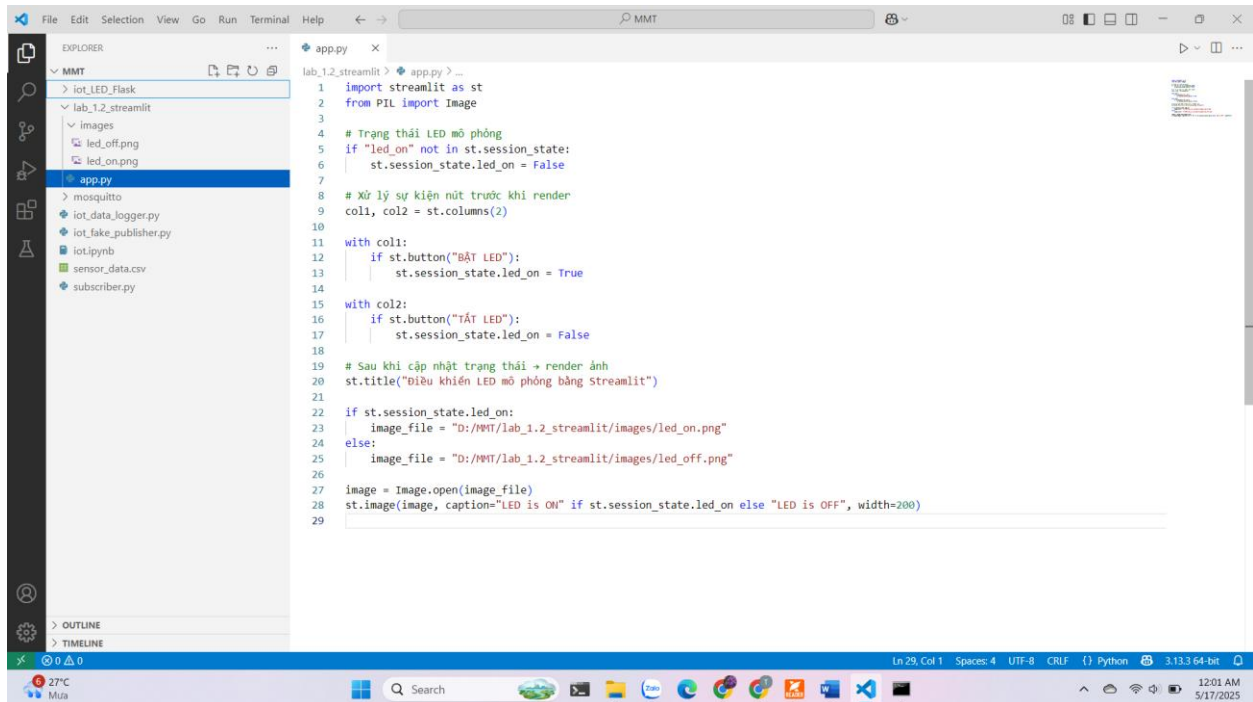


LAB 1.2 PHIÊN BẢN MÔ PHỎNG ĐIỀU KHIỂN LED QUA HTTP BẰNG STREAMLIT

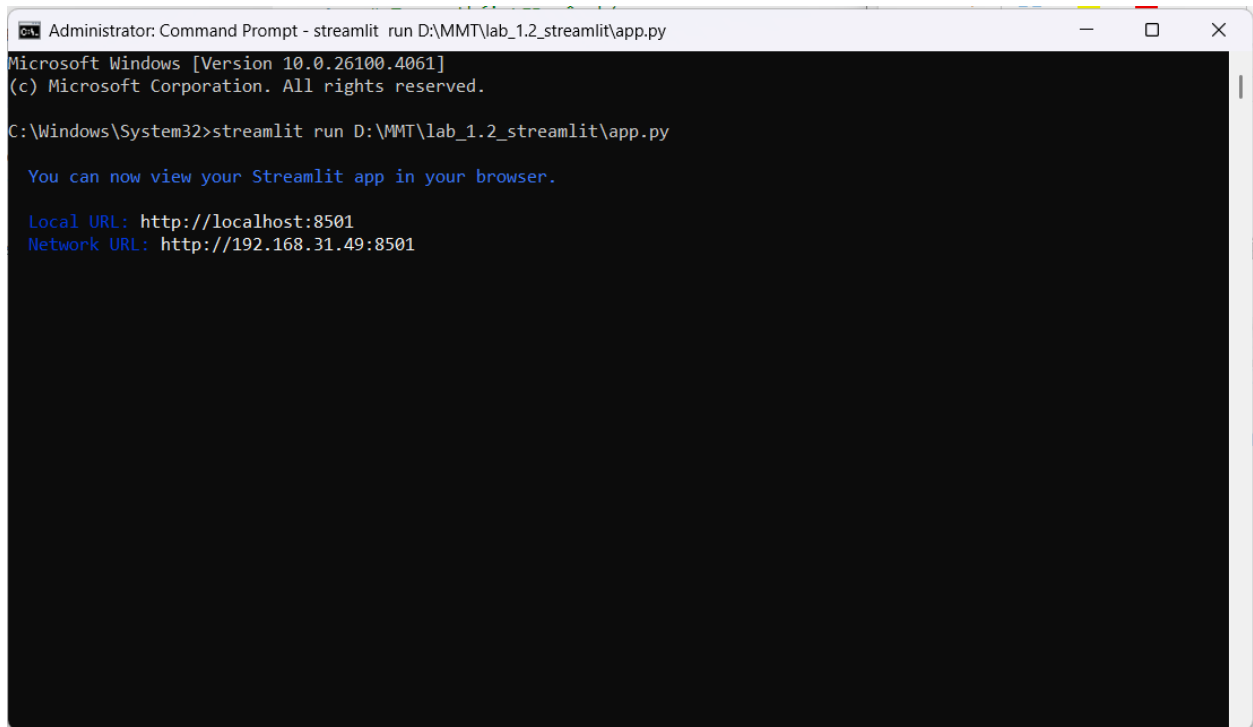
- Tạo cấu trúc thư mục dự án :

```
lab1_2_streamlit/  
├── app.py  
└── images/  
    ├── led_on.png  
    └── led_off.png
```

- Mã nguồn app.py:



