Project Report

Password Cracking & Credential Attack Suite

Course : Cyber Security
Student Name: *Aneesa Fathima*
Submission Date: *09-01-2026*

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1. Introduction

This project demonstrates password security assessment and basic credential analysis in a controlled, ethical environment using a Kali Linux virtual machine. The objective is to understand how custom wordlists are generated and how password strength can be analyzed using a Python script.

The practical implementation uses Python scripts to generate password combinations and analyze password strength based on entropy. Outputs are documented and supported by screenshots to verify successful execution.

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2. Objectives

The primary objectives of this project are:

- To generate a custom password wordlist.
- To analyze the strength of passwords using entropy estimation.
- To document each step with screenshots.
- To compile findings into a structured report.

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3. Tools Used

Tool	Purpose
Kali Linux VM	Execution environment
Python 3	Script development
Git & GitHub	Version control and submission
Google Docs / Word	Report creation

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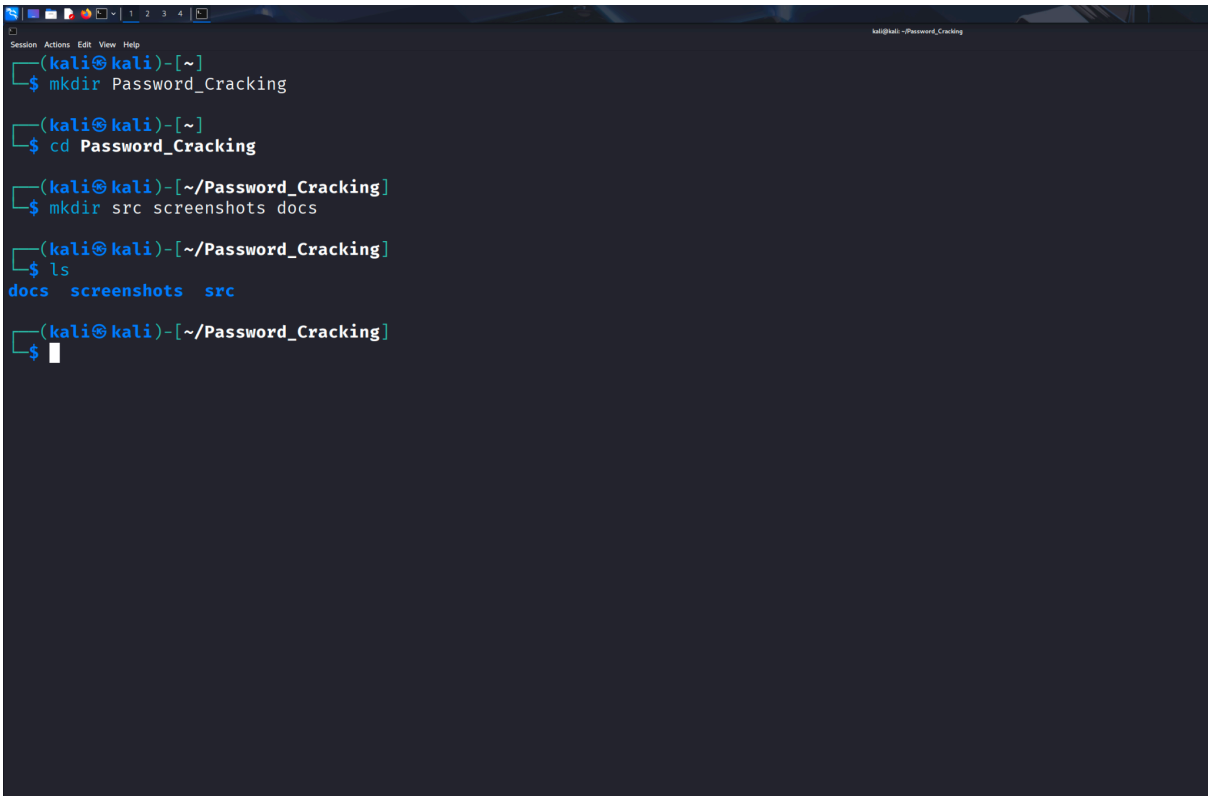
4. Project Folder Structure

The final project directory structure is as follows:

```
Password_Cracking_Project/
├── docs/
│   └── Project_Report.pdf
├── screenshots/
│   ├── screenshot1.png
│   ├── screenshot2.png
│   └── …
├── src/
│   ├── dict_generator.py
│   └── password_analyzer.py
└── README.md
```



