Project Title: Password Strength Analyzer with Custom Wordlist Generator

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Domain: Cybersecurity Internship – Project Phase
Duration: 1 Month

1. Introduction

Weak passwords remain a leading cause of security breaches in personal and enterprise environments. This project aims to assess password strength using industry-standard methods and generate custom wordlists that simulate what attackers might build using personal information.

2. Abstract

The goal of this project is to create a dual-function Python tool:

- **Password Strength Analyzer:** Evaluates the strength of user passwords using the zxcvbn algorithm.
- **Custom Wordlist Generator:** Builds a wordlist based on inputs like names, pet names, years, and applies leetspeak rules.

This project gives insights into password entropy, guessability, and how simple personal data can lead to weak passwords.

3. Tools Used

- **Python 3.9+**
- **zxcvbn** – Password strength estimator
- **argparse** – Command-line interface
- **Basic string processing and file I/O**

4. Steps Involved

Step 1: Setup and Dependency Installation

Pip install zxcvbn

Step 2: Password Strength Analysis

- **Input password from user**
- **Use zxcvbn to analyze guessability, crack time, score, and suggestions**

Step 3: Wordlist Generation

- **Accept user-defined inputs (e.g., names, pet, birth years)**
- **Apply transformations like leetspeak and year concatenation**
- **Output to a .txt file usable in brute-force tools**

Step 4: Combine & Automate

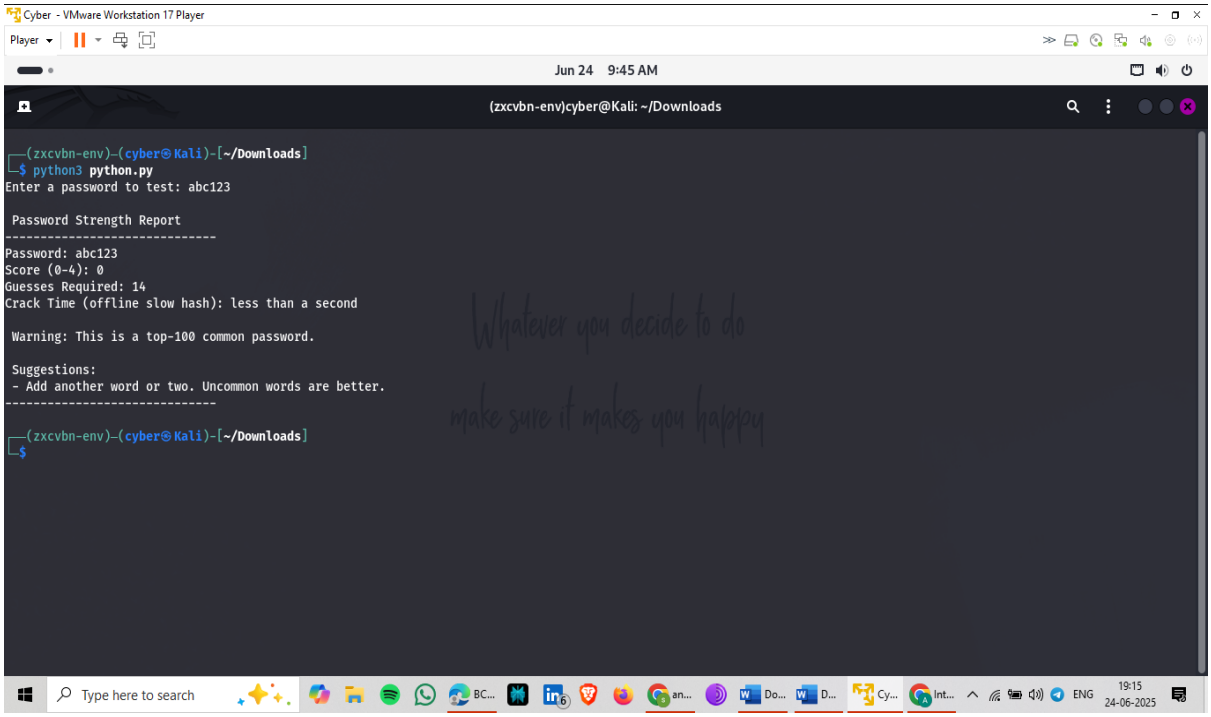
- **Combined password analysis and wordlist generator under a single CLI interface**

