Code Security Analyzer

My name: Zahraa Ibrahim

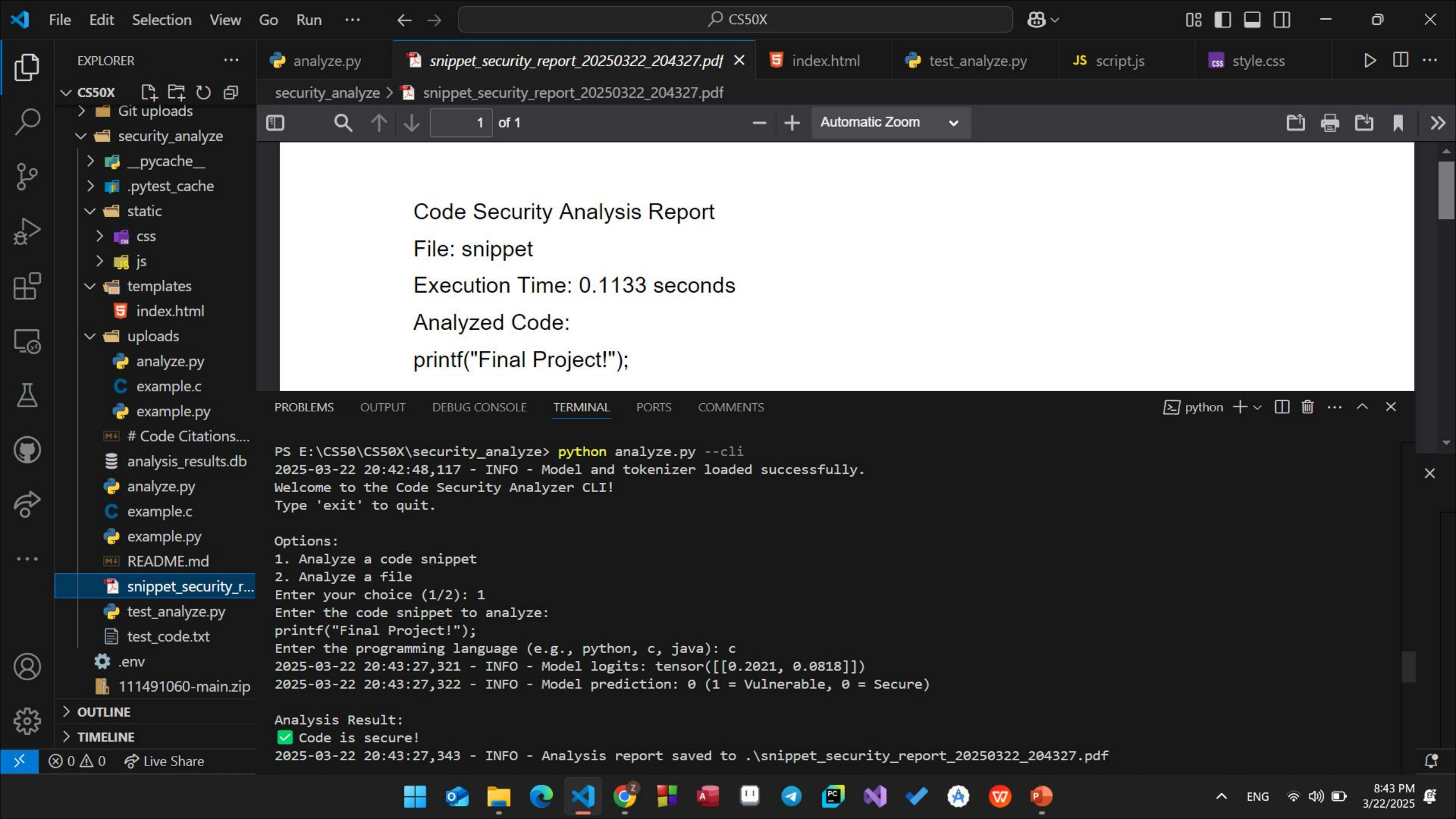
GitHub username: zahrra55

edX username: shugo7385

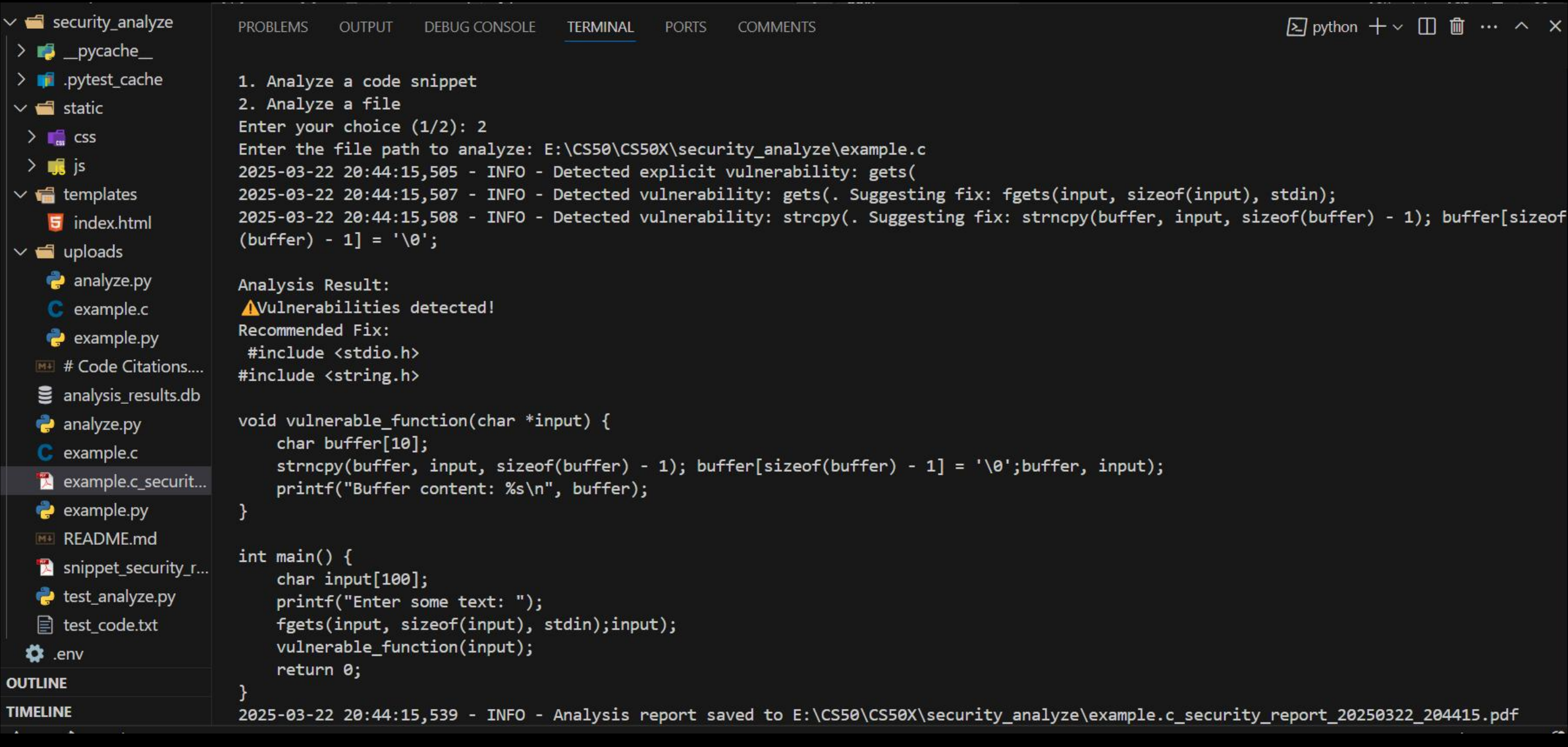
My city: Baghdad

My country: Iraq

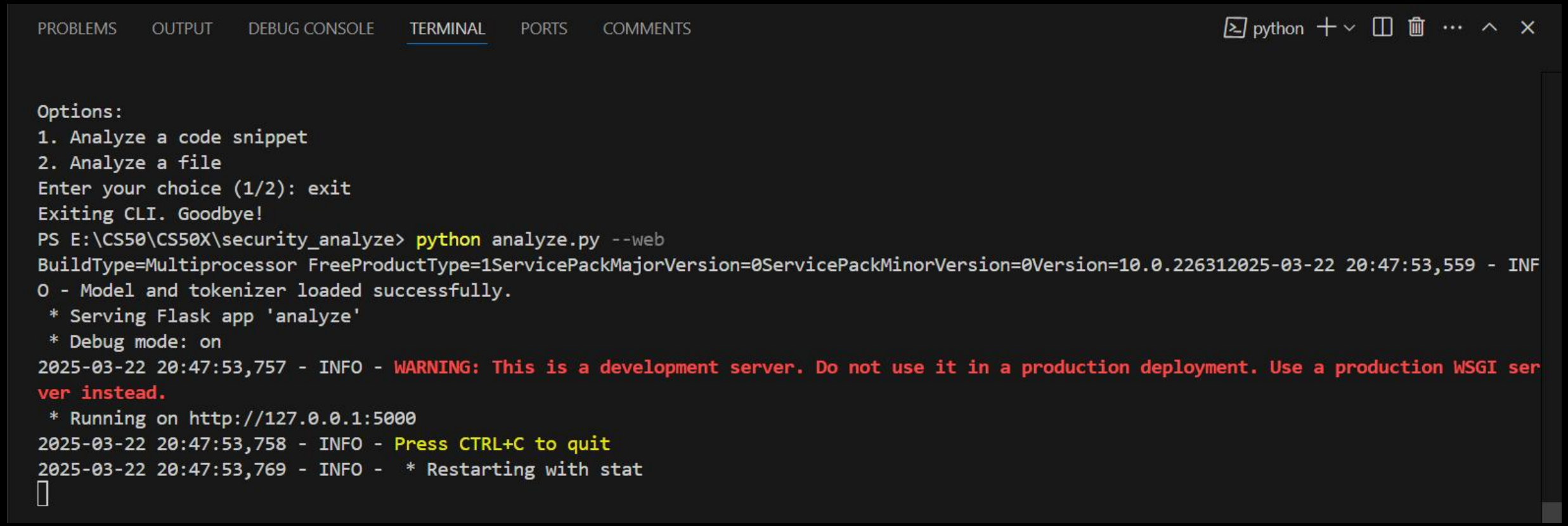
the date I have recorded this video:
2025/ 3/ 22


File Edit Selection View Go Run
CS50X
EXPLORER
CS50X
Git uploads
security_analyze
__pycache__
.pytest_cache
static
css
js
templates
index.html
uploads
analyze.py
example.c
example.py
Code Citations....
analysis_results.db
analyze.py
example.c
example.py
README.md
snippet_security_r...
