

Creating and Accessing Pandas DataFrames	
<b>Course Code:</b> CPE 031	<b>Program:</b> Computer Engineering
<b>Course Title:</b> Visualization and Data Analysis	<b>Date Performed:</b> 10/15/24
<b>Section:</b> CPE21S4	<b>Date Submitted:</b> 10/15/24
<b>Name:</b> SANTOS, ANDREI R.	<b>Instructor:</b> Professor Maria Rizette Sayo
<b>Intended Learning Outcomes (ILO):</b>  By the end of this laboratory session, learners will be able to <ul style="list-style-type: none"> <li>- Construct and manipulate Pandas DataFrames from various data structures (such as lists, dictionaries, and NumPy arrays) while demonstrating an understanding of DataFrame attributes and methods. This includes loading the dataset, creating DataFrames with appropriate column labels and accessing data from rows and columns.</li> </ul>	
<b>Instructions:</b> <ol style="list-style-type: none"> <li>1. <b>Loading your dataset:</b> Refer back to your chosen dataset from the PRELIM period. Whether you downloaded it or stored it in your Google Drive, you are required to load it into the <a href="#">Google Colab</a>. Watch this <a href="#">video</a> to learn more about how to read CSV files in Google Colab. <b>(Take a screenshot to document successful execution.)</b></li> <li>2. <b>Creating a dataframe from your CSV file:</b> Once you have successfully loaded your dataset, you need to create a dataframe from your uploaded CSV file. <b>(Take a screenshot to document successful execution.)</b></li> <li>3. <b>Creating a dataframe from a dictionary of lists:</b> Manually create a dictionary where each value is composed of a list from your original dataset, then load it into a dataframe, before printing it. You are required to provide at least five (5) observations in your list. <b>(Take a screenshot to document successful execution.)</b></li> <li>4. <b>Creating a dataframe from a list of dictionaries:</b> Manually create a list of dictionaries from your original dataset, then pass it into a dataframe, before printing it. You are required to provide at least five (5) observations in your list. <b>(Take a screenshot to document successful execution.)</b></li> <li>5. <b>Selecting dataframe columns:</b> Execute a method that would allow you to select a single and multiple dataframe columns. <b>(Take a screenshot to document successful execution.)</b></li> <li>6. <b>Selecting dataframe rows:</b> Execute a method that would allow you to select a single and multiple dataframe rows using panda indexing and python indexing.</li> </ol>	

Output:

1.

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#1. Loading your dataset
# This is how we load the dataset from the google colab.
from google.colab import drive
drive.mount('/content/drive')

Drive already mounted at /content/drive; to attempt to forcibly remount, call drive.mount("/content/drive", force_remount=True).

[3] import pandas as pd

[41] #2. Creating a dataframe from your CSV file
# We created dataframe from the CSV file that I uploaded, hence this is the output.
path = "/content/drive/MyDrive/Dataset/starbucks_drinks - starbucks_drinks.csv"
df = pd.read_csv(path)
df.head(5)
```

2.

	Beverage_category	Beverage	Beverage_prep	Calories	Total Fat (g)	Trans Fat (g)	Saturated Fat (g)	Sodium (mg)	Total Carbohydrates (g)
0	Coffee	Brewed Coffee	Short	3	0.1	0.0	0.0	0	5
1	Coffee	Brewed Coffee	Tall	4	0.1	0.0	0.0	0	10
2	Coffee	Brewed Coffee	Grande	5	0.1	0.0	0.0	0	10
3	Coffee	Brewed Coffee	Venti	5	0.1	0.0	0.0	0	10
4	Classic Espresso Drinks	Caffè Latte	Short Nonfat Milk	70	0.1	0.1	0.0	5	75

Cholesterol (mg)	Dietary Fibre (g)	Sugars (g)	Protein (g)	Vitamin A (% DV)	Vitamin C (% DV)	Calcium (% DV)	Iron (% DV)	Caffeine (mg)
0	0	0	0.3	0%	0%	0%	0%	175
0	0	0	0.5	0%	0%	0%	0%	260
0	0	0	1.0	0%	0%	0%	0%	330
0	0	0	1.0	0%	0%	2%	0%	410
10	0	9	6.0	10%	0%	20%	0%	75

3.

```
[42] #3. Creating a dataframe from a dictionary of lists
# Now I will be creating a dataframe then from that it will create a dictionary from the lists.

# The first one shows the beverage category which shows what type of drink that the person will be drinking.
# The second shows the beverage itself or the name which depends on what we called on that specific beverage.
# The third one shows the calories that we can take in that particular beverage.
# The fourth one shows the total fat in grams that a person can gain after drinking the beverage.
# The fifth one shows the Caffeine in milligrams that a person can gain after drinking the beverage.

