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### **Assignment 3 Streamlit Questions**

#### **1. What is Streamlit, and how does it differ from other web frameworks?**

Streamlit is an open source web application framework that allow us to create and host applications on local host server by using simple python scripts.

We can import the streamlit library in our python script by first installing it using the command mentioned below:

**pip install streamlit**

After installing the streamlit library/package we can then just open our python script which has an extension of .py (suppose my\_script.py in this case) and write our script there and then use it for hosting on server.

To run the script on streamlit we need to use the command of:

**Streamlit run my\_script.py**

- It is different from other frameworks because it has following features:
- Auto creation of widgets
- Simple and Easy to use
- Integration of Data Science libraries like matplotlib and seaborn and many more.
- It is useful for writing Short line of codes.

## 2. Explain the basic structure of a Streamlit app.

The basic Structure of streamlit app can be shown as follows: Consider an example script of Crypto.py

### i. Importing the libraries

```
Import streamlit as st
Import pandas as pd
Import matplotlib.pyplot as plt
Import Seaborn as sns
```

### ii. Giving the Page Title

```
St.title(" CryptoCurrency Dashboard")
```

### iii. Defining the dataset path

```
bitcoin_data = pd.read_csv('D:/Scifor mini project/coin_Bitcoin.csv')
litecoin_data = pd.read_csv('D:/Scifor mini project/coin_Litecoin.csv')
ethereum_data = pd.read_csv('D:/Scifor mini project/coin_Ethereum.csv')
```

### iv. Defining Functions and Calling them

```
def plot_correlation_heatmap(data, title):
    .....
    .....
```

### v. Displaying Results by calling them

```
if selected_function == 'Correlation Heatmap':
    plot_correlation_heatmap(selected_data, condition)
```

### vi. Run the Script

**Streamlit run Crypto.py**

### 3. How can you add a title to your Streamlit app?

We can add title using the command of streamlit.

Eg:

Import streamlit as st

st.title(" My Title")

Live example can be seen below

```
st.title("Cryptocurrency Interactive Dashboard")
```

**Output:**



# Cryptocurrency Interactive Dashboard

#### 4. What is the purpose of the `st.write()` function in Streamlit?

The `st.write()` function in streamlit not just only writes the content but it can be also used in different ways and different purpose to execute the command from displaying text, markdown, images, variables and so on.

Some of the ways it can be used in different ways :

**i. Displaying text:**

```
st.write("This is a Streamlit app for data visualization of crypto currency.")
```

**ii. Show DataFrames:**

```
import pandas as pd
```

```
df = pd.DataFrame({'Column1': [1, 2, 3], 'Column2': ['A', 'B', 'C']})  
st.write(df)
```

**iii. Display Markdown:**

```
st.write("This is some *markdown* text.")
```

**iv. Displaying Variables:**

```
variable = 42  
st.write("The value of the variable is:", variable)
```

**v. Display HTML tags:**

```
st.write("This is <b>bold</b> text.")
```

## 5. How do you create interactive widgets in Streamlit? Provide examples.

We can create interactive widgets using the various built in functions of streamlit for creating interactive widgets. Some of the common examples are below

### i. Slider:

```
import streamlit as st

# Slider example
user_input = st.slider("Select a value", 0, 100, 50)
st.write("You selected:", user_input)
```

### ii. Text Input:

```
import streamlit as st

# Text input example
user_text = st.text_input("Enter some text:")
st.write("You entered:", user_text)
```

### iii. Selectbox:

```
Visuals = ["Heatmap", "Regression plot", "Bar chart"]
selected_option = st.selectbox("Select an option:", Visuals)
st.write("You selected:", selected_option)
```

### iv. File Uploader:

```
import streamlit as st

# File uploader example
uploaded_file = st.file_uploader("Choose a file")
if uploaded_file is not None:
    st.write("File uploaded successfully!")
```

### v. Radio Buttons:

```
import streamlit as st

# Radio button example
radio_result = st.radio("Select one option:", ["Option A", "Option B", "Option C"])
st.write("You selected:", radio_result)
```