

LAB MANUAL

Development and Data Visualization using Streamlit



Building Interactive UIs in Streamlit

1. Objective

To understand and implement interactive user interface elements in a Streamlit application using widgets such as `st.text_input`, `st.selectbox`, `st.slider`, and `st.button`. This practical will demonstrate how these components enhance user experience by enabling dynamic and customized content display.

2. Equipment Required

- Computer system with Windows/Linux/macOS operating system
- Python (version 3.9 or above) installed
- Streamlit library installed in the Python environment
- Code editor (e.g., Visual Studio Code, Jupyter Notebook, or Notepad++)
- Internet connection (for installing dependencies or optional GitHub hosting)

3. Prerequisites

- Basic understanding of Python syntax
- Familiarity with running Python scripts
- Introduction to Streamlit and its basic structure (`st.title`, `st.write`)
- Experience with writing simple Streamlit apps

4. Problem Statement

Create a Streamlit application that simulates a basic student feedback system. The user (student) should be able to enter their name, select a subject, give a rating, and submit comments. The app should display a confirmation message with the submitted data after the user presses the submit button.

5. Procedure

1. Define the application layout using Streamlit's title and text elements.
2. Add widgets for user input: text input, selectbox, slider, and text area.
3. Use a submit button to trigger the display of submitted information.
4. Use conditionals to control when output appears based on user interaction.
5. Test the app locally using the `streamlit run` command.

6. Setting up the Environment

- Open a terminal or command prompt.
- Install Streamlit using pip (if not already installed): ***pip install streamlit***
- Open your preferred code editor.
- Create a new file named ***student_feedback.py***.
- Paste the Streamlit app code into the file.

- Run the app using: `python -m streamlit run student_feedback.py`

7. Steps:

```
import streamlit as st

# App title and description
st.title("Student Feedback Form")
st.write("Please provide your feedback for the class session.")

# Input widgets
name = st.text_input("Enter your name")

subject = st.selectbox("Select a subject", ["Math", "Science", "English", "History"])

rating = st.slider("Rate the session", min_value=1, max_value=10)

comments = st.text_area("Any additional comments")

# Submit button
if st.button("Submit"):
    if name and subject and rating:
        st.success("Thank you for your feedback!")
        st.write("**Submitted Details:**")
        st.write(f"Name: {name}")
        st.write(f"Subject: {subject}")
        st.write(f"Rating: {rating}/10")
        st.write(f"Comments: {comments}")
    else:
        st.warning("Please fill in all the required fields.")
```

Run the Application

Navigate to the project folder in the terminal and run the following command:

`python -m streamlit run student_feedback.py`

Once the application launches in the browser, the sidebar will display navigation options to switch between the three pages.

Output

Student Feedback Form

Please provide your feedback for the class session.

Enter your name

Alpha

Select a subject

Math

Rate the session



Any additional comments

Submit