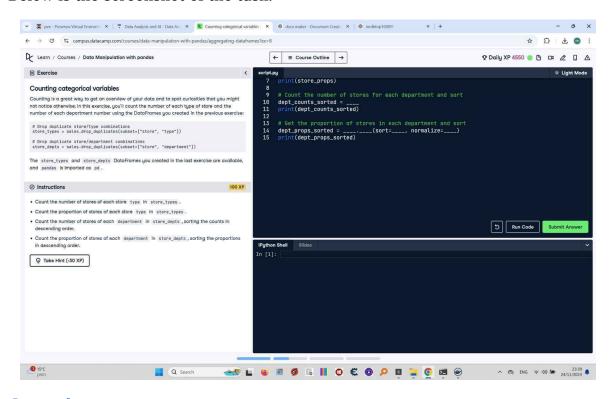
# **Counting Categorical Variables (Solution)**

This document includes the question, the solution, and a breakdown of the code provided in the screenshot.

## **Uploaded Screenshot**

Below is the screenshot of the task:



### **Question**

- 1. Count the number of stores of each store 'type' in 'store types'.
- 2. Count the proportion of stores of each store 'type' in 'store types'.
- 3. Count the number of stores of each `department` in `store\_depts`, sorting the counts in descending order.
- 4. Count the proportion of stores of each `department` in `store\_depts`, sorting the proportions in descending order.

#### **Answer**

# Count the number of stores of each store type
store\_counts = store\_types['type'].value\_counts()
print(store\_counts)

# Count the proportion of stores of each store type
store\_props = store\_types['type'].value\_counts(normalize=True)
print(store\_props)

- # Count the number of stores of each department and sort
  dept\_counts\_sorted = store\_depts['department'].value\_counts(sort=True)
  print(dept\_counts\_sorted)
- # Count the proportion of stores in each department and sort
  dept\_props\_sorted = store\_depts['department'].value\_counts(sort=True,
  normalize=True)
  print(dept props sorted)

### **Code Explanation**

- 1. `store\_types['type'].value\_counts()`: Counts the occurrences of each store type in the `type` column of the `store types` DataFrame.
- 2. `value\_counts(normalize=True)`: Calculates the proportion (percentage) of each store type instead of absolute counts.
- 3. `store\_depts['department'].value\_counts(sort=True)`: Counts occurrences of each department in the `department` column of the `store\_depts` DataFrame, sorting by count.
- 4. `value\_counts(sort=True, normalize=True)`: Combines sorting with the calculation of proportions for each department.