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20% of Pandas Functions that Data Scientists Use 80% of the Time

Putting Pareto's Principle to work on the Pandas library

Photo by Austin Distel on Unsplash

Mastering an entire Python library like *Pandas* can be challenging for anyone.

your outputs.

Therefore, this post is my attempt to apply the Pareto's Principle to the Pandas library and introduce you to 20% of those specific Pandas functions you are likely to use 80% of your time working with DataFrames. The methods mentioned below are what I have found myself utilizing repeatedly in my day-to-day work and feel are necessary and sufficient to be acquainted with for anyone getting started with Pandas.

1/n: Reading a CSV file:

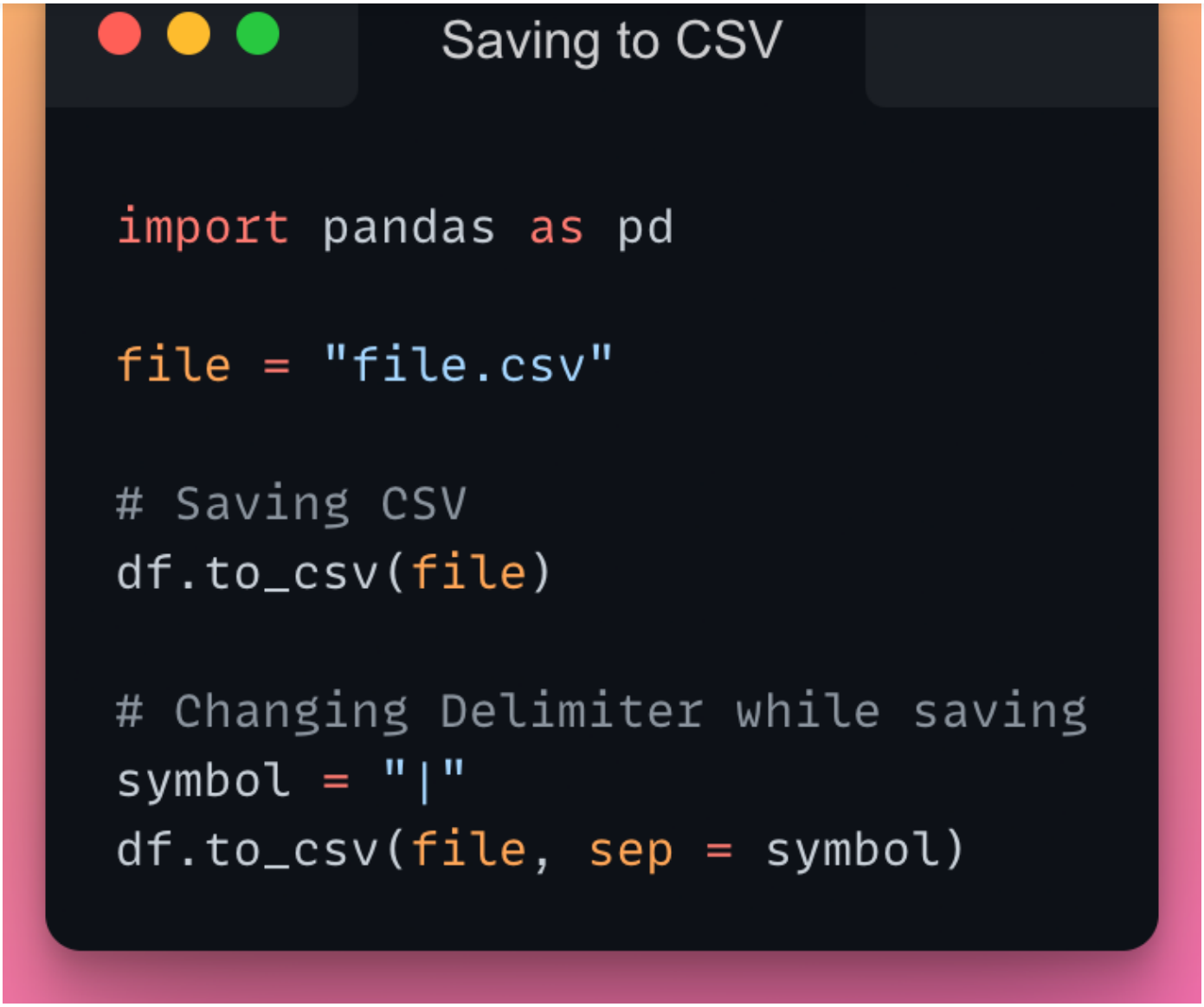
If you want to read a CSV file in Pandas, use the *pd.read_csv()* method as demonstrated below:

Code snippet for reading a CSV file (Image by author created using snappify.io)

Read the documentation here.