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5. Methodology

5.1 Wordlist Generator Script

The following Python script generates a custom wordlist by combining common names, numeric sequences, and symbols.

```
names = ["admin", "user", "test"]
years = ["123", "1234", "2024"]
symbols = ["@", "!", "#"]

with open("custom_wordlist.txt", "w") as file:
    for name in names:
        for year in years:
            file.write(name + year + "\n")
            for sym in symbols:
```

```
                file.write(name + year + sym + "\n")

print("Custom wordlist generated successfully!")
```

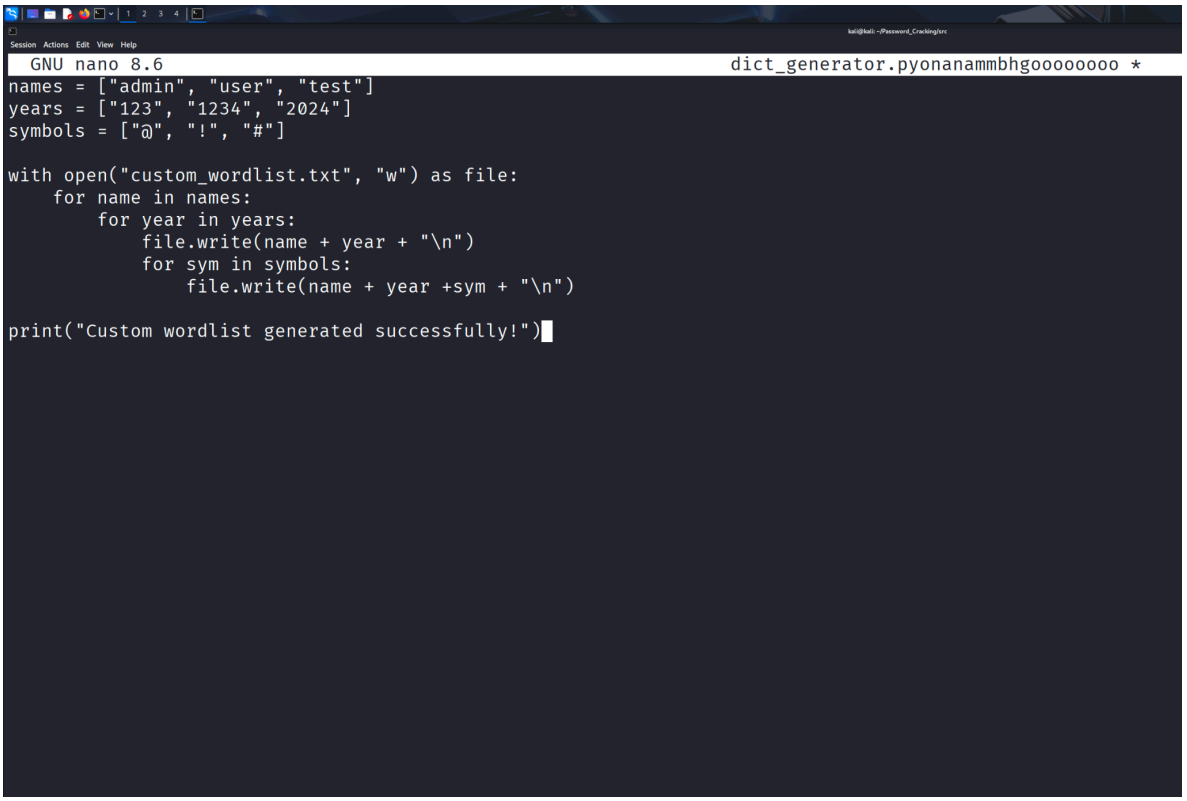
Execution & Output

1. Navigate to the project's `src/` directory.

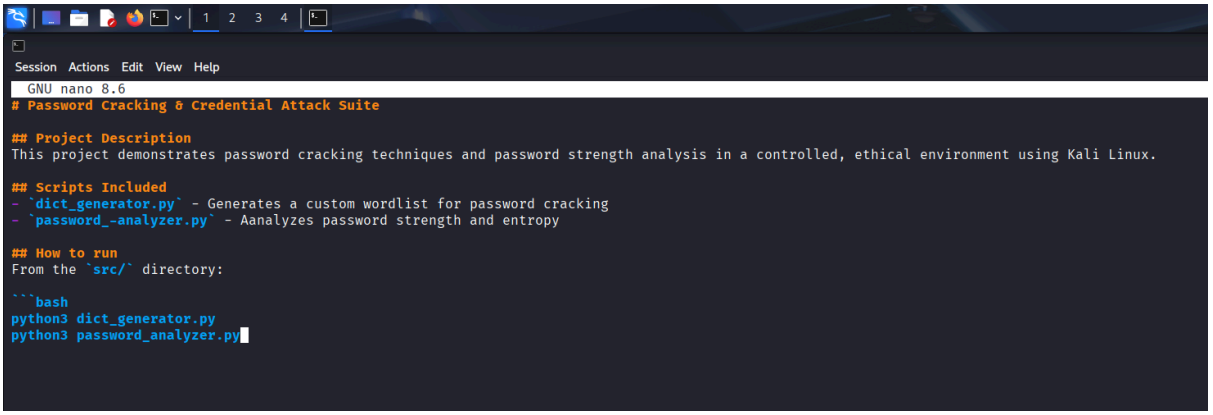
2. Run the Python script using the command:

```
python3 dict_generator.py
```

