

Week 4 - AI Mentorship Program

Mini Project & AI Model Deployment with Streamlit



Google Developer Group
Jogjakarta

Outline

(1)

Progress Mini Project

(2)

Streamlit

(3)

Demo Streamlit



Progress Mini Project

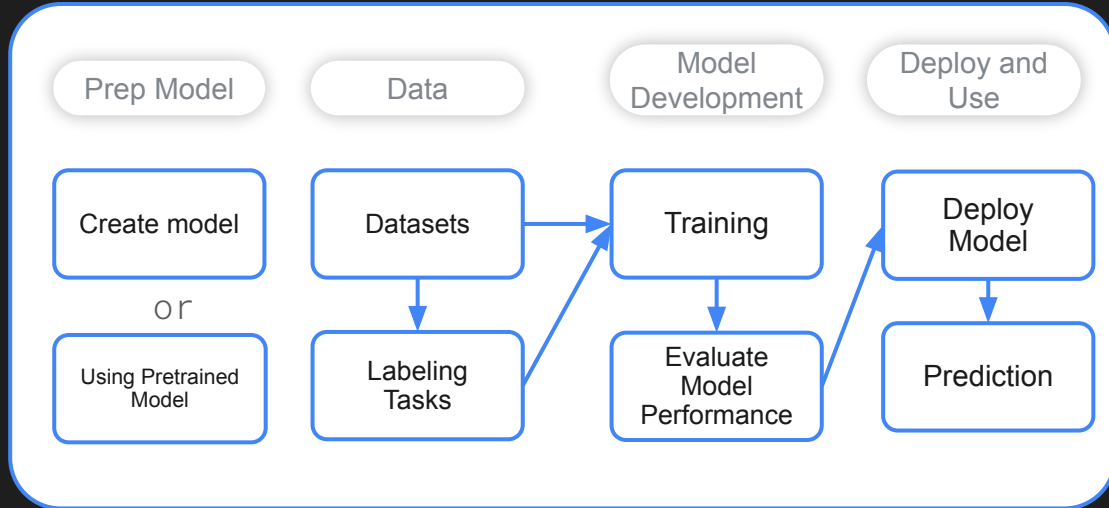
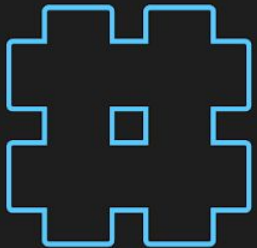


Google Developer Group
Jogjakarta

Siklus AI Project



Google
Developer
Group
Jogjakarta



Streamlit

Streamlit is a free and open-source framework to rapidly build and share beautiful machine learning and data science web apps. It is a Python-based library specifically designed for machine learning engineers



Streamlit



Google Developer Group
Jogjakarta

Why Streamlit?



Google
Developer
Group
Jogjakarta



- **Open-Source Python Library:** Empower your data science and machine learning projects with a robust, open-source Python library.
- **Interactive User Interfaces:** Build intuitive and interactive web interfaces without extensive front-end expertise.
- **Low-Code Development:** Streamline development with pre-built widgets and elements, allowing you to create web pages with minimal coding.
- **Extensive Compatibility:** Seamlessly integrate with your existing Python ecosystem for a cohesive development experience (e.g. pandas, matplotlib, seaborn, plotly, Keras, PyTorch, SymPy(latex)).



Streamlit Getting Started



Google
Developer
Group
Jogjakarta



```
pip install streamlit
streamlit run first_app.py
# Import convention
>>> import streamlit as st
```

```
streamlit --help
streamlit run your_script.py
streamlit hello
streamlit config show
streamlit cache clear
streamlit docs
streamlit --version
```



Streamlit Page Element & Capabilities



Google
Developer
Group
Jogjakarta



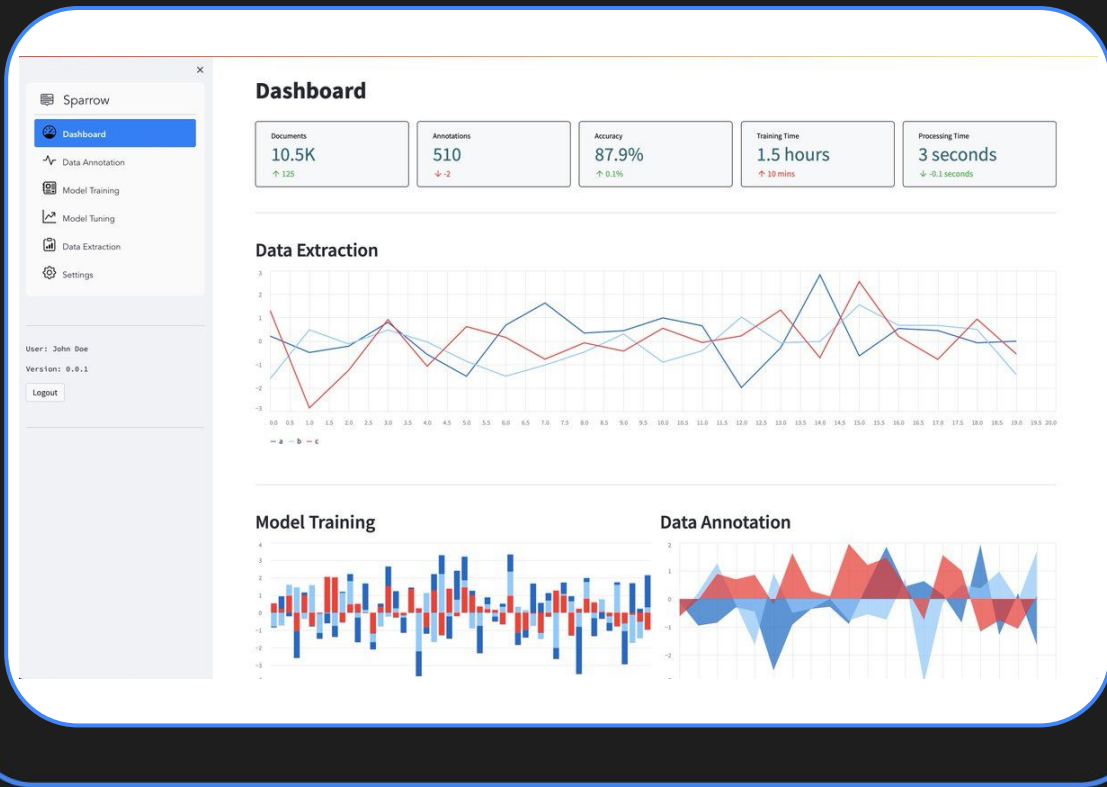
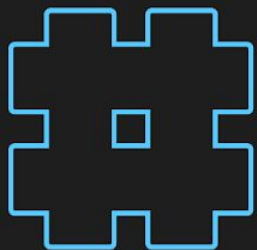
- Text Elements : Working with text information (Insert text, markdown, title, etc)
- Data Elements : Working with data, includes dataframe, metrics, JSON, static tables, etc)
- Chart Elements : Visualizing data through chart (bar, line, scatter, etc)
- Input Widgets : Interact directly into your apps with buttons, sliders, text inputs, and more
- Media Elements : Embed images, videos, and audio files directly into Streamlit apps.
- Layouts and Containers : Controlling how different elements are laid out on the screen
- And many more, read on <https://docs.streamlit.io/develop/api-reference>



Streamlit



Google
Developer
Group
Jogjakarta



Streamlit Code



Google
Developer
Group
Jogjakarta



Menampilkan teks pada streamlit

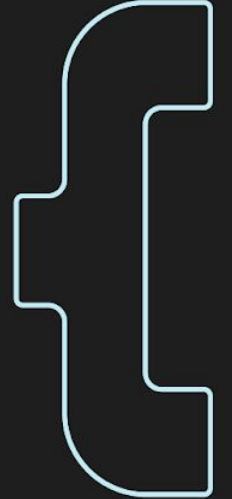
```
import streamlit as st

st.write('Hello, *World!* :sunglasses:')
```

Hello, World! 🕶️

Built with Streamlit

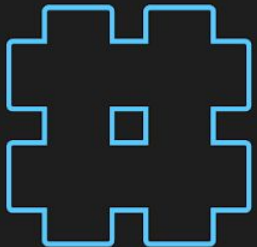
Fullscreen



Streamlit Code



Google
Developer
Group
Jogjakarta



```
#Menampilkan Teks
st.write("Most objects")
st.write(["st", "is <", 3])
st.write_stream(my_generator)

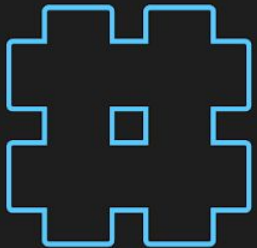
st.text("Fixed width text")
st.markdown("_Markdown_")
st.title("My title")
st.header("My header")
st.subheader("My sub")
st.code("for i in range(9): do()")
```