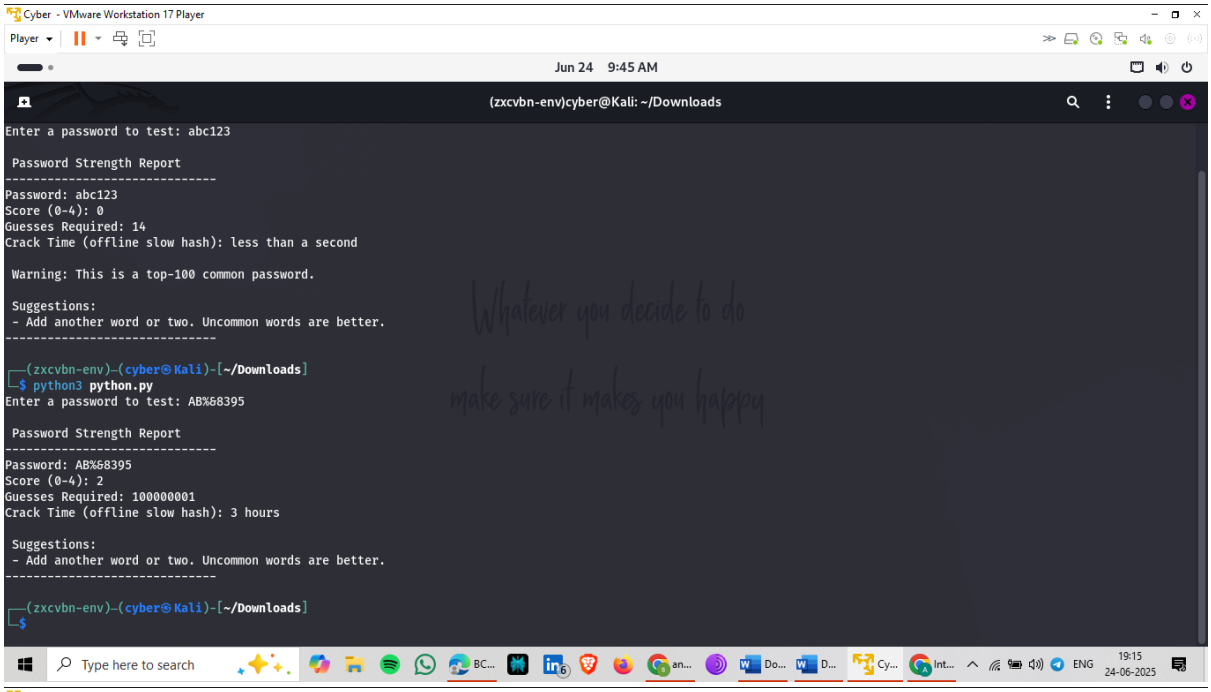
5. Conclusion

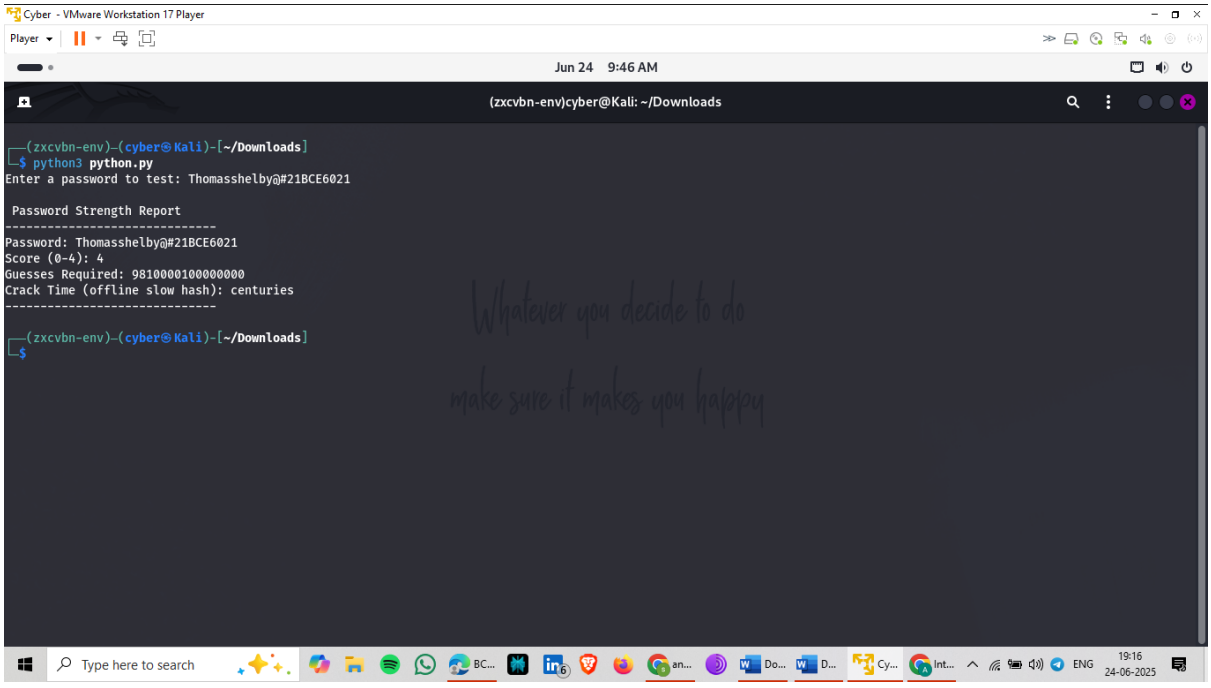
This tool is a simple yet effective project that highlights:

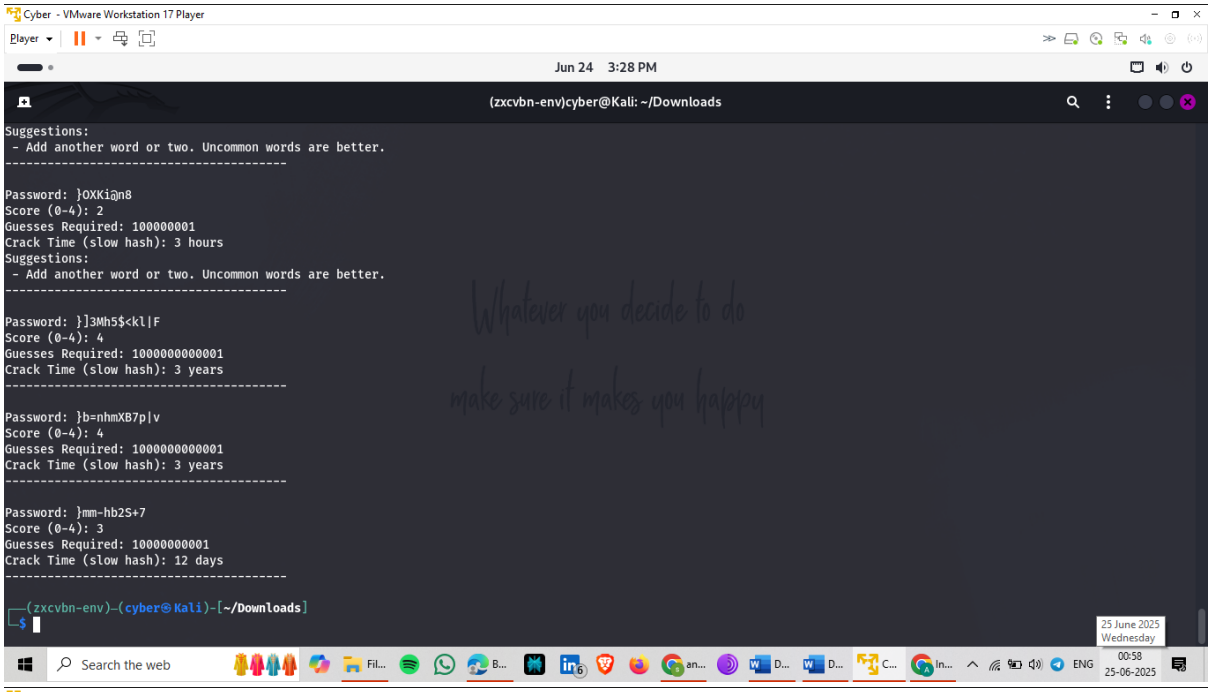
- **The dangers of weak and guessable passwords**
- **The importance of strong password creation**
- **How attackers might use personal information to generate cracking dictionaries**

