221501111 - RATHESHVER S EXP3

```python
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from sklearn.linear_model import LinearRegression
from sklearn.model_selection import train_test_split
from sklearn.metrics import mean_squared_error
from google.colab import files
```

```python
uploaded = files.upload()
```

```
Choose Files   No file chosen        Upload widget is only available when the cell has been executed in the current browser session. Please rerun this cell to enable.
Saving cleaned_weather.csv to cleaned_weather.csv
```

```python
file_name = list(uploaded.keys())[0]
df = pd.read_csv(file_name)
```

```python
df['date'] = pd.to_datetime(df['date'])
```

```python
df_daily = df.groupby(df['date'].dt.date)[['p', 'Tlog']].mean().reset_index()
df_daily['date'] = pd.to_datetime(df_daily['date'])
```

```python
df_daily['Year'] = df_daily['date'].dt.year
df_daily['Month'] = df_daily['date'].dt.month
df_daily['Day'] = df_daily['date'].dt.day
```

```python
X = df_daily[['Year', 'Month', 'Day']]
y = df_daily['p']
```

```python
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, shuffle=False)
```

```python
model = LinearRegression()
model.fit(X_train, y_train)
```

```
    ▾ LinearRegression   ⓘ ⑦
    LinearRegression()
```

```python
y_pred = model.predict(X_test)
```

```python
mse = mean_squared_error(y_test, y_pred)
print(f'Mean Squared Error: {mse:.2f}')
```

```
Mean Squared Error: 114.91
```

```python
plt.figure(figsize=(12, 6))
plt.scatter(df_daily['date'], df_daily['p'], label='Actual Pressure', color='blue', marker='o')
plt.plot(df_daily['date'], model.predict(X), label='Regression Line', color='red', linestyle='dashed')
plt.xlabel('Date')
plt.ylabel('Pressure (hPa)')
plt.title('Pressure Forecasting using Linear Regression')
plt.xticks(rotation=45)
plt.legend()
plt.show()
```

Pressure Forecasting using Linear Regression