3. Verify that the custom wordlist file is generated successfully.



```
┌──(kali㉿kali)-[~/Password_Cracking/src]
└─$ nano dict_generator.py

┌──(kali㉿kali)-[~/Password_Cracking/src]
└─$ ls
dict_generator.py  Password_analyzer.py

┌──(kali㉿kali)-[~/Password_Cracking/src]
└─$ python3 dict_generator.py
Custom wordlist generated successfully!

┌──(kali㉿kali)-[~/Password_Cracking/src]
└─$ cat custom_wordlist.txt
admin123
admin123@
admin123!
admin123#
admin1234
admin1234@
admin1234!
admin1234#
admin2024
admin2024@
admin2024!
admin2024#
user123
user123@
user123!
user123#
user1234
user1234@
user1234!
user1234#
user2024
user2024@
user2024!
user2024#
test123
test123@
test123!
test123#
test1234
test1234@
test1234!
test1234#
test2024
test2024@
test2024!
test2024#

┌──(kali㉿kali)-[~/Password_Cracking/src]
└─$
```



5.2 Password Strength Analyzer Script

The following Python script estimates the entropy of a user-entered password to assess its strength:

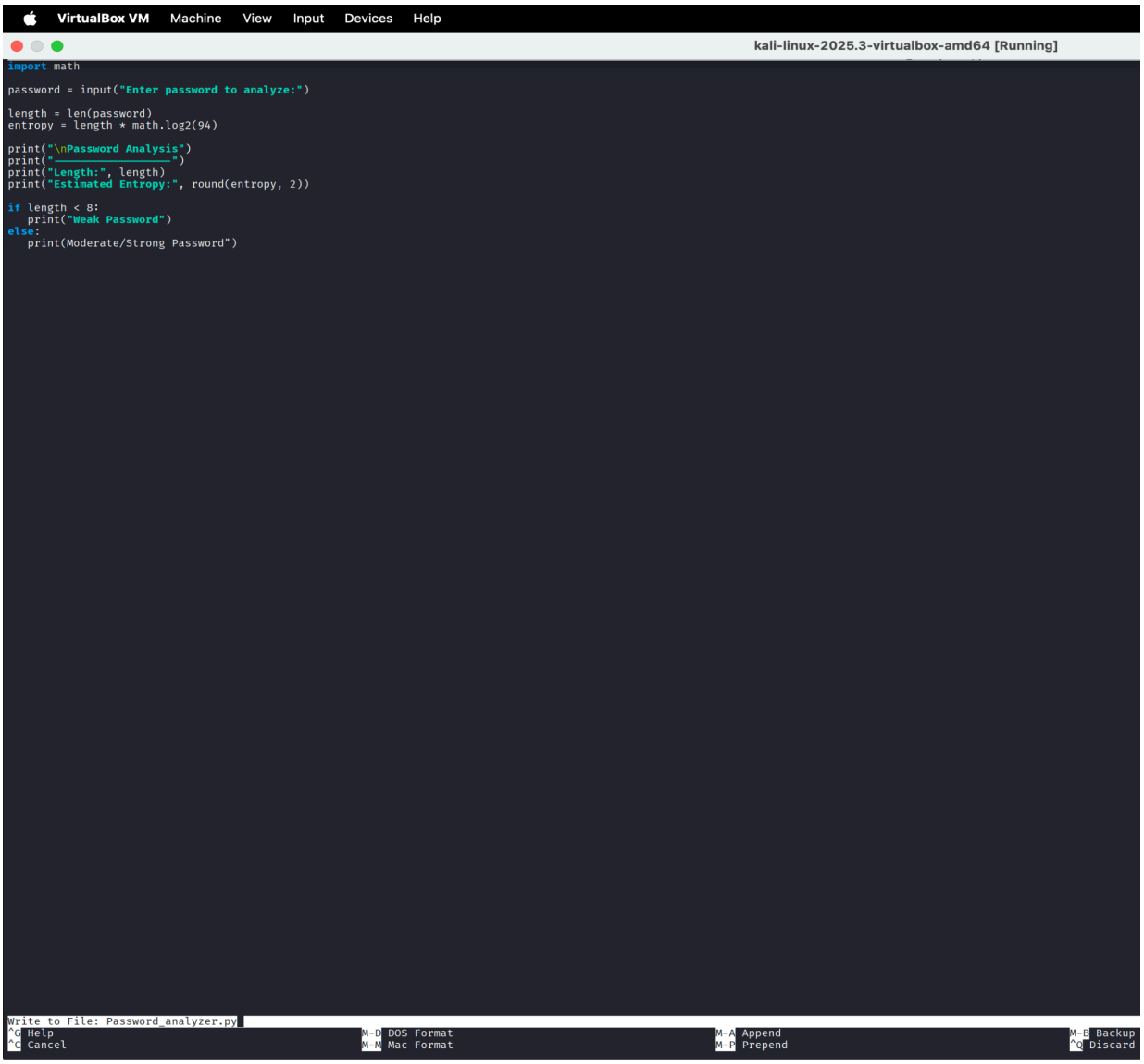
```
import math

password = input("Enter password to analyze: ")

length = len(password)
entropy = length * math.log2(94)

print("\nPassword Analysis")
print("------------------")
print("Length:", length)
print("Estimated Entropy:", round(entropy, 2))

if length < 8:
    print("Weak password")
else:
    print("Moderate/Strong password")
```

