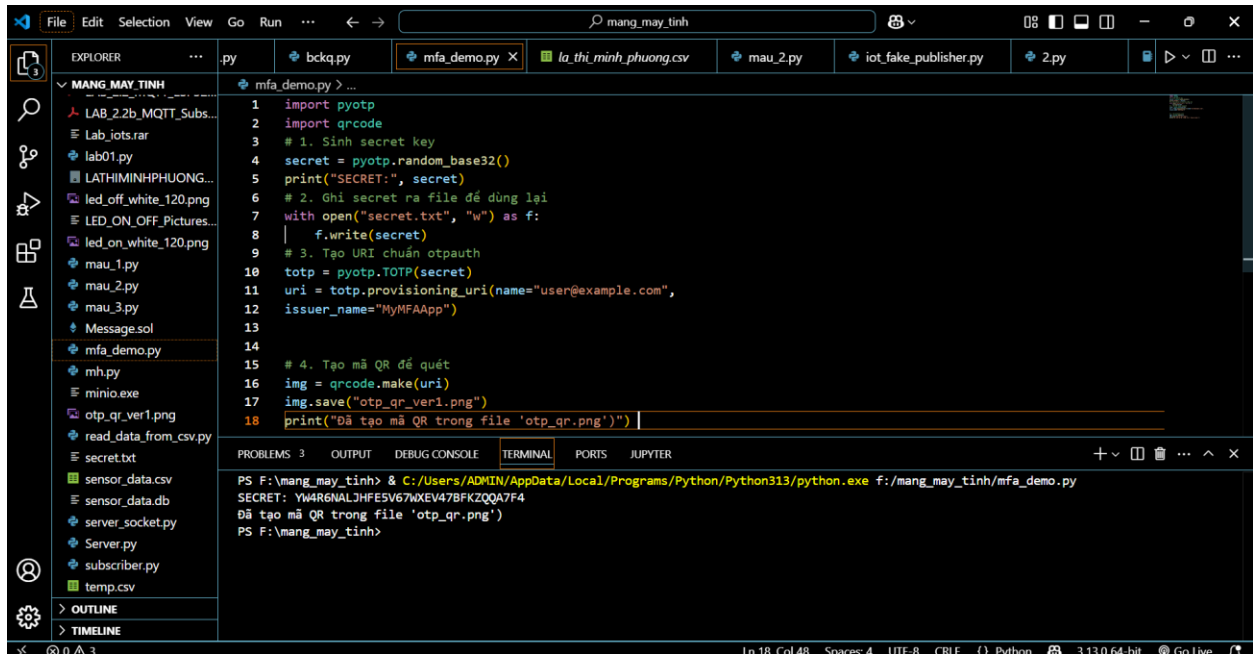


Bài Th 3

Bước 1: Tạo mã OTP và in mã QR



```
File Edit Selection View Go Run ... mang_may_tinh
EXPLORER
MANG_MAY_TINH
LAB_2.2b_MQTT_Subscri...
Lab_iots.rar
lab01.py
LATHIMINHPHUONG...
led_off_white_120.png
LED_ON_OFF_Pictures...
led_on_white_120.png
mau_1.py
mau_2.py
mau_3.py
Message.sol
mfa_demo.py
mh.py
minio.exe
otp_qr_ver1.png
read_data_from_csv.py
secret.txt
sensor_data.csv
sensor_data.db
server_socket.py
Server.py
subscriber.py
temp.csv
OUTLINE
TIMELINE
mfa_demo.py
1 import pyotp
2 import qrcode
3 # 1. Sinh secret key
4 secret = pyotp.random_base32()
5 print("SECRET:", secret)
6 # 2. Ghi secret ra file để dùng lại
7 with open("secret.txt", "w") as f:
8     f.write(secret)
9 # 3. Tạo URI chuẩn otpauth
10 totp = pyotp.TOTP(secret)
11 uri = totp.provisioning_uri(name="user@example.com",
12 issuer_name="MyMFAApp")
13
14
15 # 4. Tạo mã QR để quét
16 img = qrcode.make(uri)
17 img.save("otp_qr_ver1.png")
18 print("Đã tạo mã QR trong file 'otp_qr.png'")

PROBLEMS 3 OUTPUT DEBUG CONSOLE TERMINAL PORTS JUPYTER
PS F:\mang_may_tinh> & C:/Users/ADMIN/AppData/Local/Programs/Python/Python313/python.exe f:/mang_may_tinh/mfa_demo.py
SECRET: YW4RG6NALJHFE5V67WKEV47BFKZQQA7F4
Đã tạo mã QR trong file 'otp_qr.png'
PS F:\mang_may_tinh>
```

Bước 2: Quét QR bằng ứng dụng Google Authenticator



Bước 3:

