

## 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:

The screenshot shows a web browser window displaying a DataCamp exercise titled "Counting categorical variables". The interface is split into two main sections: a left sidebar with instructions and a right main area with a code editor and an iPython Shell.

**Exercise Title:** Counting categorical variables

**Instructions:**

- Count the number of stores of each store `type` in `store\_types`.
- Count the proportion of stores of each store `type` in `store\_types`.
- Count the number of stores of each `department` in `store\_depts`, sorting the counts in descending order.
- Count the proportion of stores of each `department` in `store\_depts`, sorting the proportions in descending order.

**Code Editor (script.py):**

```
7 print(store_props)
8
9 # Count the number of stores for each department and sort
10 dept_counts_sorted = ____
11 print(dept_counts_sorted)
12
13 # Get the proportion of stores in each department and sort
14 dept_props_sorted = ____ (sort=____, normalize=____)
15 print(dept_props_sorted)
```

**iPython Shell:**

```
In [1]:
```

### 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.