Execution & Output

1. From the `src/` folder, run:

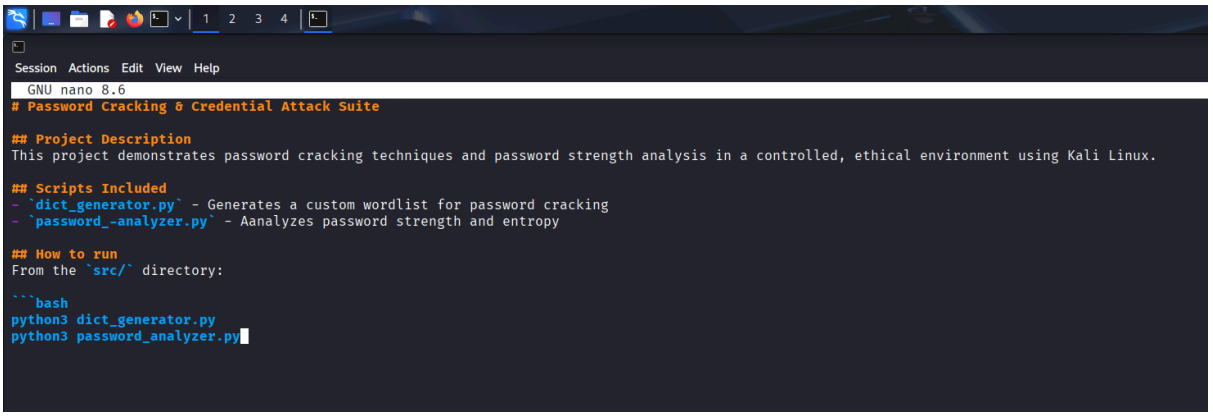
```
python3 password_analyzer.py
```

2. Enter a test password and view the output.



```
┌──(kali㉿kali)-[~/Password_Cracking/src]
└─$ ls
Password_analyzer.py

┌──(kali㉿kali)-[~/Password_Cracking/src]
└─$ python3 Password_analyzer.py
  File "/home/kali/Password_Cracking/src/Password_analyzer.py", line 16
    print(Moderate/Strong Password")
                                   ^
SyntaxError: unterminated string literal (detected at line 16)

┌──(kali㉿kali)-[~/Password_Cracking/src]
└─$ nano Password_analyzer.py

┌──(kali㉿kali)-[~/Password_Cracking/src]
└─$ python3 Password_analyzer.py
Enter password to analyze:mypass123

Password Analysis
─────────────────

Length: 9
Estimated Entropy: 58.99
Moderate/Strong Password

┌──(kali㉿kali)-[~/Password_Cracking/src]
└─$
```

```
┌──(kali㉿kali)-[~/Password_Cracking/src]
└─$ nano Password_analyzer.py

┌──(kali㉿kali)-[~/Password_Cracking/src]
└─$ ls
Password_analyzer.py

┌──(kali㉿kali)-[~/Password_Cracking/src]
└─$
```



6. Results

The project successfully executed both scripts.

- The wordlist generator script produced a custom password list.
- The password strength analyzer calculated entropy and classified password strength.

