Local Execution Manual (for Windows Users)

Follow these steps to set up and run the Streamlit application locally on your Windows environment.

1. Obtain Necessary Files

First, unzip the provided ZIP file.

2. Install Python

Ensure that Python is installed. If not, follow these steps to install it:

1. Go to the official Python website and download the latest Python installer.
2. Run the downloaded installer.
3. During the installation, check the "Add Python to PATH" option and then click "Install Now".

3. Install Required Python Packages

Next, install the required Python packages. Follow these steps:

1. Open Command Prompt (or PowerShell).
2. Upgrade **pip** to the latest version by entering the following command:

```
python -m pip install --upgrade pip
```

3. Install Streamlit and other necessary packages with the following command:

```
pip install streamlit pandas numpy matplotlib seaborn scipy
```

4. Run the Application

1. Open Command Prompt (or PowerShell).
2. Navigate to the unzipped **debye-scherrer** folder. For example, if the folder is located at **C:\Users\YourUsername\Downloads\debye-scherrer**, run the following command:

```
cd C:\Users\YourUsername\Downloads\debye-scherrer
```

3. Run the Streamlit application with the following command:

```
streamlit run app.py
```

5. Use the Application

After running the command, the default web browser will automatically open and display the Streamlit application. Perform the following operations in the browser:

1. In the **Upload powder-XRD data files** section, upload the data files from the **test_data** folder.

2. Optionally, in the **Choose a CSV file for labels** section, upload the **labels.csv** file from the **test_data** folder.

3. Set other parameters as needed and click the **Plot Heatmap** button.

By following these steps, you can run the Streamlit application locally using the specified folder structure and files.

Local Execution Manual (for Mac Users)

Follow these steps to set up and run the Streamlit application locally on your Mac environment.

1. Obtain Necessary Files

First, unzip the provided ZIP file.

2. Install Python

Ensure that Python is installed. If not, follow these steps to install it:

1. Go to the official Python website and download the latest Python installer.

2. Run the downloaded installer.

3. During the installation, check the "Add Python to PATH" option and then click "Install Now".

3. Install Required Python Packages

Next, install the required Python packages. Follow these steps:

1. Open Terminal.

2. Upgrade **pip** to the latest version by entering the following command:

```
python3 -m pip install --upgrade pip
```

3. Install Streamlit and other necessary packages with the following command:

```
pip install streamlit pandas numpy matplotlib seaborn scipy
```

4. Run the Application

1. Open Terminal.

2. Navigate to the unzipped **debye-scherrer** folder. For example, if the folder is located at **/Users/YourUsername/Downloads/debye-scherrer**, run the following command:

```
cd /Users/YourUsername/Downloads/debye-scherrer
```

3. Run the Streamlit application with the following command:

```
streamlit run app.py
```

5. Use the Application

After running the command, the default web browser will automatically open and display the Streamlit application. Perform the following operations in the browser:

1. In the **Upload powder-XRD data files** section, upload the data files from the **test_data** folder.

2. Optionally, in the **Choose a CSV file for labels** section, upload the **labels.csv** file from the **test_data** folder.

3. Set other parameters as needed and click the **Plot Heatmap** button.

By following these steps, you can run the Streamlit application locally using the specified folder structure and files.