

# COE548: LARGE LANGUAGE MODELS

Topic: Agentic Frameworks: Streamlit



# Outline

Understanding Streamlit

Streamlit via Example Codes

- Session states
- Displaying messages
- Displaying tool messages and content

# What is Streamlit



- An open-source Python library that turns scripts into interactive web apps.
  - *Ideal for creating interactive dashboards and applications with minimal effort.*
- Key features:
  - *(Relatively) easy to use*
  - *Fast development (instantly updates when code is changed)*
  - *Customizable*
- Example use cases:
  - *Data visualization*
  - *ML model deployment*
  - *Dashboards*

# Streamlit



## ■ Advantages:

- *Python-centric: Leverages existing Python skills and libraries.*
- *Real-time interactivity: Users can interact with widgets to explore data.*
- *Community : Active community with numerous plugins and extensions.*

# Streamlit



- Things to consider:
  - *Automatic refresh: Streamlit reruns the entire script from top to bottom on every user interaction.*
    - Stateless by default (each run starts fresh)
  - *Must maintain a state across interactions, such as user inputs, or any session data*

# Streamlit



- Managing with `st.session_state` (assuming `import streamlit as st`)
  - *`st.session_state` A dictionary-like object to store variables across runs.*
  - *It's needed to preserve user inputs and app state between interactions.*
  - *Helps build complex apps that require memory of previous inputs and changes.*

# Streamlit



- Key components (assuming `import streamlit as st`)
  - *`st.title`: Sets the main title of your Streamlit app.*
  - *`st.write`: A multipurpose function that intelligently displays various data types.*
    - E.g.: `st.write("Hello, Streamlit!")` or `st.write(df)` or `st.write(fig)` ...
  - *`st.markdown`: Renders Markdown-formatted text for rich text, links, and formatting.*
    - E.g.: `st.markdown("### Welcome to **Streamlit**!")`
  - *`st.status`: Insert a status container to display output from long-running tasks.*
  - *There are many others that you can look into for the sake of your project (e.g. `st.sidebar`).*