging in...
Login response: {'message': 'Login successful', 'vote_token': 'eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJlbWFpbCI6InRlc3RAZXhhbXBsZS5jb20iLCJleHAiOjE3NTI5Nz
kdNjEsImp0aSI6IjkwZDFjZTgwLTA3YzItNDUyMS04MmNlLTAzNDZmNDAxMjc2ZS39.uoFoa6J5M15DztEGse9Tk0UesDy79AUhm0d4i631wpA'}
Casting vote for Alice...
Vote response: {'message': 'Vote for Alice recorded successfully.', 'vote_receipt': '4d5d7286ae380232a616ae194afcece9b8dd1e01978a9d1f51069a58d5d295e8'}Get
ting vote tally...
Tally response: {'results': {'Alice': 1, 'Bob': 1}, 'total_votes': 2}
--- Trying to vote again with the same token (should fail) ---
Casting vote for Alice...
Vote response: {'message': 'Token already used'}
PS C:\Users\o1701\Desktop\Masters_EVS\V8>
powershell
Python
python
main*+ BLACKBOX Chat Add Logs CyberCoder Improve Code Share Code Link Open Website Generate Commit Message
Spaces: 4 UTF-8 CRLF Python Finish Setup 3.8.5 32-bit AI Code Chat

Version 9


CrypTally: E-Voting System
Login
Email address
Password
Login
Verify Your Vote
Receipt ID
Verify Vote


File Edit Selection View Go Run
V9
EXPLORER
OPEN EDITORS
Welcome
V9.py
voters.csv
performance_log.csv
test_vote.py
used_tokens.txt
performance_analysis.py
test_voters.py
test_voters.csv
V9
static
templates
.env
avg_duration_per_endpoint.png
performance_analysis.py
performance_log.csv
test_vote.py
test_voters.csv
test_voters.py
used_tokens.txt
V9.py
vote_chain.csv
vote_time_trend.png
voted_emails.txt
voters.csv
OUTLINE
TIMELINE
V9.py
voters.csv
performance_log.csv
test_vote.py
used_tokens.txt
performance_analysis.py
test_vote.py > simulate_voting_from_csv
def simulate_voting_from_csv(file_path="test_voters.csv"):
fail += 1
time.sleep(0.05) # optional delay to simulate realism
print(f" Voting Simulation Complete — Success: {success}, Fail: {fail}")
simulate_voting_from_csv()
TERMINAL PORTS PROBLEMS OUTPUT DEBUG CONSOLE
[95] Vote cast for testuser95@example.com
[96] Vote cast for testuser96@example.com
[97] Vote cast for testuser97@example.com
[98] Vote cast for testuser98@example.com
[99] Vote cast for testuser99@example.com
Voting Simulation Complete — Success: 100, Fail: 0
PS C:\Users\o1701\Desktop\Masters_EVS\V9>
Python
powershell
main*+ BLACKBOX Chat Add Logs CyberCoder Improve Code Share Code Link Open Website Generate Commit Message Python Finish Setup 3.8.5 32-bit AI Code Chat

