Programming Problem 8: Web Services and Pandas

> The purpose of this assignment is to test your understanding and application of the concepts discussed up to **week 7**:
>
> - Call a web service
> - Retrieve a JSON Object
> - Load JSON into a Dictionary
> - Parse Data
> - Use Pandas Data Frames

Specifications

A company has created a webservice to expose its products, their prices and the number of items they have in stock. The API documentation of the webservice, can be found at: https://dummyjson.com/docs/products

Create a program to download the json products and categories data sets from the following web services:

- https://dummyjson.com/products
- https://dummyjson.com/products/categories

Use the data retrieved to:

1. Find the most expensive product in each category and the product name.
2. The total number of items the company has in stock for the specific category.
3. Produce a formatted output, like the following, in a text file called 'stats.txt':

```
CATEGORY           MOST EXPENSIVE PRODUCT           PRICE   CAT STOCK
----------------   ------------------------------  -----   ---------
smartphones        Samsung Universe 9                1249         319
laptops            MacBook Pro                       1749         386
fragrances         Non-Alcoholic Concentrated P       120         397
skincare           Freckle Treatment Cream- 15g        70         470
groceries          Gulab Powder 50 Gram                70         465
home-decoration    Handcraft Chinese style             60         263
```

Display only those categories where a product exists!

4. Display the price of the most expensive product of all in the terminal.
5. Create a pandas data frame from the summary dictionary and produce basic statistics using the describe statement.
6. Extra Challenge: import matplotlib.pyplot and create a bar chart of the product category max prices.

{% spoiler "Hint 1 : Nested Loops" %} Loop through the categories and in this Loop, iterate over the products.

```
- If the product category is equal to the current category from the outer loop

    - add the stock to a categoryStock dictionary.

    - check the product price to see if it larger to the previous "larger" price.

        - if yes, assign this product's price to a largest variable...and the name
to another variable

- Add the final values to another dictionary called summary with key the category
and as a value a list of the required information (product name, price and total
category stock)
```

{% endspoiler %}

{% next %}

Execute and Test your program

Remember: in order to execute your code you type in the terminal:

```
python assignment8.py
```

Check Your Code

Execute the below to evaluate the correctness of your code using `check50`, but be sure to test it yourself before that... Login with your `GitHub username` and `Personal Access Token` when prompted. For security, you'll see asterisks (`*`) instead of the actual characters in your token.

If you do not have generated a Personal Access ToKen follow the instructions: https://docs.github.com/en/authentication/keeping-your-account-and-data-secure/creating-a-personal-access-token

```
check50 mkotsovoulou/ods6001a/main/assignments/assignment8
```

Execute the below to evaluate the style of your code using `style50`.

```
style50 assignment8.py
```

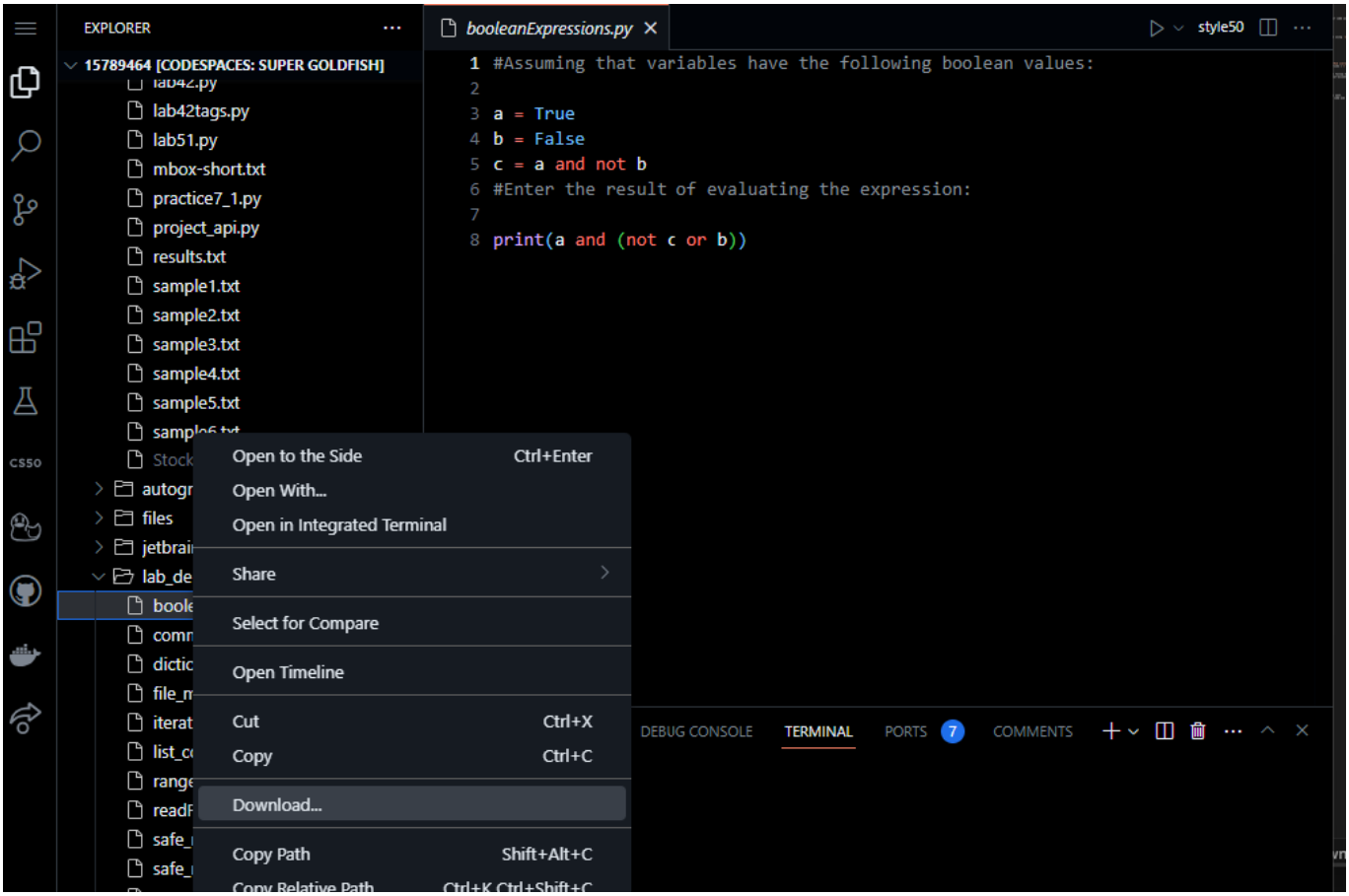
{% next %}

Submit your code

Execute the command below, logging in with your `GitHub username` and `Personal Access Token` when prompted. For security, you'll see asterisks (`*`) instead of the actual characters in your token.

```
submit50 mkotsovoulou/ods6001a/main/assignments/assignment8
```

You can re-submit your solution as many times as you want. When you are happy with your solution, download the code and the stats.txt and upload it to Canvas.



Done!

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