- **Mở CMD quyền admin để chạy file app.py trước đó:**



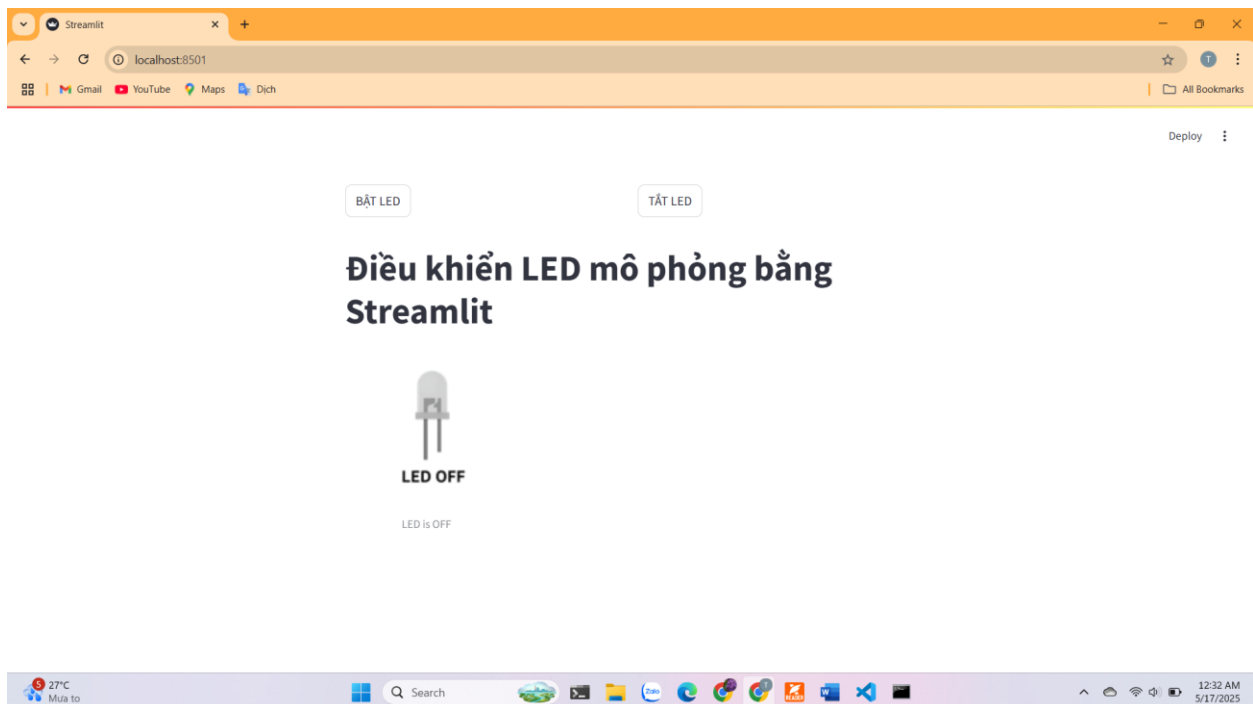
```
Administrator: Command Prompt - streamlit run D:\MMT\lab_1.2_streamlit\app.py
Microsoft Windows [Version 10.0.26100.4061]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