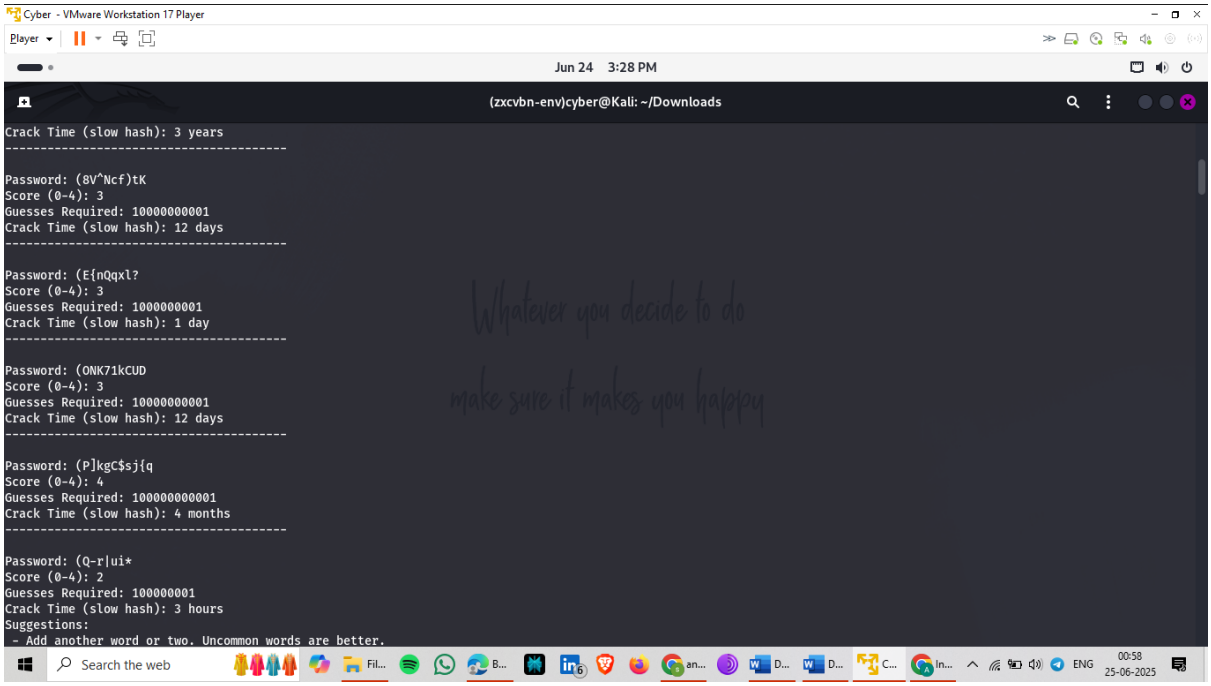
Little demonstration of what we have done in this project via screenshot....