test_analyze.py
test_code.txt
.env
111491060-main.zip
OUTLINE
TIMELINE
analyze.py
snippet_security_report_20250322_204327.pdf
index.html
test_analyze.py
script.js
style.css
security_analyze > snippet_security_report_20250322_204327.pdf
1 of 1
Automatic Zoom
Code Security Analysis Report
File: snippet
Execution Time: 0.1133 seconds
Analyzed Code:
printf("Final Project!");
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
COMMENTS
python
PS E:\CS50\CS50X\security_analyze> python analyze.py --cli
2025-03-22 20:42:48,117 - INFO - Model and tokenizer loaded successfully.
Welcome to the Code Security Analyzer CLI!
Type 'exit' to quit.
Options:
1. Analyze a code snippet
2. Analyze a file
Enter your choice (1/2): 1
Enter the code snippet to analyze:
printf("Final Project!");
Enter the programming language (e.g., python, c, java): c
2025-03-22 20:43:27,321 - INFO - Model logits: tensor([[0.2021, 0.0818]])
2025-03-22 20:43:27,322 - INFO - Model prediction: 0 (1 = Vulnerable, 0 = Secure)
Analysis Result:
Code is secure!
2025-03-22 20:43:27,343 - INFO - Analysis report saved to .\snippet_security_report_20250322_204327.pdf
0 0
Live Share
ENG
8:43 PM
3/22/2025

