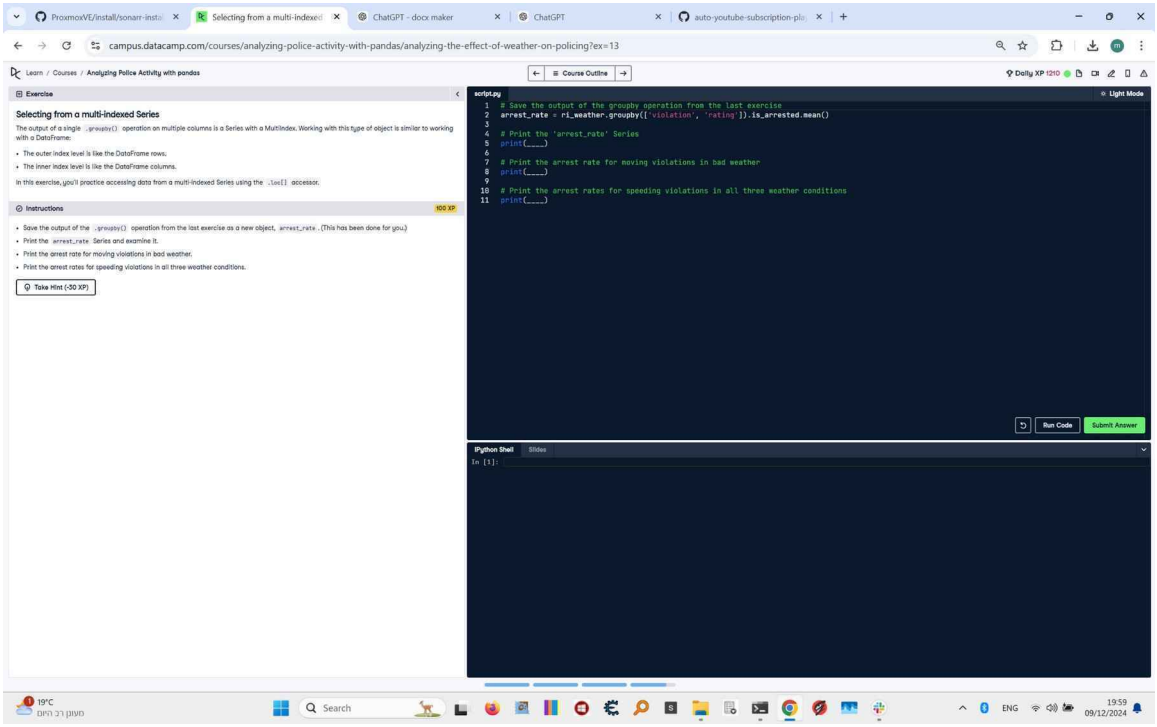
Selecting from a Multi-Indexed Series



Question

The output of a single groupby() operation on multiple columns is a Series with a MultiIndex. Working with this type of object is similar to working with a DataFrame:
- The outer index level is like the DataFrame rows.
- The inner index level is like the DataFrame columns.

In this exercise, you'll practice accessing data from a multi-indexed Series using the loc[] accessor.

Instructions:
1. Save the output of the groupby operation from the last exercise as a new object, arrest_rate. (This has been done for you.)
2. Print the arrest_rate Series and examine it.
3. Print the arrest rate for moving violations in bad weather.
4. Print the arrest rates for speeding violations in all three weather conditions.

Solution

```
# Import pandas library
```

```
import pandas as pd

# Save the output of the groupby operation
arrest_rate = ri_weather.groupby(['violation', 'rating']).is_arrested.mean()

# Print the arrest_rate Series
print(arrest_rate)

# Print the arrest rate for moving violations in bad weather
print(arrest_rate.loc['Moving violation', 'bad'])

# Print the arrest rates for speeding violations in all three weather conditions
print(arrest_rate.loc['Speeding'])
```

Explanation

1. The first step groups the data by 'violation' and 'rating', then calculates the mean arrest rate.
2. The Series is printed to examine its structure and data.
3. The loc[] accessor is used to select data from the multi-index. For 'Moving violation' in 'bad' weather, the specific arrest rate is accessed.
4. The loc[] accessor is again used to retrieve all arrest rates for 'Speeding' across all weather conditions.