Streamlit Code



Google
Developer
Group
Jogjakarta



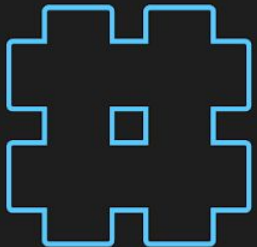
```
#Menampilkan Data
st.dataframe(my_dataframe)
st.table(data.iloc[0:10])
st.json({"foo":"bar","fu":"ba"})
st.metric("My metric", 42, 2)
```



Streamlit Code



Google
Developer
Group
Jogjakarta



```
#Menampilkan Media  
st.image("./header.png")  
st.audio(data)  
st.video(data)  
st.video(data, subtitles="./subs.vtt")
```



Streamlit Code



Google
Developer
Group
Jogjakarta



```
#Menambahkan tab  
>>>tab1, tab2 = st.tabs(["Tab 1",  
"Tab2"])  
>>>tab1.write("Ini tab 1")  
>>>tab2.write("Ini tab 2")
```



Streamlit Code



Google
Developer
Group
Jogjakarta



```
#Menampilkan grafik
st.area_chart(df)
st.bar_chart(df)
st.line_chart(df)
st.map(df)
st.scatter_chart(df)
st.altair_chart(chart)
st.bokeh_chart(fig)
st.graphviz_chart(fig)
st.plotly_chart(fig)
st.pydeck_chart(chart)
st.pyplot(fig)
st.vega_lite_chart(df)
```



Streamlit Code



Google
Developer
Group
Jogjakarta



```
#Menampilkan Widget Interaktif
st.button("Klik di sini")
st.download_button("Unduh file",
data)
st.link_button("Ke laman utama", url)
st.page_link("app.py", label="Home")
st.data_editor("Edit data", data)
st.checkbox("Setuju")
st.toggle("Enable")
```



Streamlit Code



Google
Developer
Group
Jogjakarta



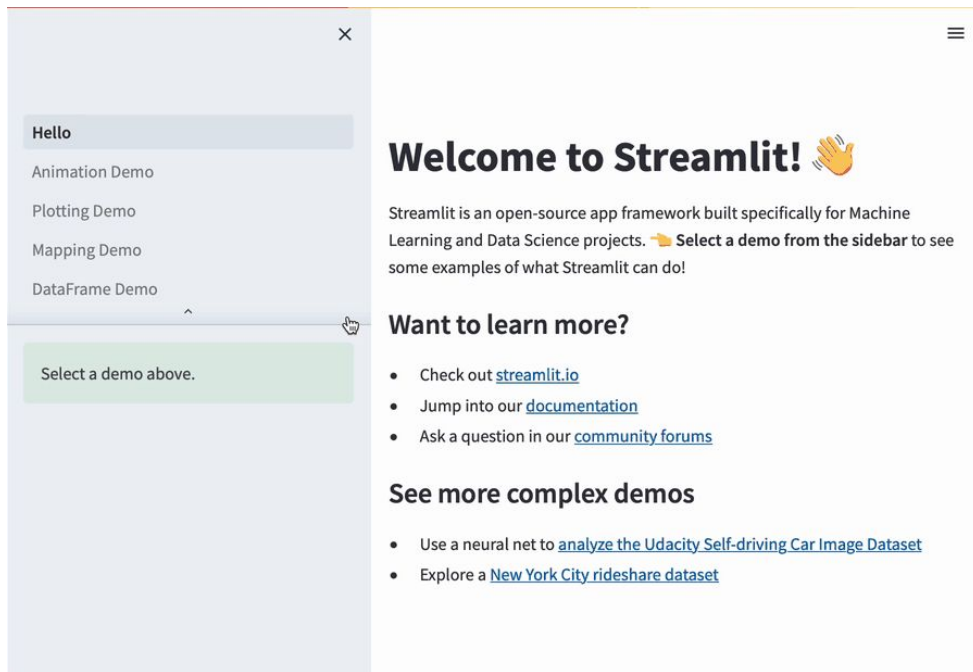
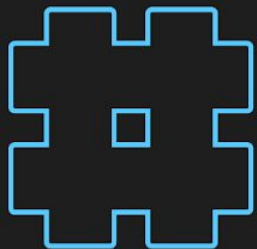
```
#Menampilkan Widget Interaktif
st.radio("Pilih salah satu",
["kucing", "hamster"])
st.selectbox("Pilih salah satu",
["kucing", "hamster"])
st.multiselect("Beli", ["kopi",
"susu", "teh"])
st.slider("Pilih angka", 0, 100)
```



Streamlit



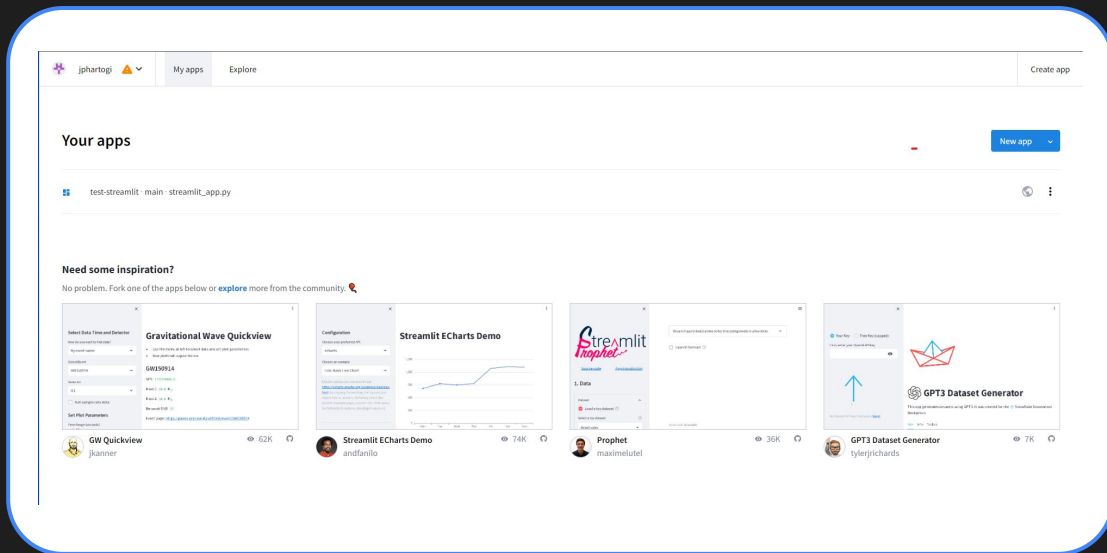
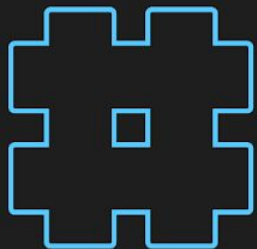
Google
Developer
Group
Jogjakarta



Streamlit



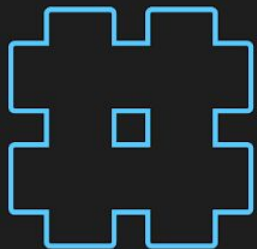
Google
Developer
Group
Jogjakarta



Streamlit



Google
Developer
Group
Jogjakarta



[← Back](#)

Deploy an app

Repository

[Paste GitHub URL](#)

jphartogi/repo

Branch

master

Main file path

streamlit_app.py

App URL (Optional)

.streamlit.app

[Advanced settings...](#)

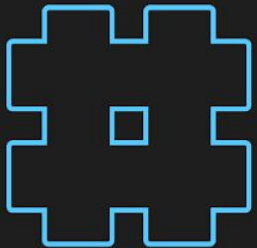
Deploy!



Challenges

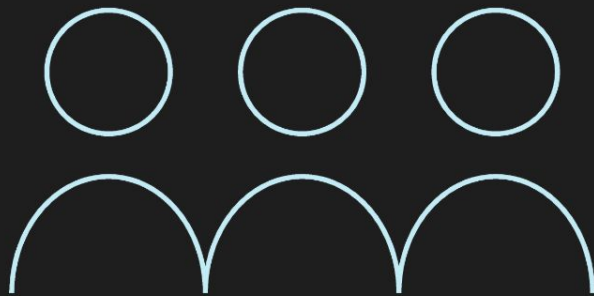
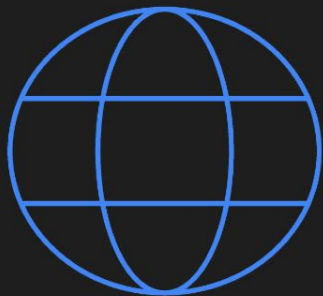


Google
Developer
Group
Jogjakarta



1. Buatlah streamlit yg menerima input image (.png / .jpg) dan dapat mendeteksi class nya dengan menggunakan model YOLO





Thank You

See You Next Week!



Google Developer Group
Jogjakarta