\System32>streamlit run D:\MMT\lab_1.2_streamlit\app.py

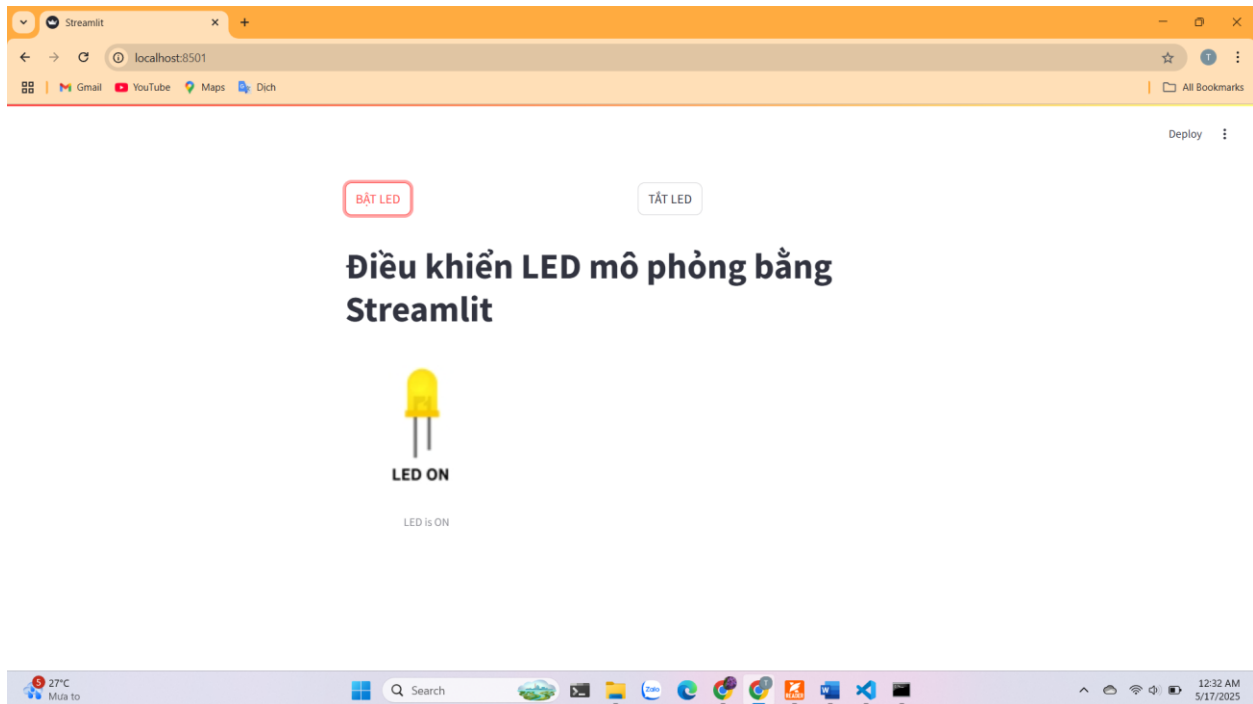
You can now view your Streamlit app in your browser.

Local URL: http://localhost:8501
Network URL: http://192.168.31.49:8501
```