The results demonstrate how simple scripting and basic logic can be used to assess password security. The screenshots verify the execution steps and outcomes.

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7. Conclusion

In this project, essential password assessment techniques were implemented and executed ethically within a Kali Linux environment. The task helped reinforce understanding of:

- Wordlist creation logic.
- The use of entropy to evaluate password strength.
- Documenting outputs to support academic reporting.

This project highlights how cybersecurity practitioners can build basic tools to assist in evaluating password policies and security measures.

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8. References

1. Kali Linux Documentation
2. Python 3 Official Documentation

3. GitHub (Version control)

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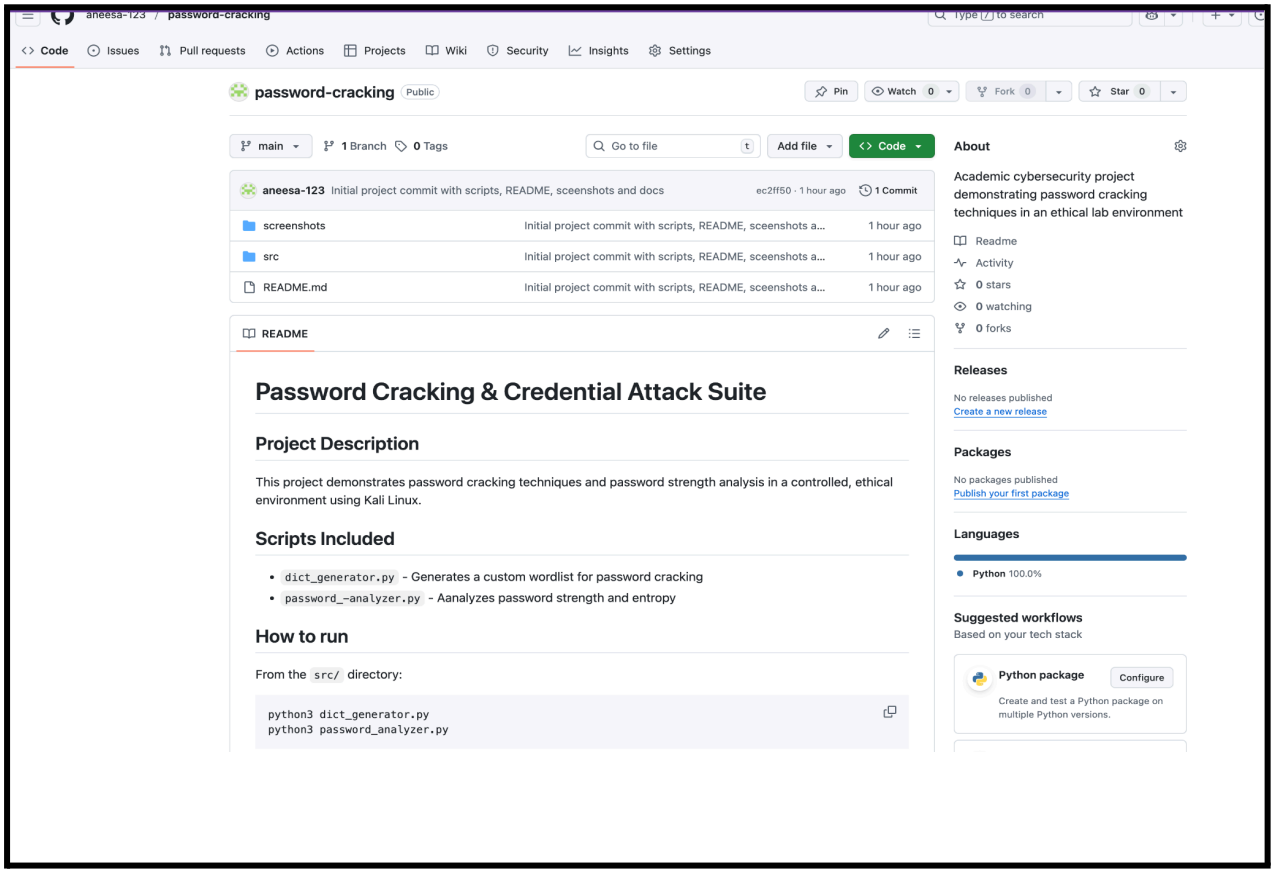
9. GitHub Repository

This project is hosted on GitHub for version control and documentation.