Beverage = {
    'Beverage_category': ['Coffee', 'Coffee', 'Coffee', 'Coffee', 'Classic Espresso Drinks'],
    'Beverage': ['Brewed Coffee', 'Brewed Coffee', 'Brewed Coffee', 'Brewed Coffee', 'Caffè Latte'],
    'Calories': [3, 4, 5, 5, 70],
    'Total Fat (g)': [0.1, 0.1, 0.1, 0.1, 0.1],
    'Caffeine (mg)': [175, 260, 330, 410, 75]
}

Bvrg = pd.DataFrame(Beverage)
Bvrg
```

	Beverage_category	Beverage	Calories	Total Fat (g)	Caffeine (mg)
0	Coffee	Brewed Coffee	3	0.1	175
1	Coffee	Brewed Coffee	4	0.1	260
2	Coffee	Brewed Coffee	5	0.1	330
3	Coffee	Brewed Coffee	5	0.1	410
4	Classic Espresso Drinks	Caffè Latte	70	0.1	75

4.

```
[43] #4. Creating a dataframe from a list of dictionaries
# Sample data - Replace with data from your starbucks_drinks dataset

#The first one describes the first beverage category which is a Coffee, the name is Brewed Coffee, the Calories that we can take is 3, the total fat in grams is 0.1, and in Caffeine in milligrams is 175.
#The second one describes the first beverage category which is a coffee, the name is Brewed Coffee, the Calories that we can take is 4, the total fat in grams is 0.1, and in Caffeine in milligrams is 260.
#The third one describes the first beverage category which is a coffee, the name is Brewed Coffee, the Calories that we can take is 5, the total fat in grams is 0.1, and in Caffeine in milligrams is 330.
#The fourth one describes the first beverage category which is a coffee, the name is Brewed Coffee, the Calories that we can take is 5, the total fat in grams is 0.1, and in Caffeine in milligrams is 410.
#The fifth one describes the first beverage category which is a Classic Espresso Drinks, the name is Caffè Latte, the Calories that we can take is 70, the total fat in grams is 0.1, and in Caffeine in milligrams is 75.

dats_for_starbs = [
    {'Beverage_category': 'Coffee', 'Beverage': 'Brewed Coffee', 'Calories': 3, 'Total Fat (g)': 0.1, 'Caffeine (mg)': 175},
    {'Beverage_category': 'Coffee', 'Beverage': 'Brewed Coffee', 'Calories': 4, 'Total Fat (g)': 0.1, 'Caffeine (mg)': 260},
    {'Beverage_category': 'Coffee', 'Beverage': 'Brewed Coffee', 'Calories': 5, 'Total Fat (g)': 0.1, 'Caffeine (mg)': 330},
    {'Beverage_category': 'Coffee', 'Beverage': 'Brewed Coffee', 'Calories': 5, 'Total Fat (g)': 0.1, 'Caffeine (mg)': 410},
    {'Beverage_category': 'Classic Espresso Drinks', 'Beverage': 'Caffè Latte', 'Calories': 70, 'Total Fat (g)': 0.1, 'Caffeine (mg)': 75},
]

starbs_df = pd.DataFrame(dats_for_starbs)
starbs_df
```

	Beverage_category	Beverage	Calories	Total Fat (g)	Caffeine (mg)
0	Coffee	Brewed Coffee	3	0.1	175
1	Coffee	Brewed Coffee	4	0.1	260
2	Coffee	Brewed Coffee	5	0.1	330
3	Coffee	Brewed Coffee	5	0.1	410
4	Classic Espresso Drinks	Caffè Latte	70	0.1	75

## 5.

```
#5. Selecting dataframe column  
# Selecting a single column  
  
bvrng_sgl_col = starbs_df['Beverage_category']  
bvrng_sgl_col
```

→ Beverage\_category

0	Coffee
1	Coffee
2	Coffee
3	Coffee
4	Classic Espresso Drinks

dtype: object

```
[45] #5 Selecting multiple columns  
bvrng_mul_col = starbs_df[['Beverage', 'Calories', 'Caffeine (mg)']]  
bvrng_mul_col
```

→

	Beverage	Calories	Caffeine (mg)	
0	Brewed Coffee	3	175	
1	Brewed Coffee	4	260	
2	Brewed Coffee	5	330	
3	Brewed Coffee	5	410	
4	Caffè Latte	70	75	

6.

```
[61] #6. Selecting dataframe rows  
# Select the first row  
frst_rw = starbs_df.loc[0]  
frst_rw
```



	0
Beverage_category	Coffee
Beverage	Brewed Coffee
Calories	3
Total Fat (g)	0.1
Caffeine (mg)	175

dtype: object

```
[68] # Select rows 2 to 4  
rws_for_2_4 = starbs_df.loc[2:4]  
rws_for_2_4
```



	Beverage_category	Beverage	Calories	Total Fat (g)	Caffeine (mg)	
2	Coffee	Brewed Coffee	5	0.1	330	
3	Coffee	Brewed Coffee	5	0.1	410	
4	Classic Espresso Drinks	Caffè Latte	70	0.1	75	