2/n: Saving a DataFrame to a CSV file:

If you want to save DataFrame to a CSV file, use the *to_csv()* method as demonstrated below:

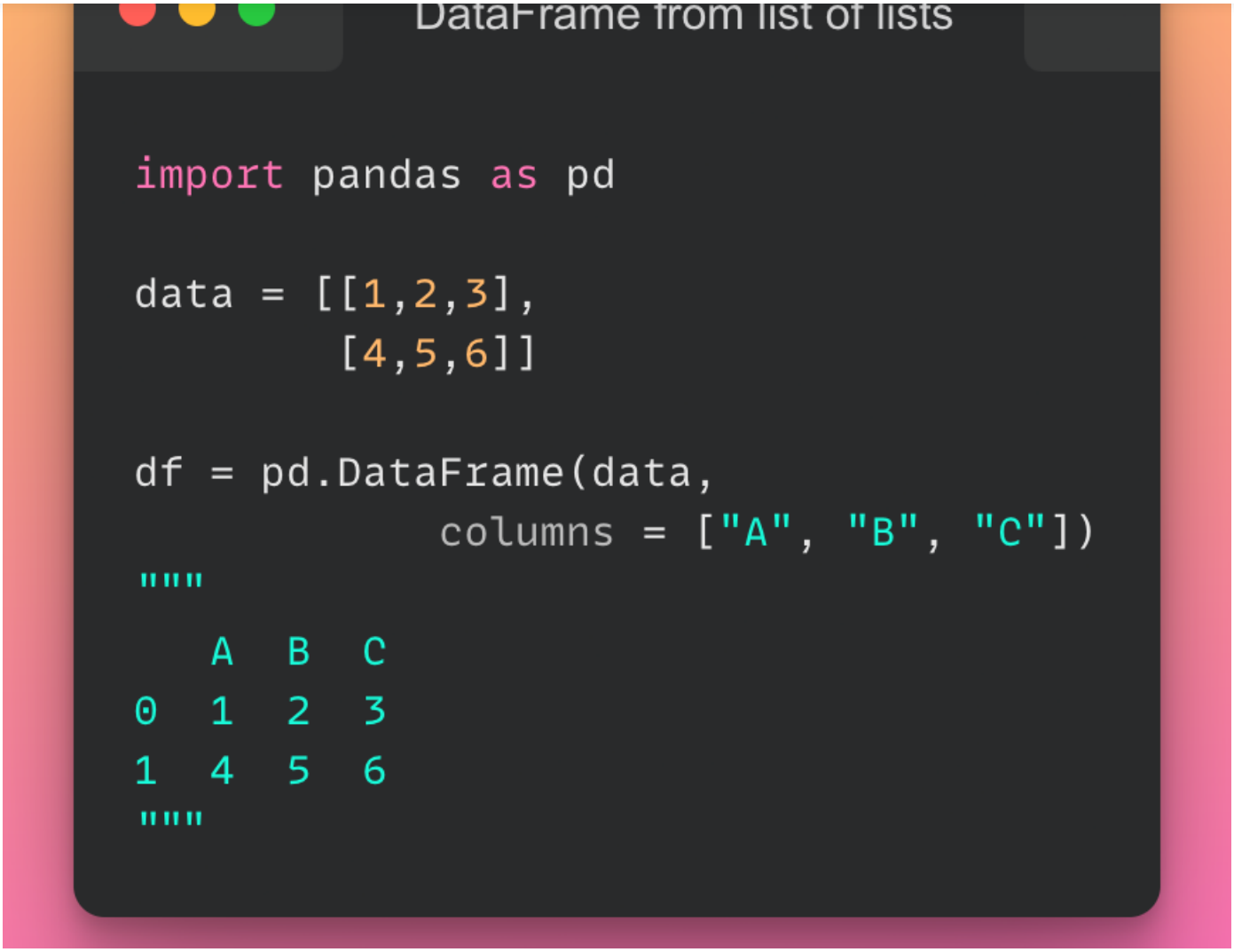


Code snippet for saving DataFrame to a CSV file (Image by author created using snappify.io)

Read the documentation here.

3/n: Creating a DataFrame from a list of lists:

If you want to create a DataFrame from a list of lists, use the *pd.DataFrame()* method as demonstrated below:

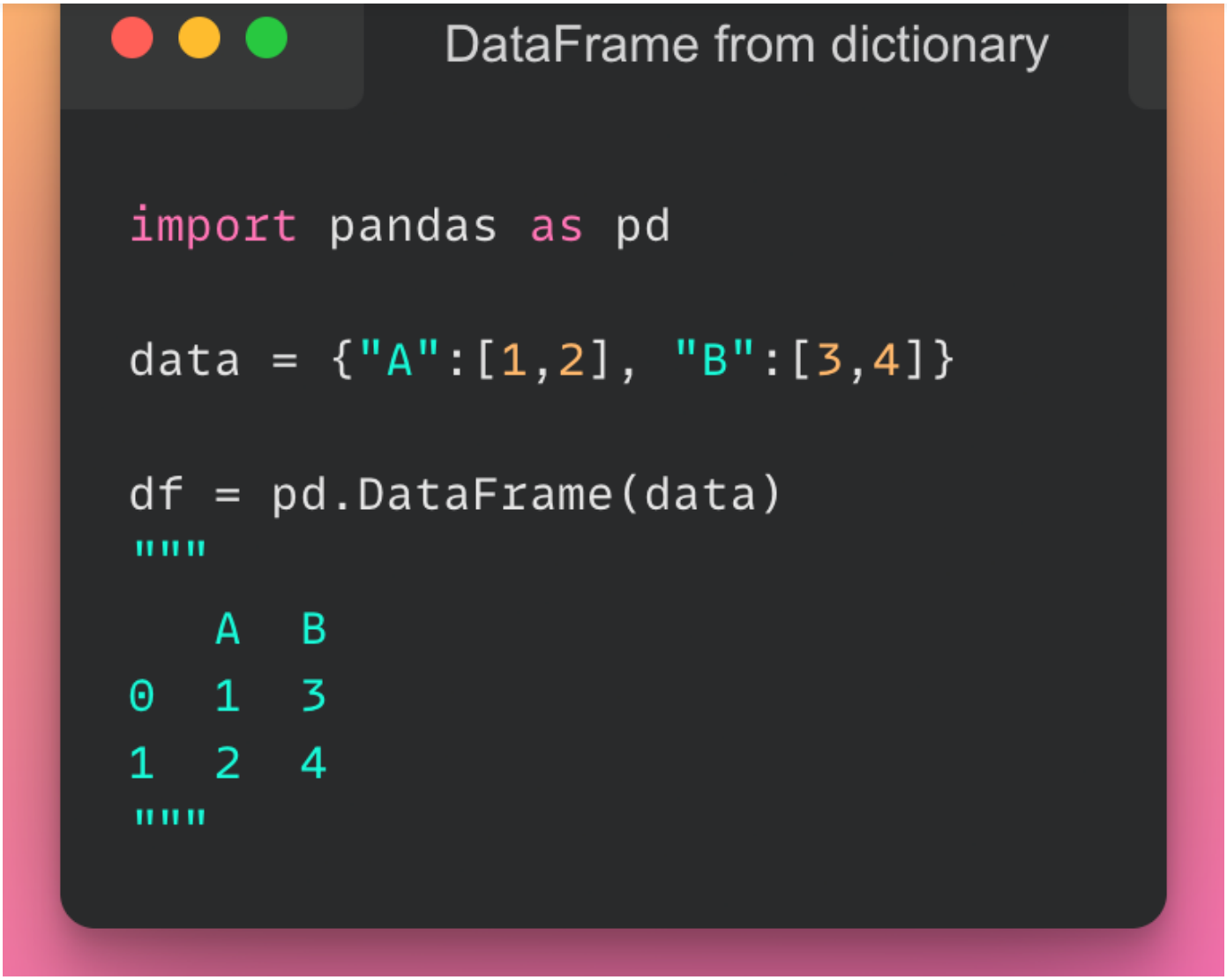


Code snippet for creating a DataFrame from a list of lists (Image by author created using snappify.io)

Read the documentation here.

4/n: Creating a DataFrame from a dictionary:

If you want to create a DataFrame from a dictionary, use the *pd.DataFrame()* method as demonstrated below:



Code snippet for creating a DataFrame from a dictionary (Image by author created using snappify.io)

Read the documentation here.

5/n: Merging DataFrames:

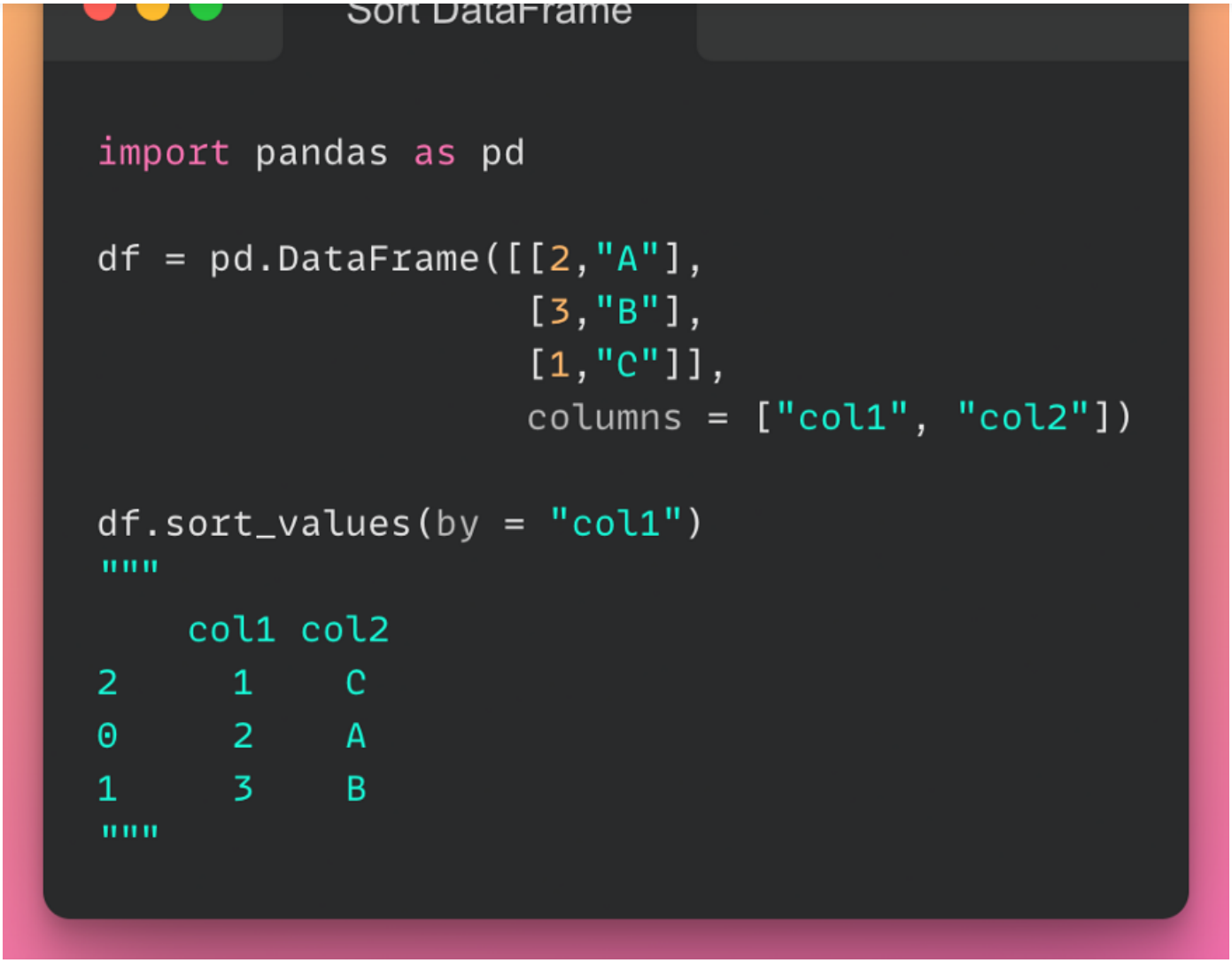
Merge operation in DataFrames is the same as the JOIN operation in SQL. We use it to join two DataFrames on one or more columns. If you want to merge two DataFrames, use the *pd.merge()* method as demonstrated below:

Code snippet for merging DataFrames (Image by author created using snappify.io)

Read the documentation here.

6/n: Sorting a DataFrame:

If you want to sort a DataFrame based on the values in a particular column, use the *sort_values()* method as demonstrated below:

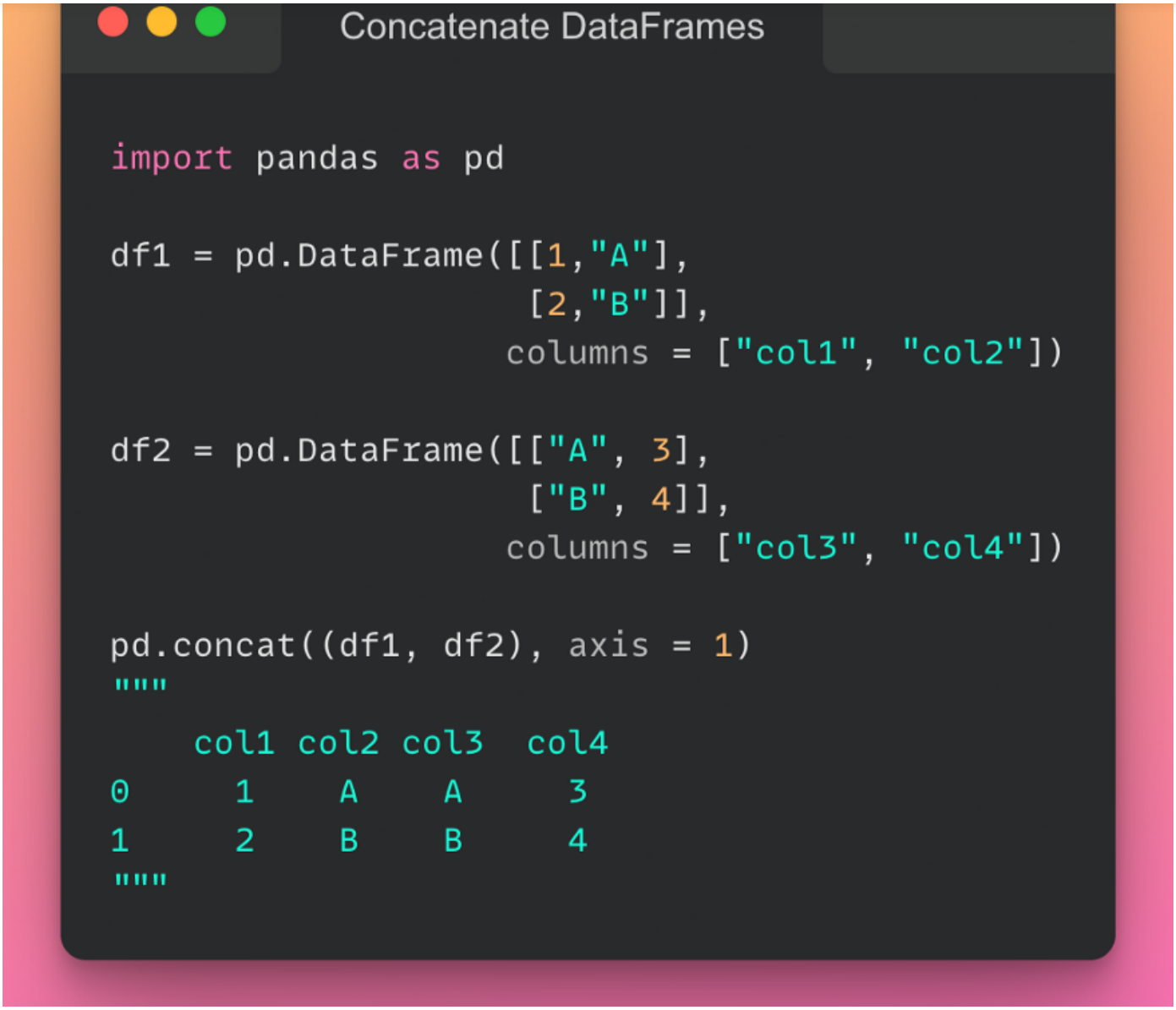


Code snippet for sorting a DataFrame (Image by author created using snappify.io)

Read the documentation here.

