Practical Experiment: Line Plots and Scatter Plots for Each Column

Objective:

To implement a Python script to read data from the UCI Adult dataset and draw line plots and scatter plots for each column.

Steps:

1. **Read Data**:
   - Use the Pandas library to read a CSV file.
2. **Draw Line Plots**:
   - Create line plots for each column.
3. **Draw Scatter Plots**:
   - Create scatter plots for each column.

Data File:

The UCI Adult dataset can be found here.

Python Script:

python

```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

# Step 1: Read Data
url = 'https://archive.ics.uci.edu/ml/machine-learning-
databases/adult/adult.data'
columns = ['age', 'workclass', 'fnlwgt', 'education',
'education_num', 'marital_status', 'occupation',
           'relationship', 'race', 'sex', 'capital_gain',
'capital_loss', 'hours_per_week', 'native_country', 'income']
data = pd.read_csv(url, header=None, names=columns, na_values=' ?')

# Display the first few rows of the dataset
print("Original Data:\n", data.head())

# Step 2: Draw Line Plots
for column in data.select_dtypes(include=['float64',
'int64']).columns:
    plt.figure(figsize=(10, 6))
    plt.plot(data[column])
    plt.title(f'Line Plot for {column}')
    plt.xlabel('Index')
    plt.ylabel(column)
    plt.grid(True)
    plt.show()

# Step 3: Draw Scatter Plots
```

```
for column in data.select_dtypes(include=['float64',
'int64']).columns:
    plt.figure(figsize=(10, 6))
    plt.scatter(data.index, data[column])
    plt.title(f'Scatter Plot for {column}')
    plt.xlabel('Index')
    plt.ylabel(column)
    plt.grid(True)
    plt.show()
```

Explanation:

1. **Read Data**: The script reads the Adult dataset from a URL and loads it into a Pandas DataFrame.
2. **Draw Line Plots**: Line plots are created for each numeric column in the dataset.
3. **Draw Scatter Plots**: Scatter plots are created for each numeric column in the dataset.