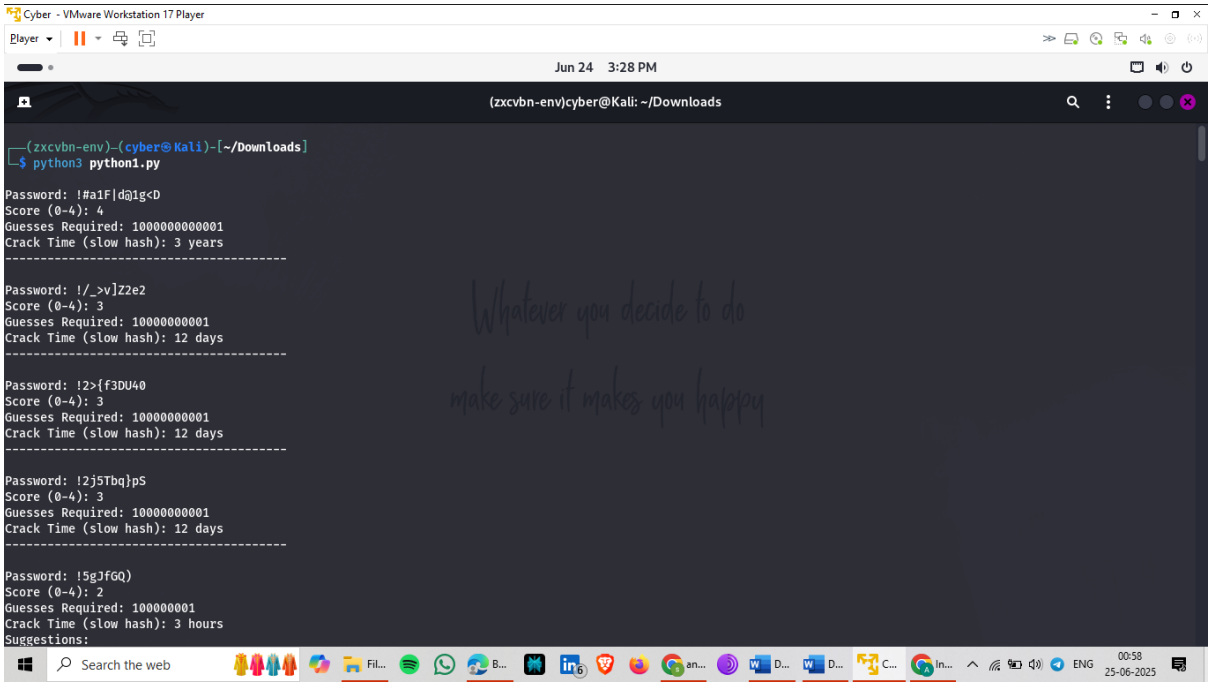

Cyber - VMware Workstation 17 Player
Player
Jun 24 9:45 AM
(zxcvbn-env)cyber@Kali: ~/Downloads
┌──(zxcvbn-env)─(cyber㉿Kali)-[~/Downloads]
└─$ python3 python.py
Enter a password to test: abc123
Password Strength Report
Password: abc123
Score (0-4): 0
Guesses Required: 14
Crack Time (offline slow hash): less than a second
Warning: This is a top-100 common password.
Suggestions:
- Add another word or two. Uncommon words are better.
┌──(zxcvbn-env)─(cyber㉿Kali)-[~/Downloads]
└─$
Whatever you decide to do
make sure it makes you happy
Type here to search
ENG
19:15
24-06-2025


Cyber - VMware Workstation 17 Player
Player
Jun 24 9:45 AM
(zxcvbn-env)cyber@Kali: ~/Downloads
Enter a password to test: abc123
Password Strength Report
Password: abc123
Score (0-4): 0
Guesses Required: 14
Crack Time (offline slow hash): less than a second
Warning: This is a top-100 common password.
Suggestions:
- Add another word or two. Uncommon words are better.
(zxcvbn-env)-(cyber㉿Kali)-[~/Downloads]
$ python3 python.py
Enter a password to test: AB%68395
Password Strength Report
Password: AB%68395
Score (0-4): 2
Guesses Required: 100000001
Crack Time (offline slow hash): 3 hours
Suggestions:
- Add another word or two. Uncommon words are better.
(zxcvbn-env)-(cyber㉿Kali)-[~/Downloads]
$
Whatever you decide to do
make sure it makes you happy
Type here to search
ENG
19:15
24-06-2025