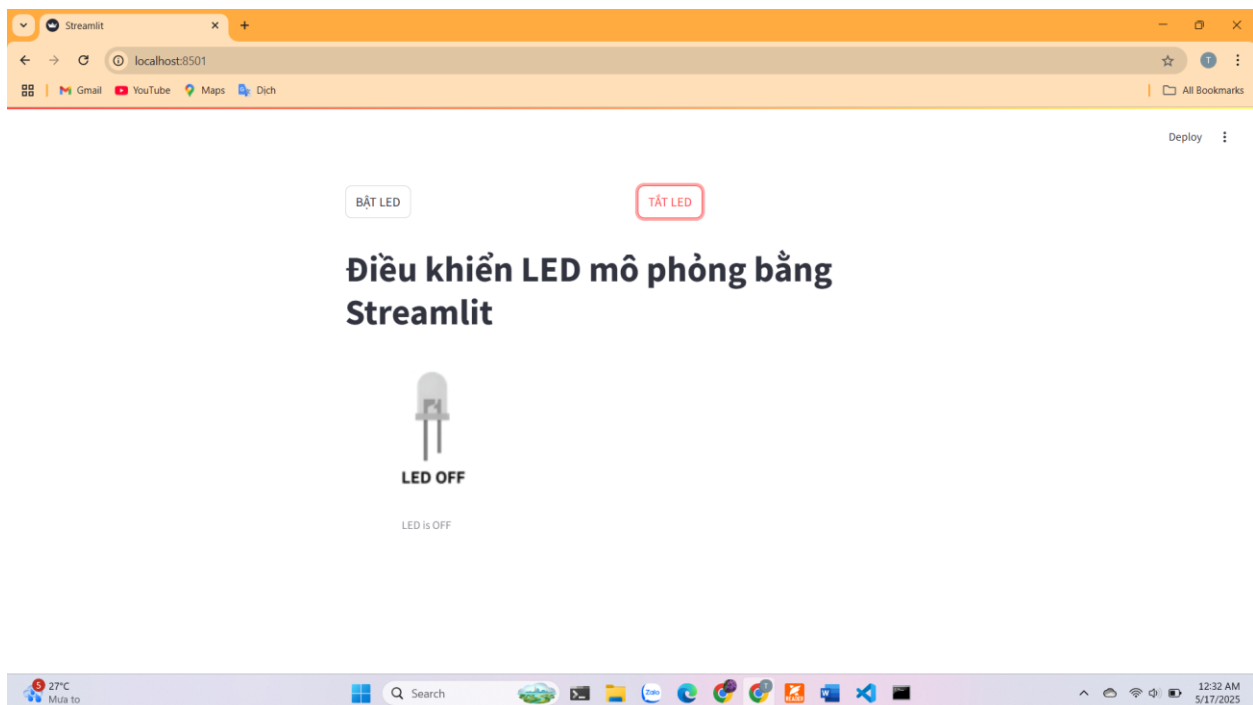
- **Mở trình duyệt trên máy tính và truy cập:**
http://localhost:8501



- Thao tác bật LED và kết quả:

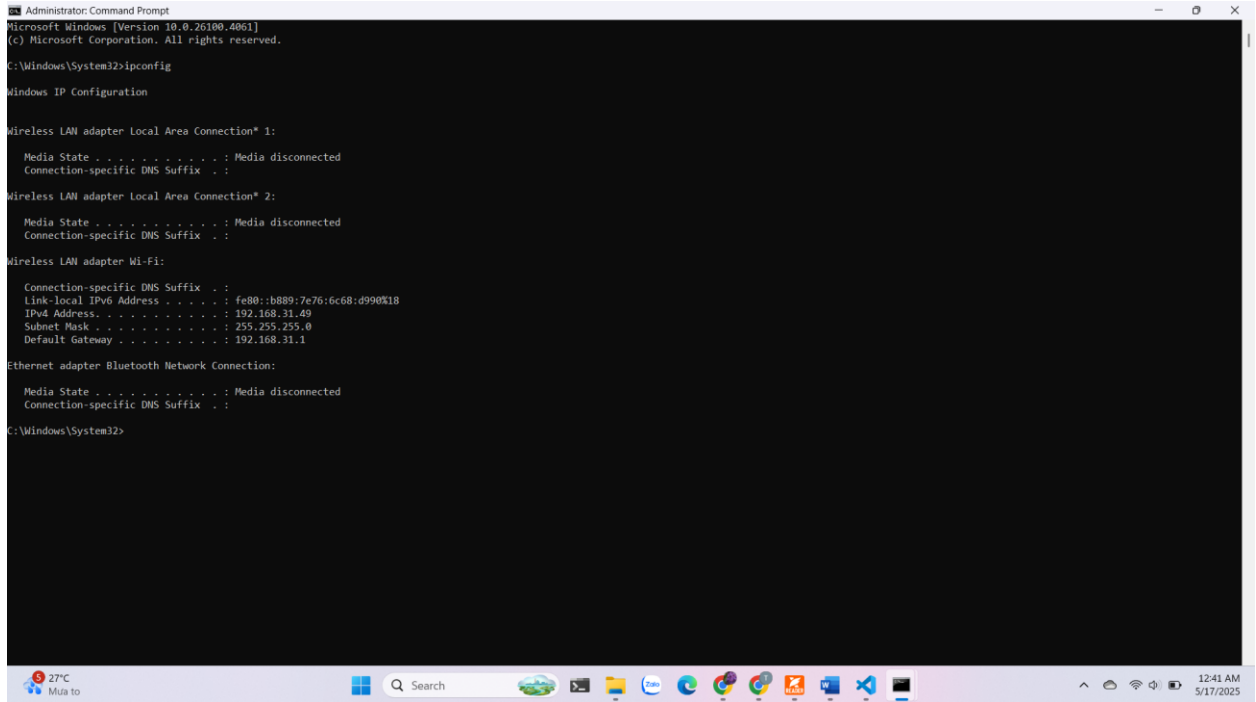


- Thao tác tắt LED và kết quả:



Mở rộng truy cập từ smartphone:

- **Mở CMD và chạy lệnh: ipconfig**



```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.26100.4061]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\System32>ipconfig

Windows IP Configuration

Wireless LAN adapter Local Area Connection* 1:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 2:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::b889:7e76:6c68:d990%18
    IPv4 Address. . . . . : 192.168.31.49
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.31.1

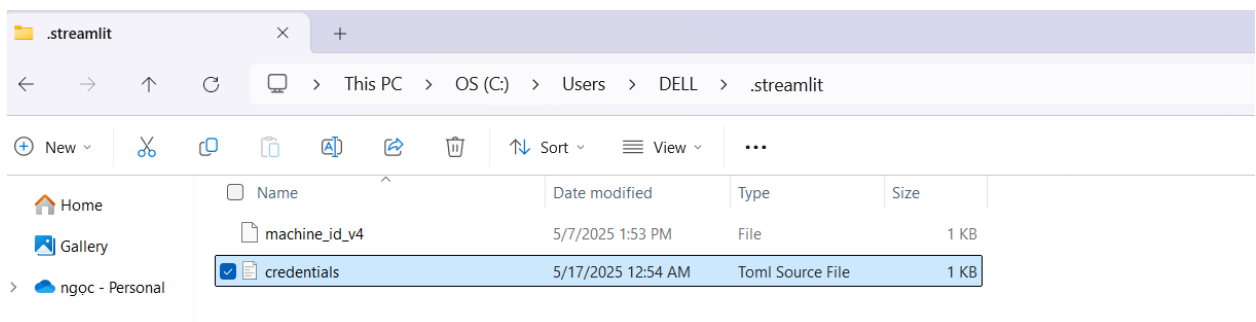
Ethernet adapter Bluetooth Network Connection:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

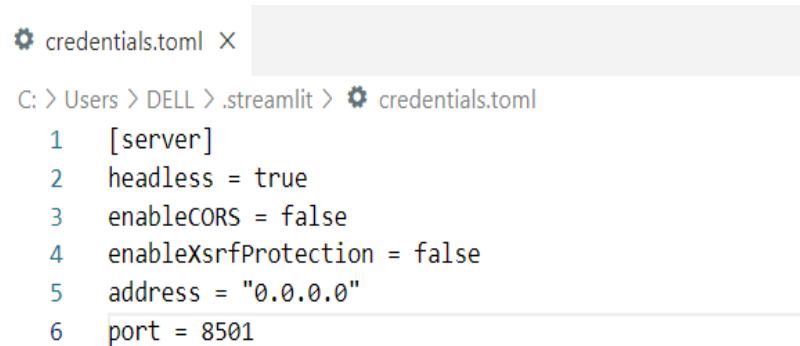
C:\Windows\System32>
```