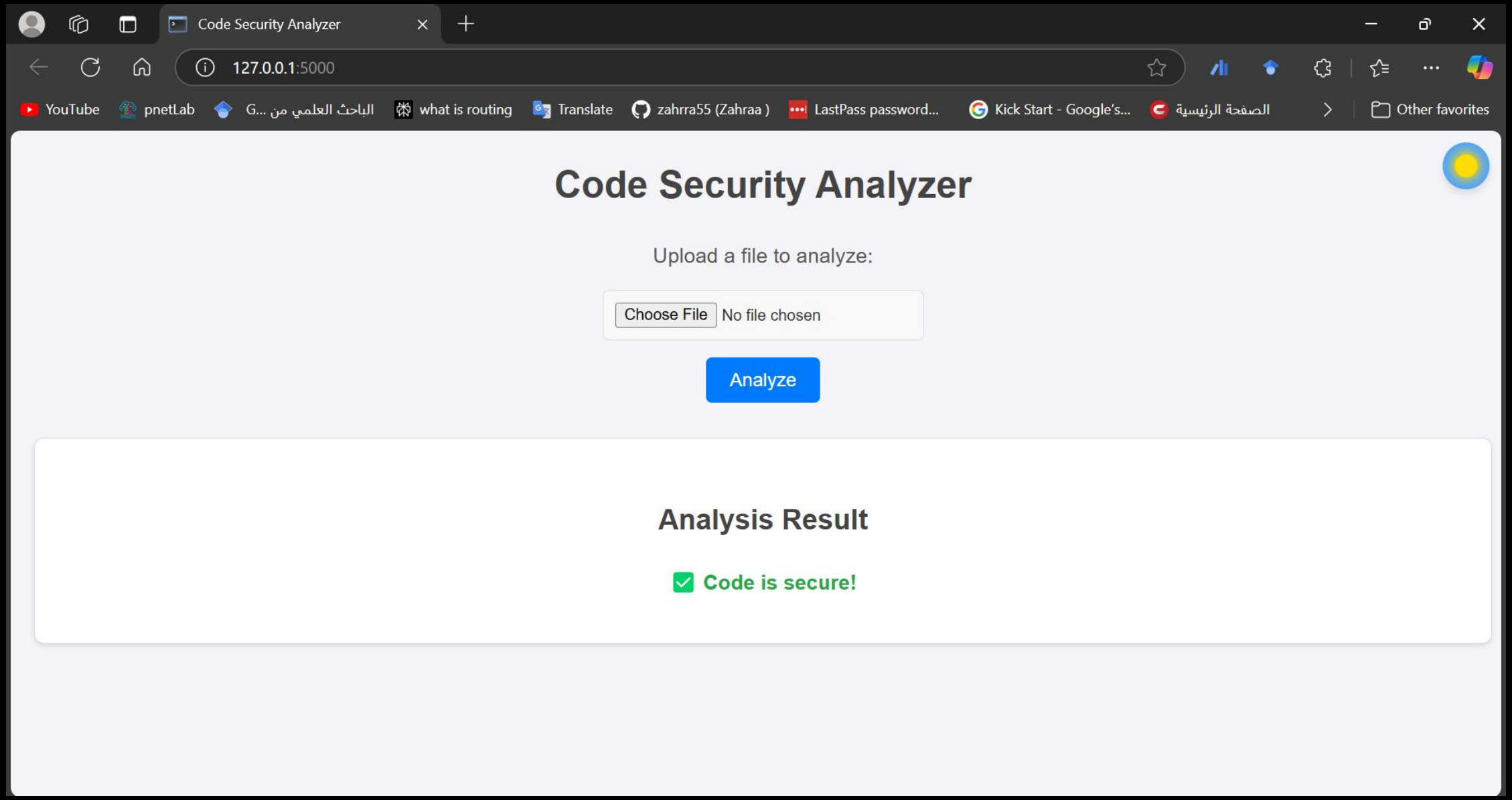
Analyze a file with CLI:



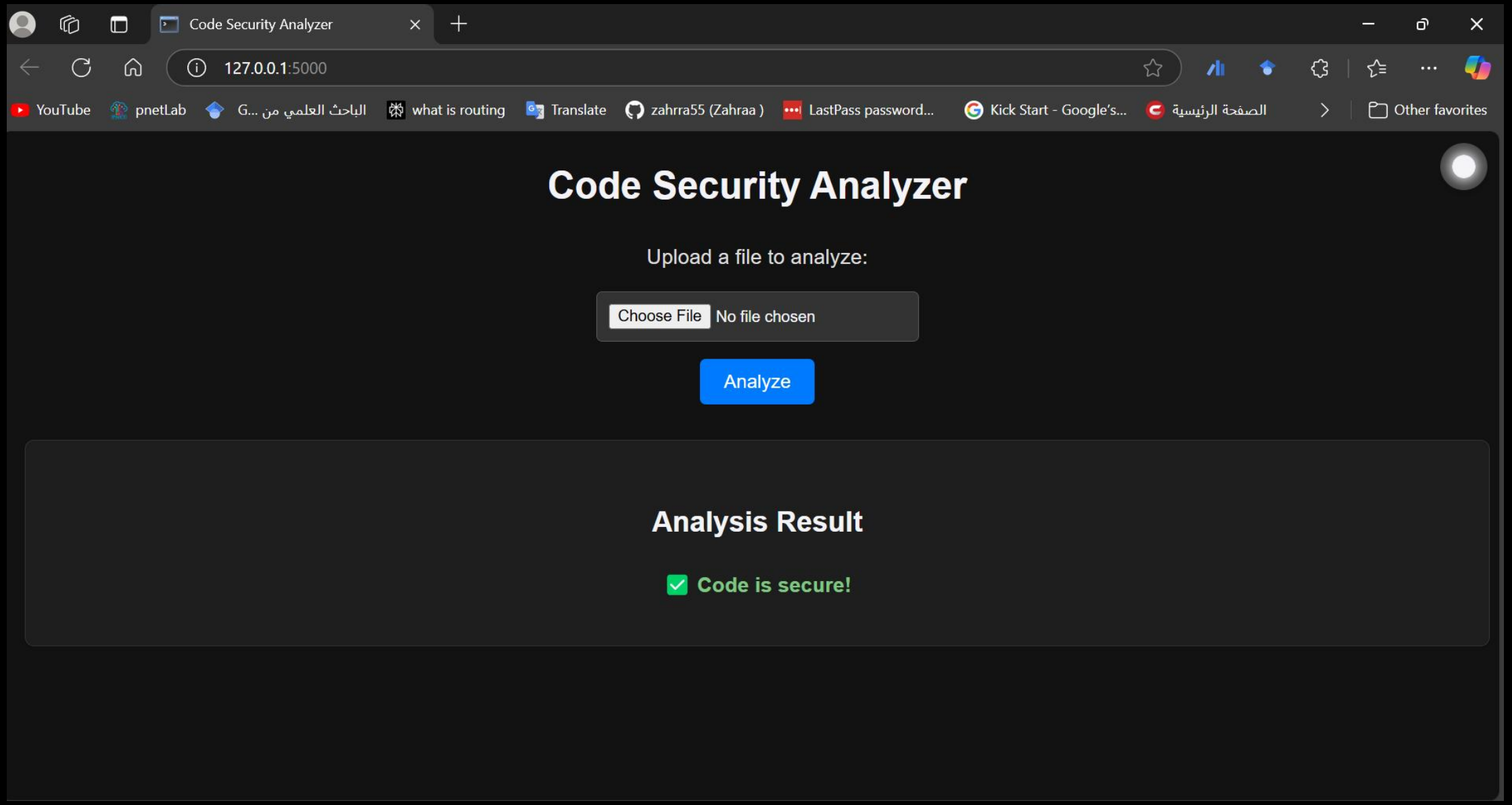
Switching to the web app mode:

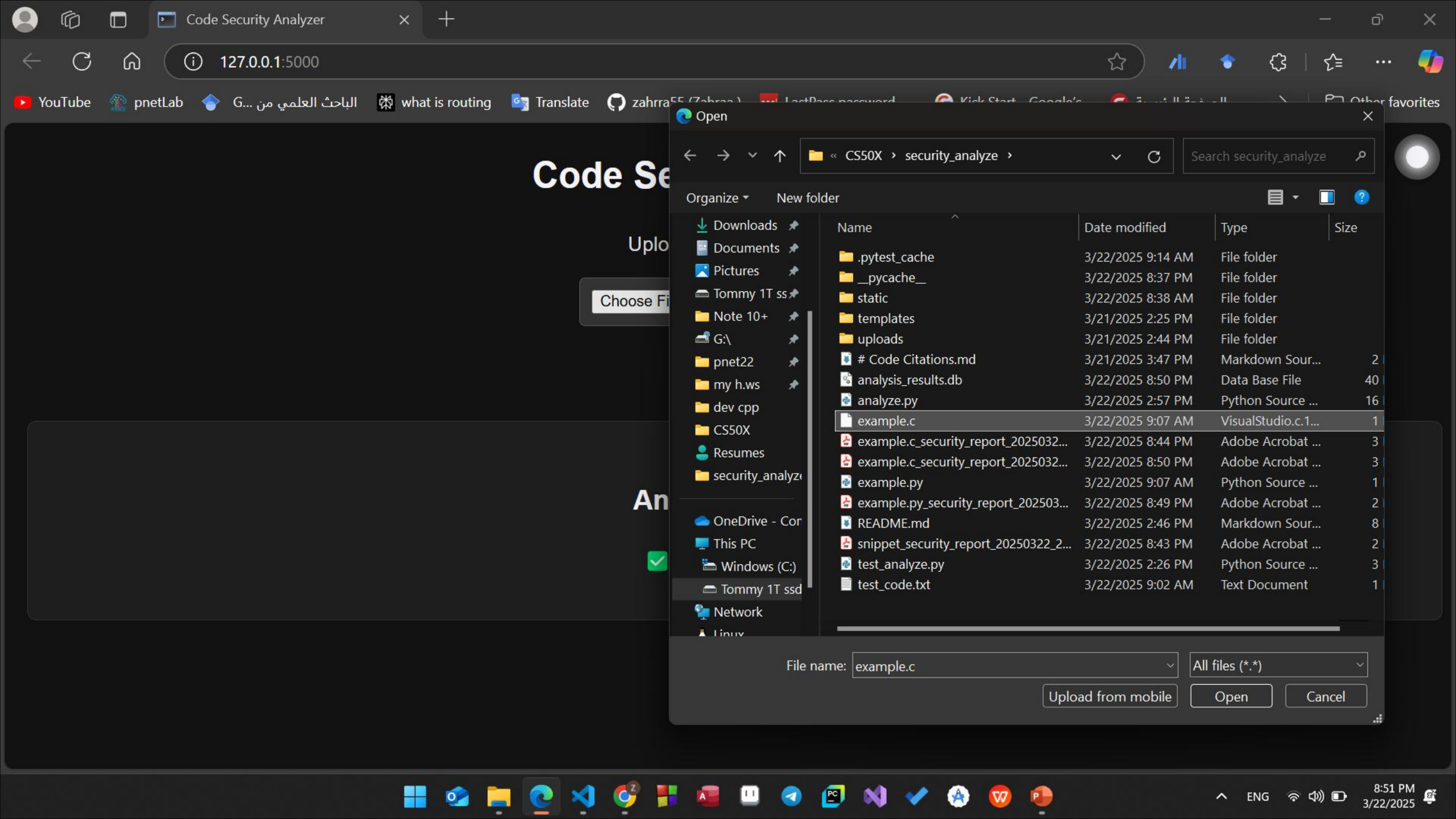


Light mode:


Code Security Analyzer
127.0.0.1:5000
YouTube
pnetLab
G... من الباحث العلمي
what is routing
Translate
zahrra55 (Zahraa)
LastPass password...
Kick Start - Google's...
الصفحة الرئيسية
Other favorites
Code Security Analyzer
Upload a file to analyze:
Choose File
No file chosen
Analyze
Analysis Result
Code is secure!

Dark mode:


Code Security Analyzer
127.0.0.1:5000
YouTube
pnetLab
G... من الباحث العلمي
what is routing
Translate
zahrra55 (Zahraa)
LastPass password...
Kick Start - Google's...
الصفحة الرئيسية
Other favorites
Code Security Analyzer
Upload a file to analyze:
Choose File
No file chosen
Analyze
Analysis Result
Code is secure!


Code Security Analyzer
127.0.0.1:5000
YouTube
pnetLab
what is routing
Translate
Other favorites
Code Se
Uplo
Choose Fi
An
Open
CS50X › security_analyze ›
Search security_analyze
Organize
New folder
Downloads
Documents
Pictures
Tommy 1T ss
Note 10+
G:\
pnet22
my h.ws
dev cpp
CS50X
Resumes
security_analyz
OneDrive - Cor
This PC
Windows (C:)
Tommy 1T ssd
Network
Name
Date modified
Type
Size
.pytest_cache 3/22/2025 9:14 AM File folder
__pycache__ 3/22/2025 8:37 PM File folder
static 3/22/2025 8:38 AM File folder
templates 3/21/2025 2:25 PM File folder
uploads 3/21/2025 2:44 PM File folder
Code Citations.md 3/21/2025 3:47 PM Markdown Sour... 2
analysis_results.db 3/22/2025 8:50 PM Data Base File 40
analyze.py 3/22/2025 2:57 PM Python Source ... 16
example.c 3/22/2025 9:07 AM VisualStudio.c.1... 1
example.c_security_report_2025032... 3/22/2025 8:44 PM Adobe Acrobat ... 3
example.c_security_report_2025032... 3/22/2025 8:50 PM Adobe Acrobat ... 3
example.py 3/22/2025 9:07 AM Python Source ... 1
example.py_security_report_202503... 3/22/2025 8:49 PM Adobe Acrobat ... 2
README.md 3/22/2025 2:46 PM Markdown Sour... 8
snippet_security_report_20250322_2... 3/22/2025 8:43 PM Adobe Acrobat ... 2
test_analyze.py 3/22/2025 2:26 PM Python Source ... 3
test_code.txt 3/22/2025 9:02 AM Text Document 1
File name: example.c
All files (*.*)
Upload from mobile
Open
Cancel
ENG
8:51 PM
3/22/2025