7/n: Concatenating DataFrames:

If you want to concatenate DataFrames, use the *pd.concat()* method as demonstrated below:



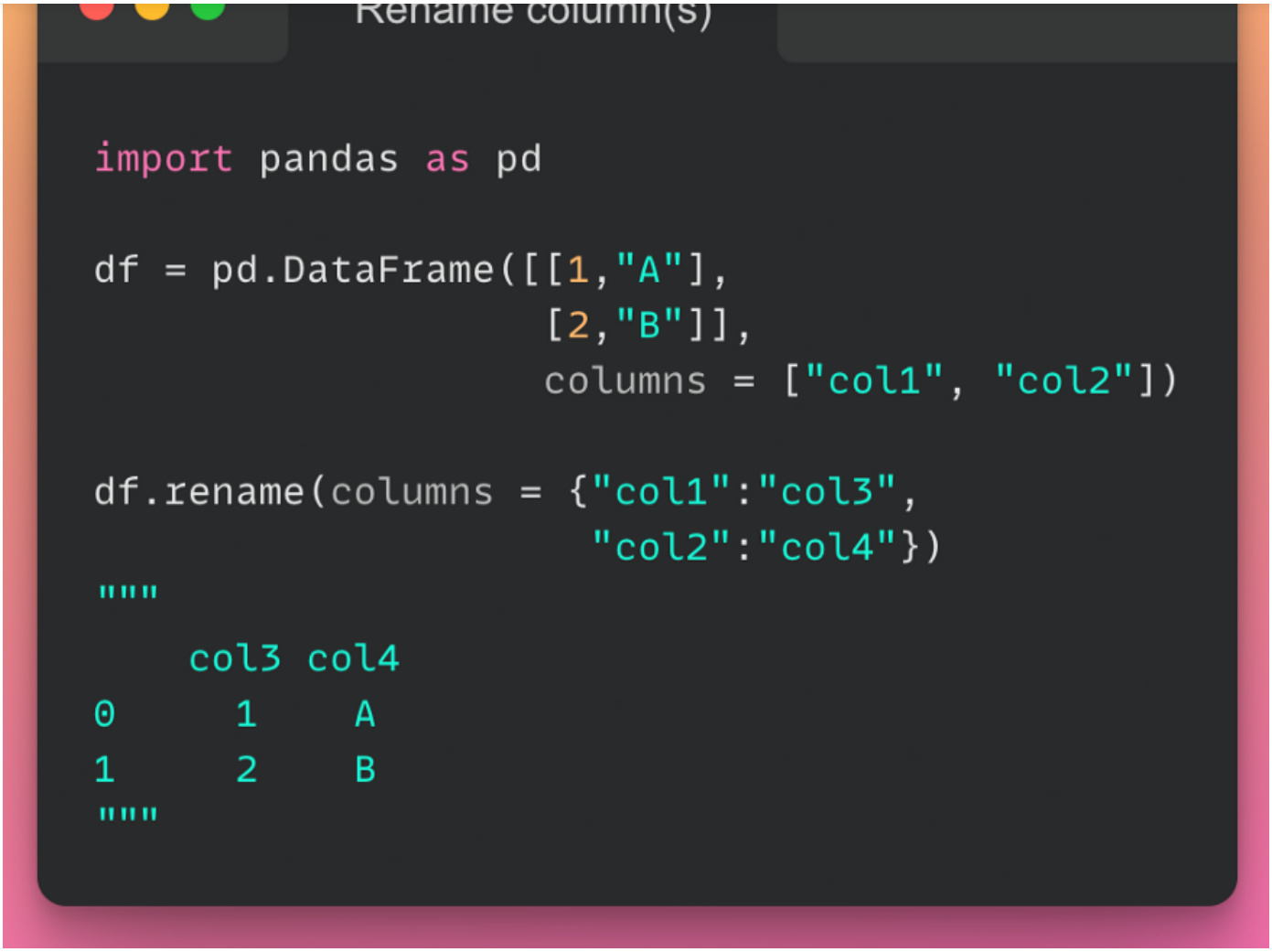
Code snippet for concatenating DataFrames (Image by author created using snappify.io)

Read the documentation here.

- *axis = 1 stacks columns together.*
- *axis = 0 stacks rows together, provided column header match.*

8/n: Rename column name:

If you want to rename one or more columns in a DataFrame, use the *rename()* method