- **Địa chỉ IPv4 address của máy: 192.168.31.49**

- **Tạo file cấu hình: credentials.toml**



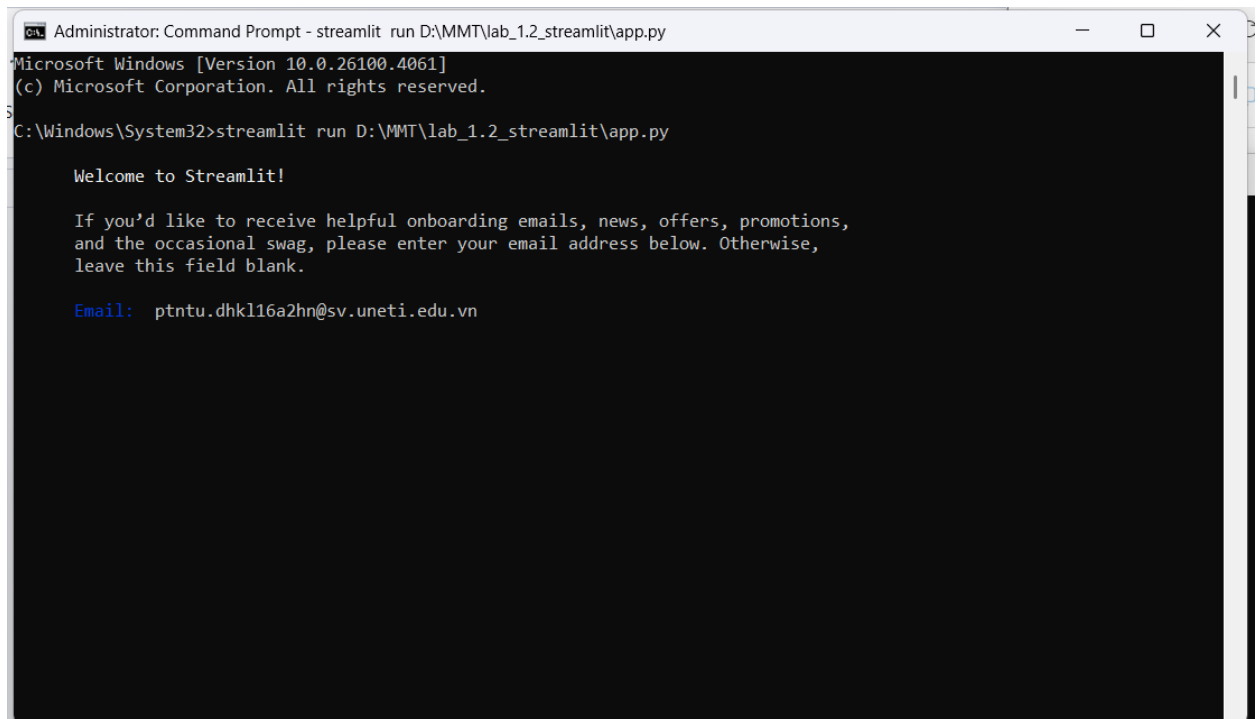
- Đường dẫn : C:\Users\DELL\.streamlit\credentials.toml với nội dung như sau:



The screenshot shows a Notepad++ window titled 'credentials.toml'. The text inside is as follows:

```
C: > Users > DELL > .streamlit > credentials.toml
1  [server]
2  headless = true
3  enableCORS = false
4  enableXsrfProtection = false
5  address = "0.0.0.0"
6  port = 8501
```

- Chạy lại ứng dụng: streamlit run app.py trên CMD:



The screenshot shows a Windows Command Prompt window titled 'Administrator: Command Prompt - streamlit run D:\MMT\lab_1.2_streamlit\app.py'. The output of the command is as follows:

```
Microsoft Windows [Version 10.0.26100.4061]
(c) Microsoft Corporation. All rights reserved.

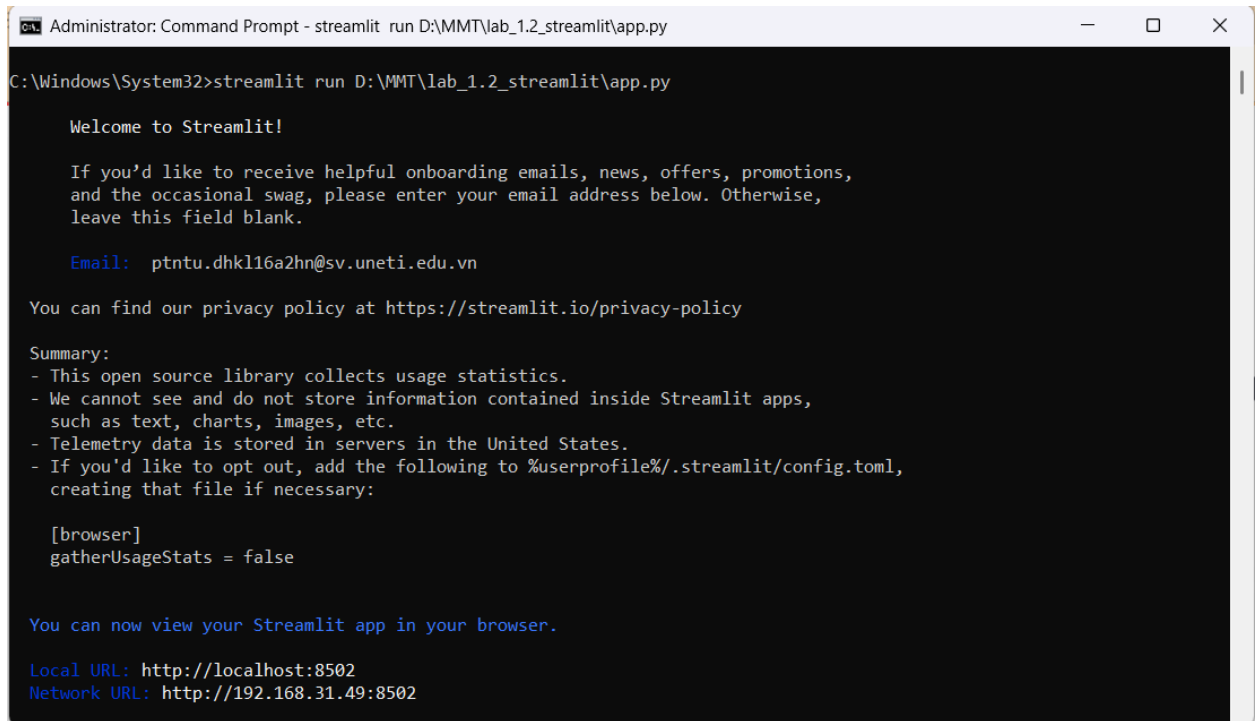
C:\Windows\System32>streamlit run D:\MMT\lab_1.2_streamlit\app.py

Welcome to Streamlit!

If you'd like to receive helpful onboarding emails, news, offers, promotions,
and the occasional swag, please enter your email address below. Otherwise,
leave this field blank.

Email: ptntu.dhkl16a2hn@sv.uneti.edu.vn
```