Cyber - VMware Workstation 17 Player
Player
Jun 24 9:46 AM
(zxcvbn-env)cyber@Kali: ~/Downloads
(zxcvbn-env)-(cyber㉿Kali)-[~/Downloads]
$ python3 python.py
Enter a password to test: Thomasshelby@#21BCE6021
Password Strength Report
Password: Thomasshelby@#21BCE6021
Score (0-4): 4
Guesses Required: 98100001000000000
Crack Time (offline slow hash): centuries
(zxcvbn-env)-(cyber㉿Kali)-[~/Downloads]
$
Whatever you decide to do
make sure it makes you happy
Type here to search
ENG
19:16
24-06-2025


Cyber - VMware Workstation 17 Player
Player
Jun 24 3:28 PM
(zxcvbn-env)cyber@Kali: ~/Downloads
Suggestions:
- Add another word or two. Uncommon words are better.
Password: }OXKi@n8
Score (0-4): 2
Guesses Required: 100000001
Crack Time (slow hash): 3 hours
Suggestions:
- Add another word or two. Uncommon words are better.
Password: }]3Mh5$<kl|F
Score (0-4): 4
Guesses Required: 1000000000001
Crack Time (slow hash): 3 years
Password: }b=nhmXB7p|v
Score (0-4): 4
Guesses Required: 1000000000001
Crack Time (slow hash): 3 years
Password: }mm-hb2S+7
Score (0-4): 3
Guesses Required: 10000000001
Crack Time (slow hash): 12 days
(zxcvbn-env)-(cyber㉿Kali)-[~/Downloads]
$
Whatever you decide to do
make sure it makes you happy
25 June 2025
Wednesday
Search the web
ENG
00:58
25-06-2025


Cyber - VMware Workstation 17 Player
Player
Jun 24 3:28 PM
(zxcvbn-env)cyber@Kali: ~/Downloads
Crack Time (slow hash): 3 years
Password: (8V^Ncf)tK
Score (0-4): 3
Guesses Required: 10000000001
Crack Time (slow hash): 12 days
Password: (E{nQqxl?
Score (0-4): 3
Guesses Required: 1000000001
Crack Time (slow hash): 1 day
Password: (ONK71kCUD
Score (0-4): 3
Guesses Required: 10000000001
Crack Time (slow hash): 12 days
Password: (P]kgC$sj{q
Score (0-4): 4
Guesses Required: 100000000001
Crack Time (slow hash): 4 months
Password: (Q-r|ui*
Score (0-4): 2
Guesses Required: 100000001
Crack Time (slow hash): 3 hours
Suggestions:
- Add another word or two. Uncommon words are better.
Whatever you decide to do
make sure it makes you happy
Search the web
ENG
00:58
25-06-2025


Cyber - VMware Workstation 17 Player
Player
Jun 24 3:28 PM
(zxcvbn-env)cyber@Kali: ~/Downloads
┌──(zxcvbn-env)─(cyber㉿Kali)-[~/Downloads]
└─$ python3 python1.py
Password: !#a1F|d@1g<D
Score (0-4): 4
Guesses Required: 1000000000001
Crack Time (slow hash): 3 years
Password: !/_>v]Z2e2
Score (0-4): 3
Guesses Required: 10000000001
Crack Time (slow hash): 12 days
Password: !2>{f3DU40
Score (0-4): 3
Guesses Required: 10000000001
Crack Time (slow hash): 12 days
Password: !2j5Tbq}pS
Score (0-4): 3
Guesses Required: 10000000001
Crack Time (slow hash): 12 days
Password: !5gJfGQ)
Score (0-4): 2
Guesses Required: 100000001
Crack Time (slow hash): 3 hours
Suggestions:
Whatever you decide to do
make sure it makes you happy
Search the web
ENG
00:58
25-06-2025