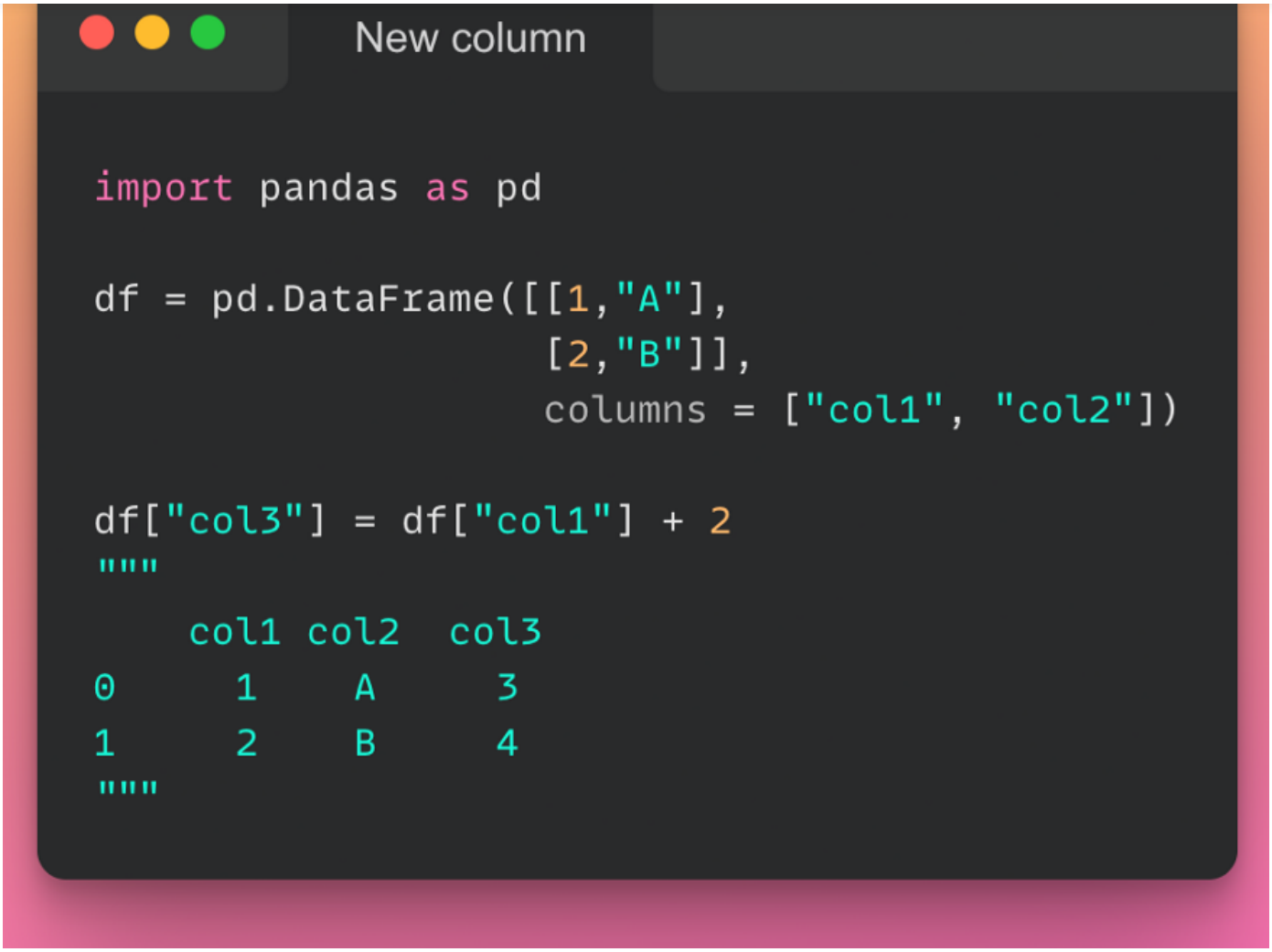


Code snippet for renaming columns in a DataFrame (Image by author created using snappify.io)

Read the documentation here.

9/n: Add New Column:

If you want to add a new column to a DataFrame, you can use the usual assignment operation as demonstrated below:



Code snippet for adding a new column to a DataFrame (Image by author created using snappify.io)

10/n: Filter DataFrame based on condition:

If you want to filter rows from a DataFrame based on a condition, you can do so as shown below:

```
import pandas as pd

df = pd.DataFrame([[1,"A"],
```

Code snippet for filtering a DataFrame (Image by author created using snappify.io)

11/n: Drop Column(s):

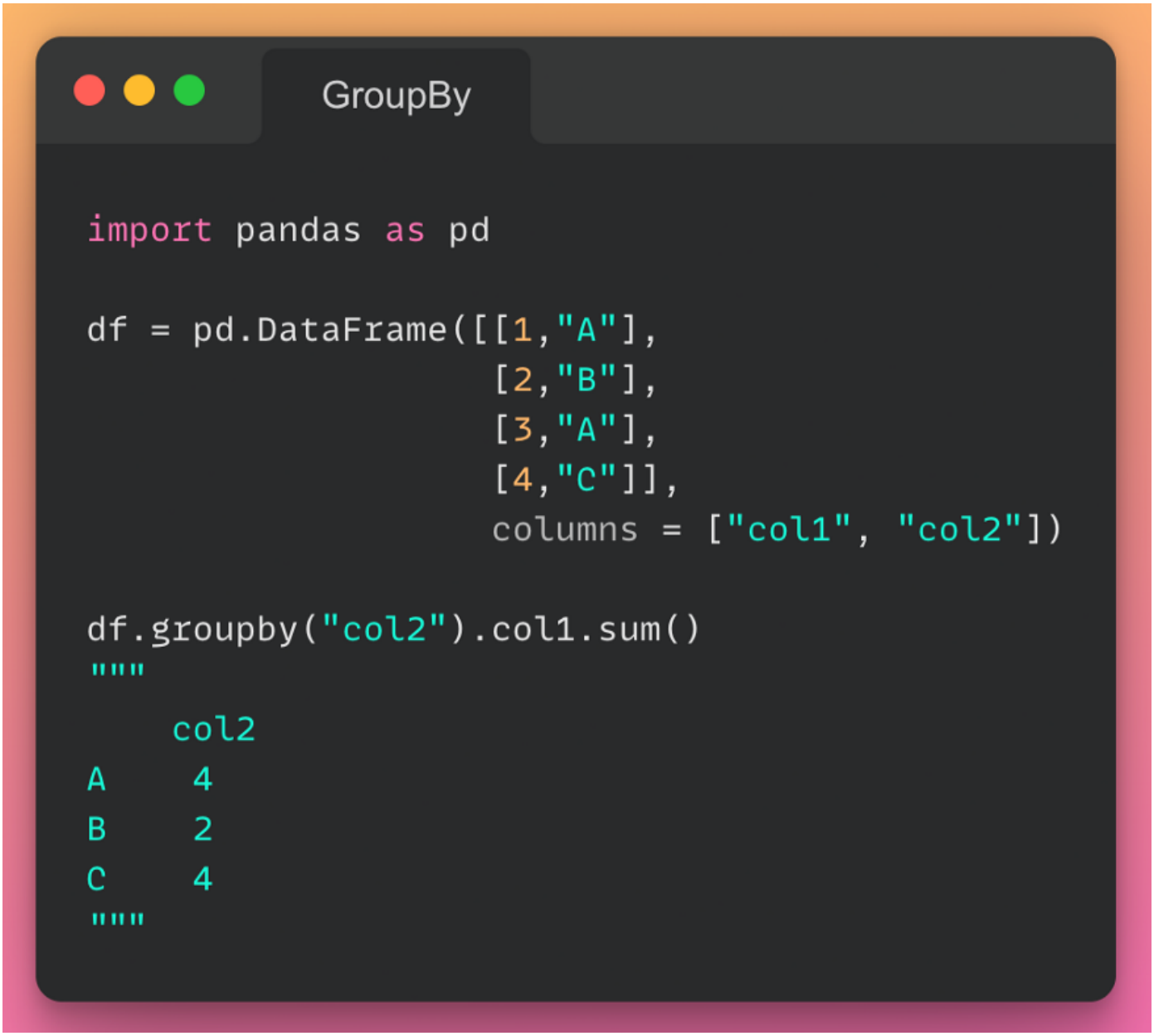
If you want to drop one or more columns from a DataFrame, use the *drop()* method as demonstrated below:

Drop Column(s)

```
import pandas as pd

df = pd.DataFrame([[1,"A"],
                   [2,"B"]],
                   columns = ["col1", "col2"])

df.drop(columns = ["col2"])
"""
    col1
0      1
1      2
"""
```

Code snippet for dropping columns from a DataFrame (Image by author created using snappify.io)

Read the documentation here.

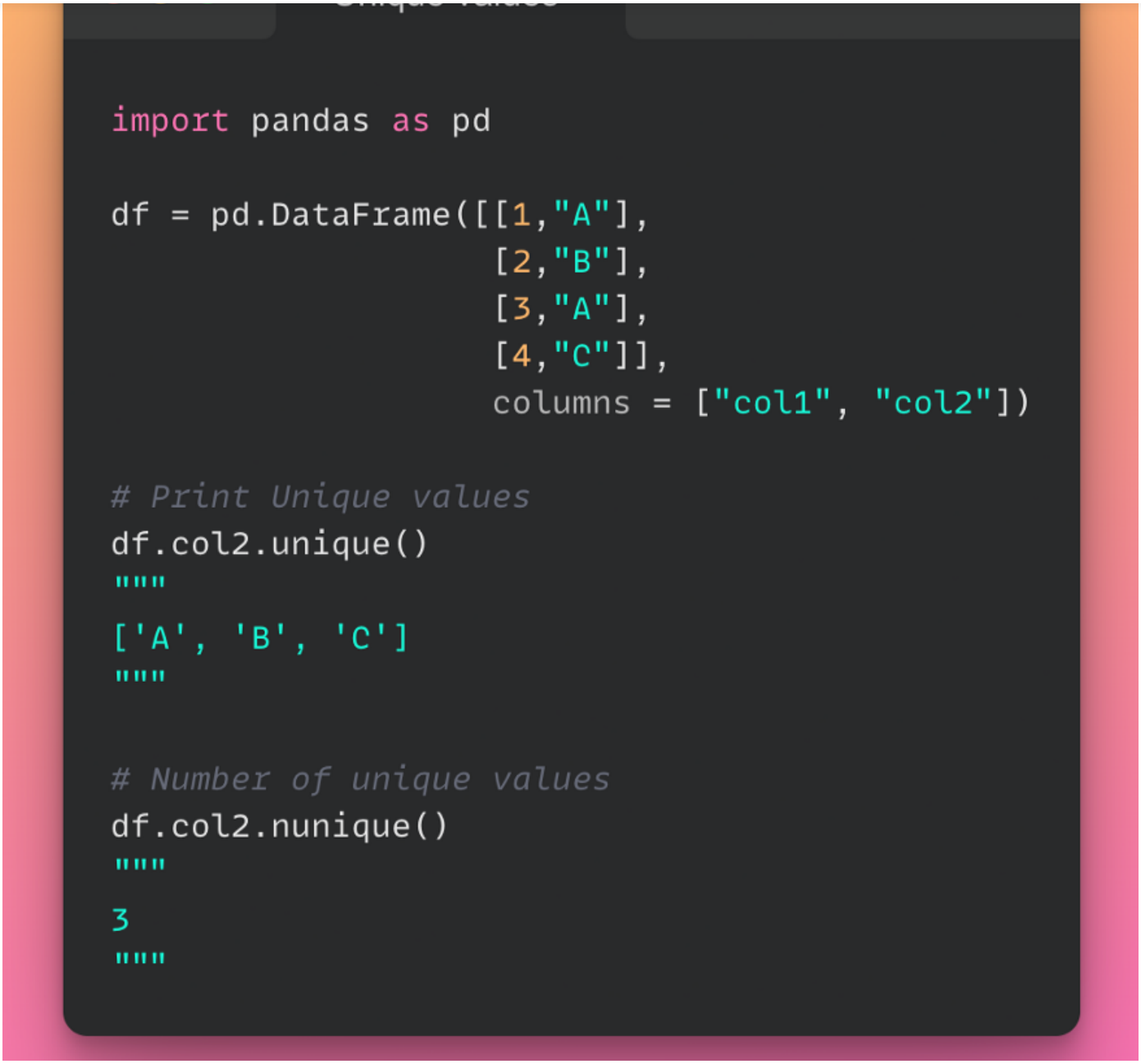


Code snippet for grouping a DataFrame (Image by author created using snappify.io)

Read the documentation here.