- **Khởi chạy và kết quả nhận được:**



```
Administrator: Command Prompt - streamlit run D:\MMT\lab_1.2_streamlit\app.py

C:\Windows\System32>streamlit run D:\MMT\lab_1.2_streamlit\app.py

Welcome to Streamlit!

If you'd like to receive helpful onboarding emails, news, offers, promotions,
and the occasional swag, please enter your email address below. Otherwise,
leave this field blank.

Email: ptntu.dhkl16a2hn@sv.uneti.edu.vn

You can find our privacy policy at https://streamlit.io/privacy-policy

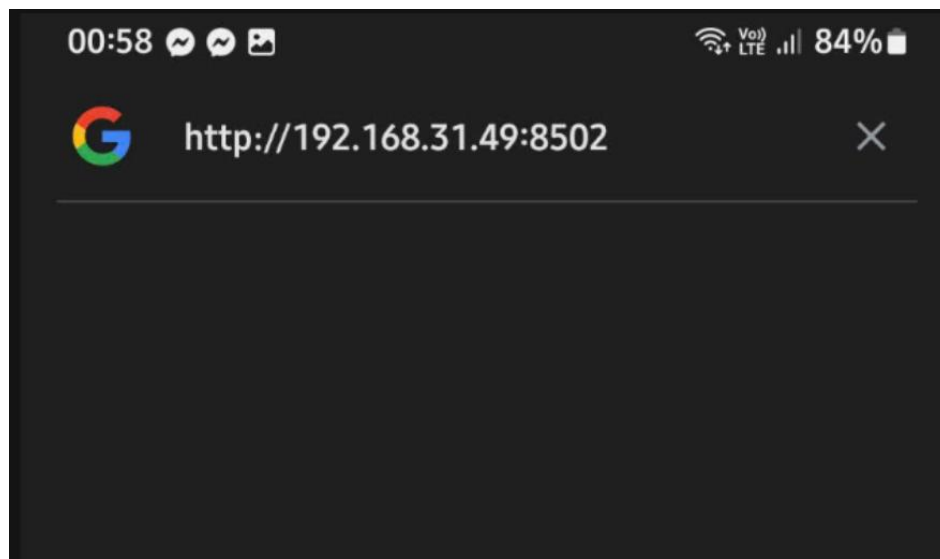
Summary:
- This open source library collects usage statistics.
- We cannot see and do not store information contained inside Streamlit apps,
  such as text, charts, images, etc.
- Telemetry data is stored in servers in the United States.
- If you'd like to opt out, add the following to %userprofile%\.streamlit/config.toml,
  creating that file if necessary:

[browser]
gatherUsageStats = false

You can now view your Streamlit app in your browser.

Local URL: http://localhost:8502
Network URL: http://192.168.31.49:8502
```

- **Trên điện thoại, truy cập địa chỉ: <http://192.168.31.49:8502> như kết quả hình trên từ điện thoại, ta được:**



00:59

Vodafone LTE 84%



192.168.31.49



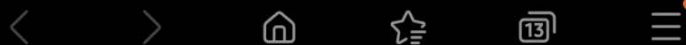
BẬT LED

TẮT LED

Điều khiển LED mô phỏng bằng Streamlit



LED is OFF



00:59

Vodafone LTE 84%



192.168.31.49



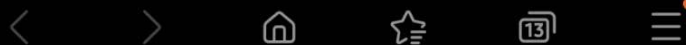
BẬT LED

TẮT LED

Điều khiển LED mô phỏng bằng Streamlit



LED is ON



00:59

Vodafone LTE 84%



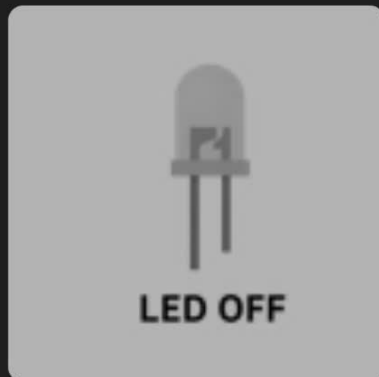
192.168.31.49



BẬT LED

TẮT LED

Điều khiển LED mô phỏng bằng Streamlit



LED is OFF