Analysis Result

⚠ Vulnerabilities detected!

Recommended Fix:

```
#include <stdio.h>
#include <string.h>

void vulnerable_function(char *input) {
    char buffer[10];
    strncpy(buffer, input, sizeof(buffer) - 1); buffer[sizeof(buffer) - 1] = '\0';buffer, input);
    printf("Buffer content: %s\n", buffer);
}

int main() {
    char input[100];
    printf("Enter some text: ");
    fgets(input, sizeof(input), stdin);input);
    vulnerable_function(input);
    return 0;
}
```

```c
#include <stdio.h>
#include <string.h>

void vulnerable_function(char *input) {
    char buffer[10];
    strncpy(buffer, input, sizeof(buffer) - 1); buffer[sizeof(buffer) - 1] = '\0';buffer, input);
    printf("Buffer content: %s\n", buffer);
}

int main() {
    char input[100];
    printf("Enter some text: ");
    fgets(input, sizeof(input), stdin);input);
    vulnerable_function(input);
    return 0;
}
```

Download your analysis report:

Download PDF Report

```c
#include <stdio.h>
#include <string.h>

void vulnerable_function(char *input) {
    char buffer[10];
    strncpy(buffer, input, sizeof(buffer) - 1); buffer[sizeof(buffer) - 1] = '\0';buffer, input);
    printf("Buffer content: %s\n", buffer);
}

int main() {
    char input[100];
    printf("Enter some text: ");
    fgets(input, sizeof(input), stdin);input);
    vulnerable_function(input);
    return 0;
}
```

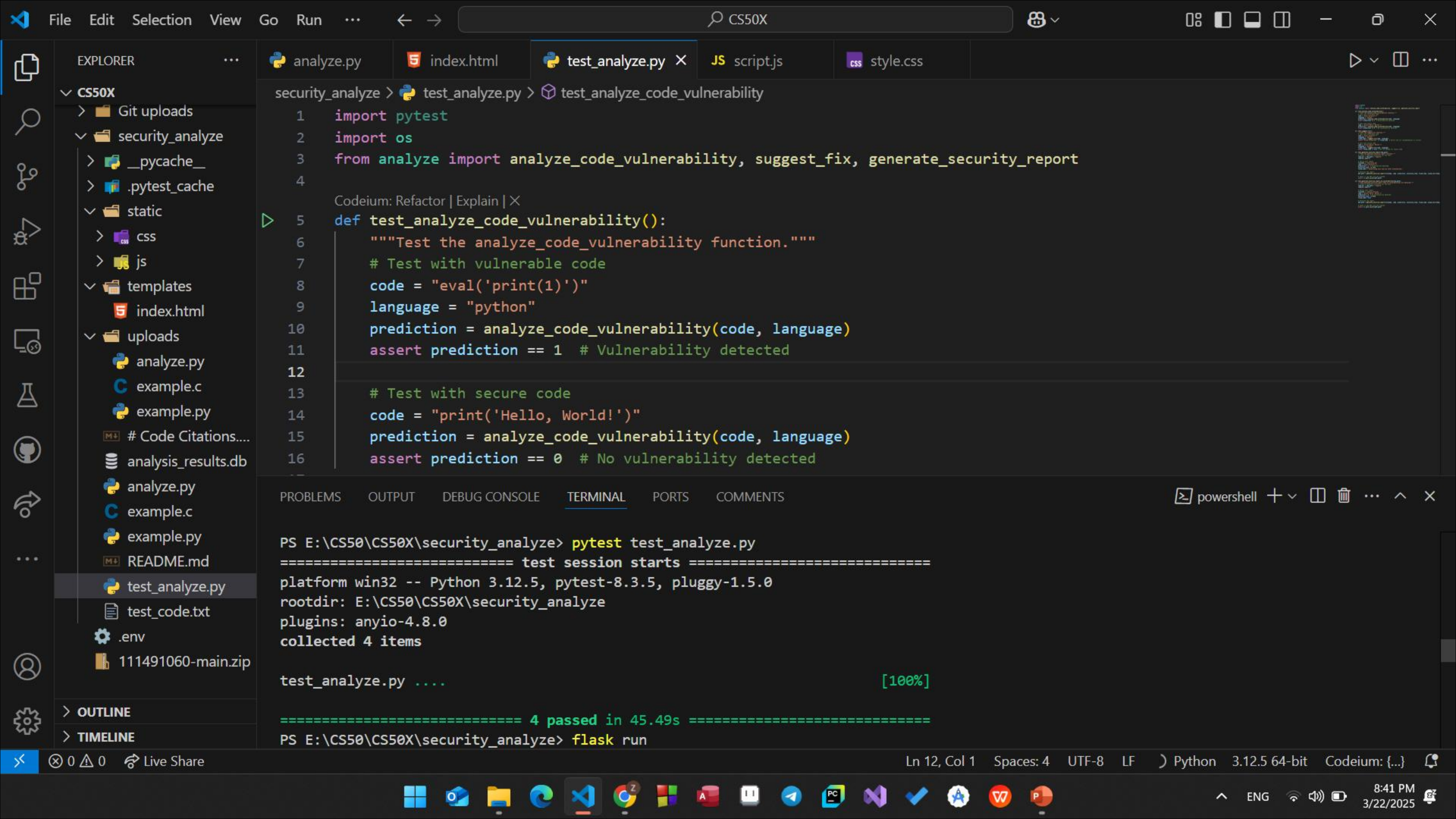
Download your analysis report:

Download PDF Report

```
void vulnerable_function(char *input) {
    char buffer[10];
    strcpy(buffer, input);
    printf("Buffer content: %s\n", buffer);
}

int main() {
    char input[100];
    printf("Enter some text: ");
    gets(input);
    vulnerable_function(input);
    return 0;
}
```

■■ Vulnerabilities detected!
■ Vulnerability detected in the code.
■ Recommended Fix:

```
#include <stdio.h>
#include <string.h>

void vulnerable_function(char *input) {
    char buffer[10];
    strncpy(buffer, input, sizeof(buffer) - 1); buffer[sizeof(buffer) - 1] = '\0';buffer, input);
    printf("Buffer content: %s\n", buffer);
}

int main() {
    char input[100];
```


File Edit Selection View Go Run
CS50X
EXPLORER
CS50X
Git uploads
security_analyze
__pycache__
.pytest_cache
static
css
js
templates
index.html
uploads
analyze.py
example.c
example.py
Code Citations....
analysis_results.db
analyze.py
example.c
example.py
README.md
test_analyze.py
test_code.txt
.env
111491060-main.zip
OUTLINE
TIMELINE
analyze.py
index.html
test_analyze.py
script.js
style.css
security_analyze > test_analyze.py > test_analyze_code_vulnerability
1 import pytest
2 import os
3 from analyze import analyze_code_vulnerability, suggest_fix, generate_security_report
4
Codeium: Refactor | Explain |
5 def test_analyze_code_vulnerability():
6 """Test the analyze_code_vulnerability function."""
7 # Test with vulnerable code
8 code = "eval('print(1)')"
9 language = "python"
10 prediction = analyze_code_vulnerability(code, language)
11 assert prediction == 1 # Vulnerability detected
12
13 # Test with secure code
14 code = "print('Hello, World!')"
15 prediction = analyze_code_vulnerability(code, language)
16 assert prediction == 0 # No vulnerability detected
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS COMMENTS
powershell
PS E:\CS50\CS50X\security_analyze> pytest test_analyze.py
========== test session starts ==========
platform win32 -- Python 3.12.5, pytest-8.3.5, pluggy-1.5.0
rootdir: E:\CS50\CS50X\security_analyze
plugins: anyio-4.8.0
collected 4 items
test_analyze.py .... [100%]
========== 4 passed in 45.49s ==========
PS E:\CS50\CS50X\security_analyze> flask run
0 0 Live Share
Ln 12, Col 1 Spaces: 4 UTF-8 LF Python 3.12.5 64-bit Codeium: {...}
ENG
8:41 PM
3/22/2025

Thank you.