🔗 Repository URL:

https://github.com/aneesa-123/password-cracking



```
┌──(kali㉿kali)-[~]
└─$ cd ~/Password_Cracking

┌──(kali㉿kali)-[~/Password_Cracking]
└─$ ls
docs  README.md  screenshots  src

┌──(kali㉿kali)-[~/Password_Cracking]
└─$ git init
hint: Using 'master' as the name for the initial branch. This default branch name
hint: is subject to change. To configure the initial branch name to use in all
hint: of your new repositories, which will suppress this warning, call:
hint:
hint:   git config --global init.defaultBranch <name>
hint:
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint: 'development'. The just-created branch can be renamed via this command:
hint:
hint:   git branch -m <name>
hint:
hint: Disable this message with "git config set advice.defaultBranchName false"
Initialized empty Git repository in /home/kali/Password_Cracking/.git/

┌──(kali㉿kali)-[~/Password_Cracking]
└─$

┌──(kali㉿kali)-[~/Password_Cracking]
└─$ hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint:: command not found

┌──(kali㉿kali)-[~/Password_Cracking]
└─$ git add
Nothing specified, nothing added.
hint: Maybe you wanted to say 'git add .'?
hint: Disable this message with "git config set advice.addEmptyPathspec false"

┌──(kali㉿kali)-[~/Password_Cracking]
└─$ git add  .

┌──(kali㉿kali)-[~/Password_Cracking]
└─$ git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   README.md
        new file:   screenshots/Screenshot 2025-12-23 at 21.40.17.png
        new file:   screenshots/Screenshot 2025-12-23 at 22.03.51.png
        new file:   screenshots/Screenshot 2025-12-23 at 22.06.55.png
        new file:   screenshots/Screenshot 2025-12-23 at 22.19.55.png
        new file:   screenshots/Screenshot 2025-12-24 at 07.01.31.png
        new file:   screenshots/Screenshot 2025-12-24 at 07.06.37.png
        new file:   screenshots/Screenshot 2025-12-24 at 07.07.56.png
        new file:   screenshots/Screenshot 2025-12-24 at 07.19.47.png
        new file:   screenshots/Screenshot 2025-12-24 at 07.37.47.png
        new file:   screenshots/Screenshot 2025-12-24 at 07.40.23.png
        new file:   screenshots/Screenshot 2025-12-24 at 09.08.41.png
        new file:   screenshots/Screenshot 2025-12-24 at 09.13.44.png
        new file:   screenshots/password analyzer code.png
        new file:   src/Password_analyzer.py
        new file:   src/custom_wordlist.txt
        new file:   src/dict_generator.py


┌──(kali㉿kali)-[~/Password_Cracking]
└─$ git commit -m "Initial project commit with scripts, README, screenshots and docs"
Author identity unknown

*** Please tell me who you are.

Run

  git config --global user.email "you@example.com"
  git config --global user.name "Your Name"

to set your account's default identity.
Omit --global to set the identity only in this repository.

fatal: unable to auto-detect email address (got 'kali@kali.(none)')

┌──(kali㉿kali)-[~/Password_Cracking]
└─$ git config --global user.email "sasheik03@gmail.com"

┌──(kali㉿kali)-[~/Password_Cracking]
└─$ git config --global user.name ""Aneesa Fathima"

┌──(kali㉿kali)-[~/Password_Cracking]
└─$ git config --global --list
user.email=sasheik03@gmail.com
user.name='Aneesa Fathima

┌──(kali㉿kali)-[~/Password_Cracking]
└─$
```

```
┌──(kali㉿kali)-[/mnt/shared]
└─$ ls ~/Password_Cracking/screenshots
'password analyzer code.png'            'Screenshot 2025-12-23 at 22.03.51.png'  'Screenshot 2025-12-23 at 22.19.55.png'  'Screenshot 2025-12-24 at 07.06.37.png'  'Screenshot 2025-12-24 at 07.19.47.png'  'Screenshot 2025-12-24 at 07.40.23.png'  'Screenshot 2025-12-24 at 09.13.44.png'
