Streamlit Test

1. Streamlit and its features
    - Streamlit is an open-source Python framework for data scientists and AI/ML engineers to to deliver dynamic data apps with only a few lines of code. It is used to build and deploy powerful data apps
    - Features
        - ➔ Easy of use -required minimal code to convert data scripts into applications
        - ➔ Visualization - offers sophisticated data visualization capablitites
        - ➔ Compatability- compatible with majority of Python libraries
        - ➔ Data caching simplifies and speeds up computation pipelines

2. How does Streamlit differ from other web application frameworks like Flask or Django?
    - Easy to use- Other web application tools like Flask and Django are more powerful than Streamlit but requires steep learning curve and are more complex to use.Streamlit is designed to be easy to use.
    - Specifically designed for Data Science - Streamlit is specifically designed for data science and machine learning applications. It provides a number of built-in features and capabilities that make it easy to develop and deploy data science applications such as numpy,pandas,matplotlib,visalization components,interactive widgets etc.

3. What are some typical use cases for Streamlit?
   Streamlit best fits the case
    - when an application need to be developed quickly and easily.
    - When an application requires to integrate data science tools and libraries
    - When an application is built by people who have no prior web development expertise.

4. How do you create a simple Streamlit app?
    - Create the python script
    - Open it in a text editor and import streamlit
    - Use the required properties of streamlit
    - Finally run the application using streamlit run command in the terminal
    - The app should automatically open in a new tab in the browser.

5. Can you explain the basic structure of a Streamlit script?
   Streamlit Components have two parts:
    - A *frontend* which is implemented in any web technology you prefer (JavaScript, React, Vue, etc.) and gets rendered in Streamlit apps via an iframe tag.
    - A *Python API* which Streamlit client apps use to instantiate the frontend and communicate with it.

6. How do you add widgets like sliders, buttons, and text inputs to a Streamlit app?
    - Sliders - st.slider(label, min_value=None, max_value=None, value=None, step=None, format=None, key=None, help=None, on_change=None, args=None, kwargs=None, *, disabled=False, label_visibility="visible")
    - Buttons - st.button (label, key=None, help=None, on_click=None, args=None, kwargs=None, *, type="secondary", disabled=False, use_container_width=False)
    - Text Inputs - st.text_input(label, value="", max_chars=None, key=None, type="default", help=None, autocomplete=None, on_change=None, args=None, kwargs=None, *, placeholder=None, disabled=False, label_visibility="visible")

7. How does Streamlit handle user interaction and state management?
   Session State in Streamlit stores information across app interactions and reruns.Session state preserves the information at every rerun.

8. What are some best practices for organizing and structuring a Streamlit project?
    - Create separate modules and folders for different parts of the project
    - Use consistent naming
    - Use package manager
    - Create virtual environments

9. How would you deploy a Streamlit app locally?
    1. Create a directory
    2. Python Virtual Environment
    3. Install streamlit
    4. Create a Simple app
    5. Running Streamlit app locally
    6. requirements.txt for Streamlit app
    7. Push your Streamlit app to GitHub
    8. Deploy your Streamlit app

10. Can you describe the steps to deploy a Streamlit app?
    - Add the application to github
    - If you are including any custom Configuration or Theming, make sure your config file is saved relative to the root of your repo. Within your repo, your config file should be named .streamlit/config.toml
    - From your workspace at share.streamlit.io, click "**New app**" from the upper-right corner of your workspace.
    - Fill in your repo, branch, and file path. As a shortcut, you can also click "**Paste GitHub URL**" to paste a link directly to `your_app.py` on GitHub.
    - If you are connecting to a data source or want to specify the Python version for your app, you can do that by clicking "**Advanced settings**" before you deploy the app.

11. What is the purpose of the requirements.txt file in the context of Streamlit deployment?

    This file lists all the dependencies your project needs, making it easier for others to install and run your code