Results

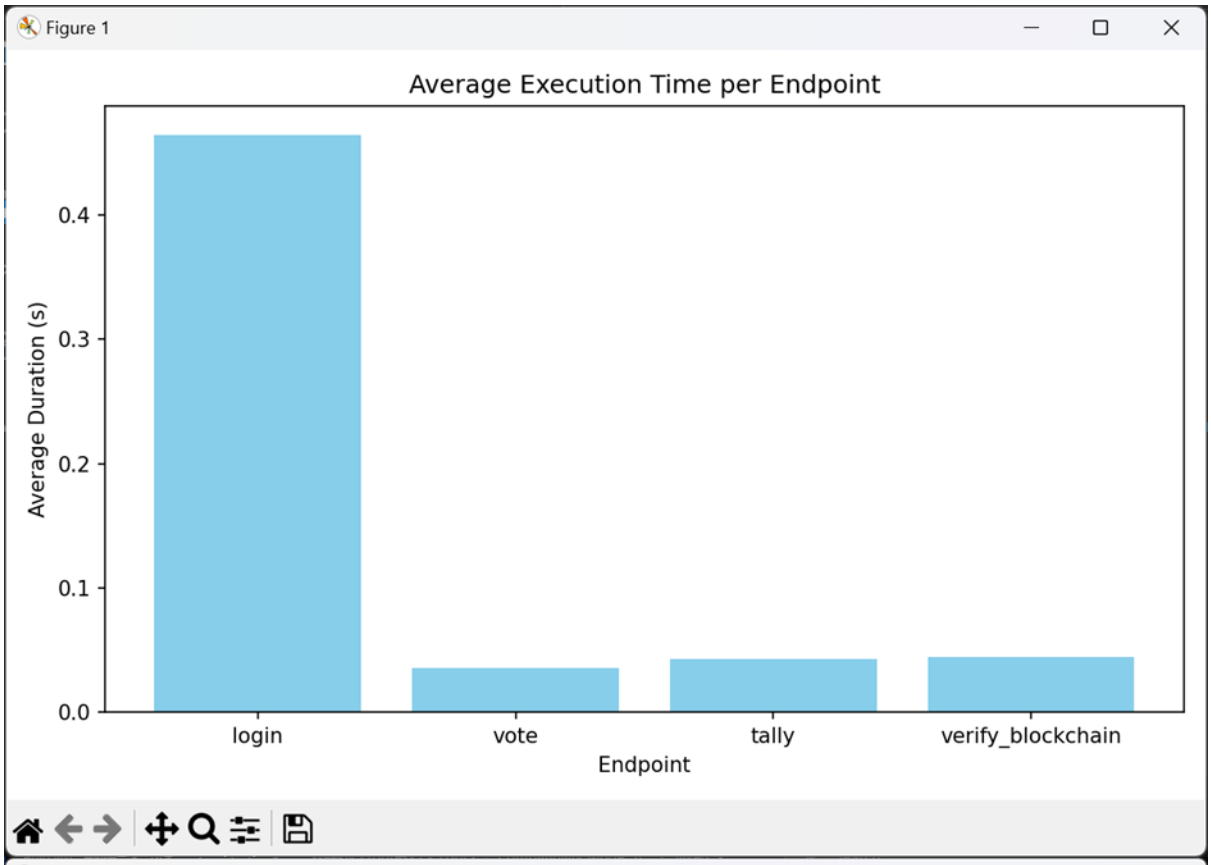


Figure 1
Average Execution Time per Endpoint
Average Duration (s)
0.0
0.1
0.2
0.3
0.4
login
vote
tally
verify_blockchain
Endpoint

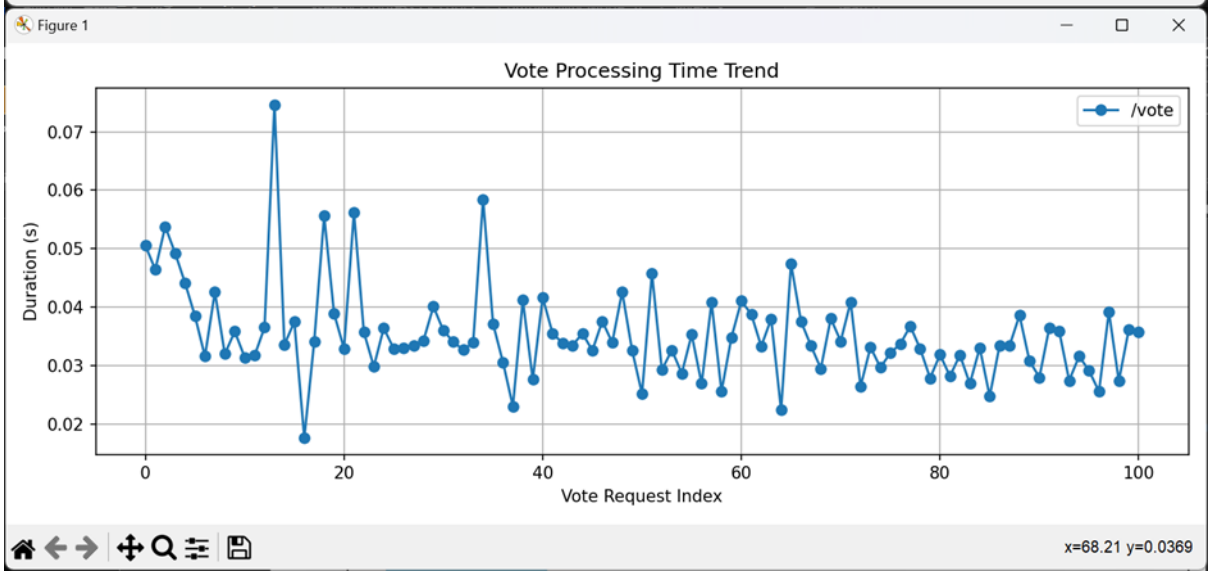


Figure 1
Vote Processing Time Trend
/vote
Duration (s)
0.02
0.03
0.04
0.05
0.06
0.07
0
20
40
60
80
100
Vote Request Index
x=68.21 y=0.0369