'Screenshot 2025-12-23 at 21.40.17.png'  'Screenshot 2025-12-23 at 22.06.55.png'  'Screenshot 2025-12-24 at 07.01.31.png'  'Screenshot 2025-12-24 at 07.07.56.png'  'Screenshot 2025-12-24 at 07.37.47.png'  'Screenshot 2025-12-24 at 09.08.41.png'

┌──(kali㉿kali)-[/mnt/shared]
└─$ cd ~/Password_Cracking

┌──(kali㉿kali)-[~/Password_Cracking]
└─$ ls screenshots
'password analyzer code.png'            'Screenshot 2025-12-23 at 22.03.51.png'  'Screenshot 2025-12-23 at 22.19.55.png'  'Screenshot 2025-12-24 at 07.06.37.png'  'Screenshot 2025-12-24 at 07.19.47.png'  'Screenshot 2025-12-24 at 07.40.23.png'  'Screenshot 2025-12-24 at 09.13.44.png'
'Screenshot 2025-12-23 at 21.40.17.png'  'Screenshot 2025-12-23 at 22.06.55.png'  'Screenshot 2025-12-24 at 07.01.31.png'  'Screenshot 2025-12-24 at 07.07.56.png'  'Screenshot 2025-12-24 at 07.37.47.png'  'Screenshot 2025-12-24 at 09.08.41.png'

┌──(kali㉿kali)-[~/Password_Cracking]
└─$
```

```
[sudo] password for kali:

┌──(kali㉿kali)-[~]
└─$ sudo mkdir /mnt/shared
mkdir: cannot create directory '/mnt/shared': File exists

┌──(kali㉿kali)-[~]
└─$ sudo mount -t vboxsf SharedShots /mnt/shared
/sbin/mount.vboxsf: mounting failed with the error: No such file or directory

┌──(kali㉿kali)-[~]
└─$ sudo mount -t vboxsf KaliSharedScreenshots /mnt/shared

┌──(kali㉿kali)-[~]
└─$ /mnt/shared

┌──(kali㉿kali)-[/mnt/shared]
└─$ mv /mnt/shared/*.png ~/Password_Cracking/screenshots/
mv: cannot remove '/mnt/shared/password analyzer code.png': Permission denied
mv: cannot remove '/mnt/shared/Screenshot 2025-12-23 at 21.40.17.png': Permission denied
mv: cannot remove '/mnt/shared/Screenshot 2025-12-23 at 22.03.51.png': Permission denied
mv: cannot remove '/mnt/shared/Screenshot 2025-12-23 at 22.06.55.png': Permission denied
mv: cannot remove '/mnt/shared/Screenshot 2025-12-23 at 22.19.55.png': Permission denied
mv: cannot remove '/mnt/shared/Screenshot 2025-12-24 at 07.01.31.png': Permission denied
mv: cannot remove '/mnt/shared/Screenshot 2025-12-24 at 07.06.37.png': Permission denied
mv: cannot remove '/mnt/shared/Screenshot 2025-12-24 at 07.07.56.png': Permission denied
mv: cannot remove '/mnt/shared/Screenshot 2025-12-24 at 07.19.47.png': Permission denied
mv: cannot remove '/mnt/shared/Screenshot 2025-12-24 at 07.37.47.png': Permission denied
mv: cannot remove '/mnt/shared/Screenshot 2025-12-24 at 07.40.23.png': Permission denied
mv: cannot remove '/mnt/shared/Screenshot 2025-12-24 at 09.08.41.png': Permission denied
mv: cannot remove '/mnt/shared/Screenshot 2025-12-24 at 09.13.44.png': Permission denied

┌──(kali㉿kali)-[/mnt/shared]
└─$ ls ~/Password_Cracking/screenshots
'password analyzer code.png'            'Screenshot 2025-12-23 at 22.03.51.png'  'Screenshot 2025-12-23 at 22.19.55.png'  'Screenshot 2025-12-24 at 07.06.37.png'  'Screenshot 2025-12-24 at 07.19.47.png'  'Screenshot 2025-12-24 at 07.40.23.png'  'Screenshot 2025-12-24 at 09.13.44.png'
'Screenshot 2025-12-23 at 21.40.17.png'  'Screenshot 2025-12-23 at 22.06.55.png'  'Screenshot 2025-12-24 at 07.01.31.png'  'Screenshot 2025-12-24 at 07.07.56.png'  'Screenshot 2025-12-24 at 07.37.47.png'  'Screenshot 2025-12-24 at 09.08.41.png'

┌──(kali㉿kali)-[/mnt/shared]
└─$ ls -l ~/Password_Cracking/screenshots
total 1872
-rw-r--r-- 1 kali kali 280789 Dec 23 20:34 'password analyzer code.png'
-rw-r--r-- 1 kali kali 244659 Dec 23 11:10 'Screenshot 2025-12-23 at 21.40.17.png'
-rw-r--r-- 1 kali kali 259194 Dec 23 11:33 'Screenshot 2025-12-23 at 22.03.51.png'
-rw-r--r-- 1 kali kali 262445 Dec 23 11:37 'Screenshot 2025-12-23 at 22.06.55.png'
-rw-r--r-- 1 kali kali  36315 Dec 23 11:50 'Screenshot 2025-12-23 at 22.19.55.png'
-rw-r--r-- 1 kali kali 241960 Dec 23 20:31 'Screenshot 2025-12-24 at 07.01.31.png'
-rw-r--r-- 1 kali kali 114009 Dec 23 20:36 'Screenshot 2025-12-24 at 07.06.37.png'
-rw-r--r-- 1 kali kali  32463 Dec 23 20:38 'Screenshot 2025-12-24 at 07.07.56.png'
-rw-r--r-- 1 kali kali  87074 Dec 23 20:49 'Screenshot 2025-12-24 at 07.19.47.png'
-rw-r--r-- 1 kali kali 115753 Dec 23 21:07 'Screenshot 2025-12-24 at 07.37.47.png'
-rw-r--r-- 1 kali kali  36520 Dec 23 21:10 'Screenshot 2025-12-24 at 07.40.23.png'
-rw-r--r-- 1 kali kali 122657 Dec 23 22:38 'Screenshot 2025-12-24 at 09.08.41.png'
-rw-r--r-- 1 kali kali  58934 Dec 23 22:43 'Screenshot 2025-12-24 at 09.13.44.png'

┌──(kali㉿kali)-[/mnt/shared]
└─$
```

```
┌──(kali㉿kali)-[~]
└─$ cd ~/Password_Cracking

┌──(kali㉿kali)-[~/Password_Cracking]
└─$ ls
docs  README.md  screenshots  src

┌──(kali㉿kali)-[~/Password_Cracking]
└─$ git init
Reinitialized existing Git repository in /home/kali/Password_Cracking/.git/

┌──(kali㉿kali)-[~/Password_Cracking]
└─$ git add .

┌──(kali㉿kali)-[~/Password_Cracking]
└─$ git commit -m "Initial project commit with scripts, README, sceenshots and docs"
[main (root-commit) ec2ff50] Initial project commit with scripts, README, sceenshots and docs
 17 files changed, 78 insertions(+)
 create mode 100644 README.md
 create mode 100644 screenshots/Screenshot 2025-12-23 at 21.40.17.png
 create mode 100644 screenshots/Screenshot 2025-12-23 at 22.03.51.png
 create mode 100644 screenshots/Screenshot 2025-12-23 at 22.06.55.png
 create mode 100644 screenshots/Screenshot 2025-12-23 at 22.19.55.png
 create mode 100644 screenshots/Screenshot 2025-12-24 at 07.01.31.png
 create mode 100644 screenshots/Screenshot 2025-12-24 at 07.06.37.png
 create mode 100644 screenshots/Screenshot 2025-12-24 at 07.07.56.png
 create mode 100644 screenshots/Screenshot 2025-12-24 at 07.19.47.png
 create mode 100644 screenshots/Screenshot 2025-12-24 at 07.37.47.png
 create mode 100644 screenshots/Screenshot 2025-12-24 at 07.40.23.png
 create mode 100644 screenshots/Screenshot 2025-12-24 at 09.08.41.png
 create mode 100644 screenshots/Screenshot 2025-12-24 at 09.13.44.png
 create mode 100644 screenshots/password analyzer code.png
 create mode 100644 src/Password_analyzer.py
 create mode 100644 src/custom_wordlist.txt
 create mode 100644 src/dict_generator.py

┌──(kali㉿kali)-[~/Password_Cracking]
└─$ git branch
* main

┌──(kali㉿kali)-[~/Password_Cracking]
└─$ git branch -M main

┌──(kali㉿kali)-[~/Password_Cracking]
└─$ git remote add origin https://github.com/aneesa-123/password-cracking.git
error: remote origin already exists.

┌──(kali㉿kali)-[~/Password_Cracking]
└─$ git remote -v
origin  https://github.com/aneesa-123/password-cracking (fetch)
origin  https://github.com/aneesa-123/password-cracking (push)

┌──(kali㉿kali)-[~/Password_Cracking]
└─$ git push -u origin main
Username for 'https://github.com': aneesa-123
Password for 'https://aneesa-123@github.com':
remote: Invalid username or token. Password authentication is not supported for Git operations.
fatal: Authentication failed for 'https://github.com/aneesa-123/password-cracking/'

┌──(kali㉿kali)-[~/Password_Cracking]
└─$ git push -u origin main
Username for 'https://github.com': aneesa-123
Password for 'https://aneesa-123@github.com':
Enumerating objects: 21, done.
Counting objects: 100% (21/21), done.
Delta compression using up to 2 threads
Compressing objects: 100% (21/21), done.
Writing objects: 100% (21/21), 1.40 MiB | 2.70 MiB/s, done.
Total 21 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/aneesa-123/password-cracking
 * [new branch]      main → main
branch 'main' set up to track 'origin/main'.

┌──(kali㉿kali)-[~/Password_Cracking]
└─$
```