13/n: Unique Values in a column:

If you want to count or print the unique value in a column of a DataFrame, use the *unique() or unique()* method as demonstrated below:



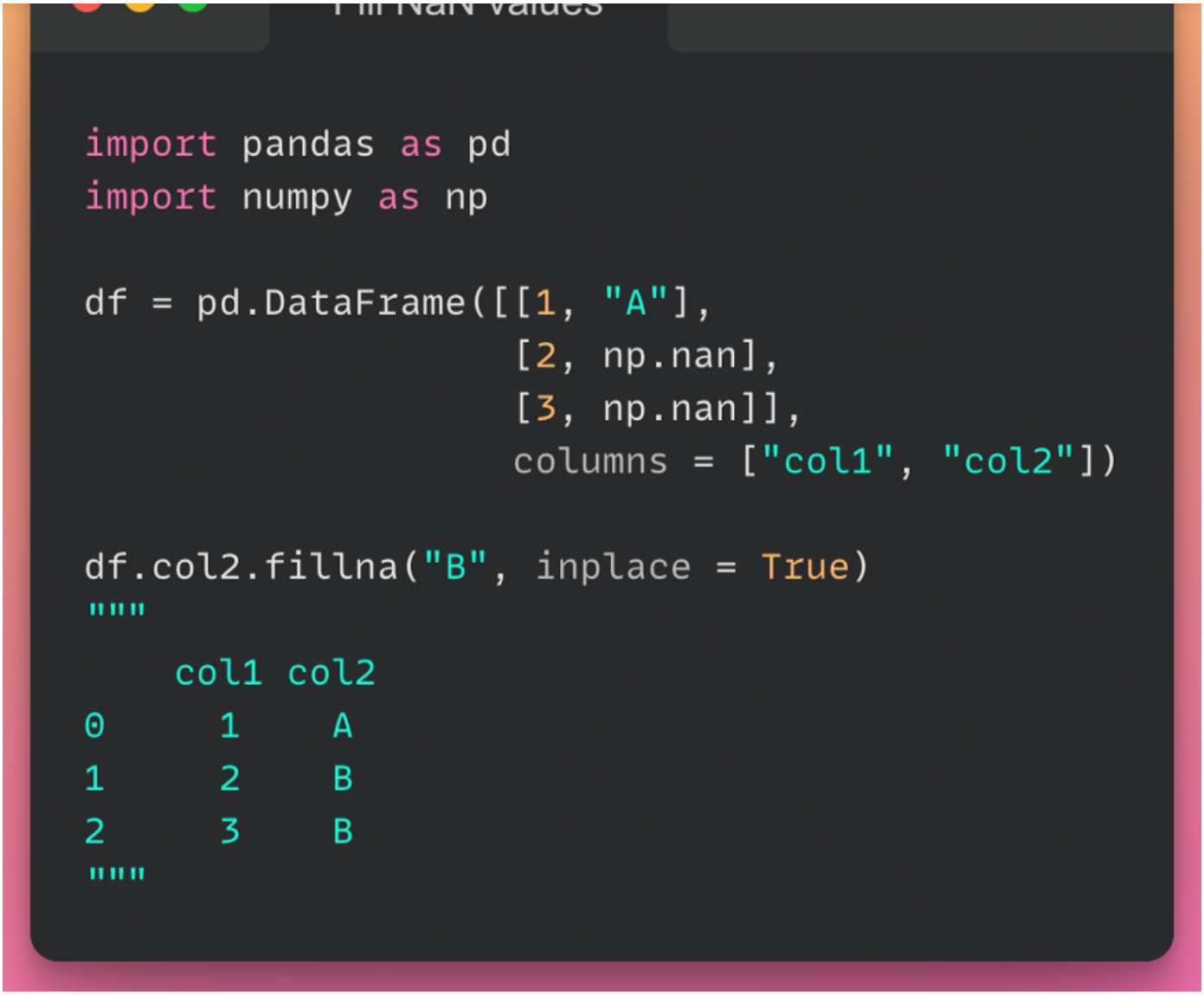
```python
import pandas as pd

df = pd.DataFrame([[1,"A"],
                   [2,"B"],
                   [3,"A"],
                   [4,"C"]],
                   columns = ["col1", "col2"])

# Print Unique values
df.col2.unique()
"""
['A', 'B', 'C']
"""

# Number of unique values
df.col2.nunique()
"""
3
"""
```

Code snippet for finding unique values in a DataFrame column (Image by author created using snappify.io)

Read the documentation here.

14/n: Fill NaN values:

If you want to replace NaN values in a column with some other value, use the *fillna()* method as demonstrated below:

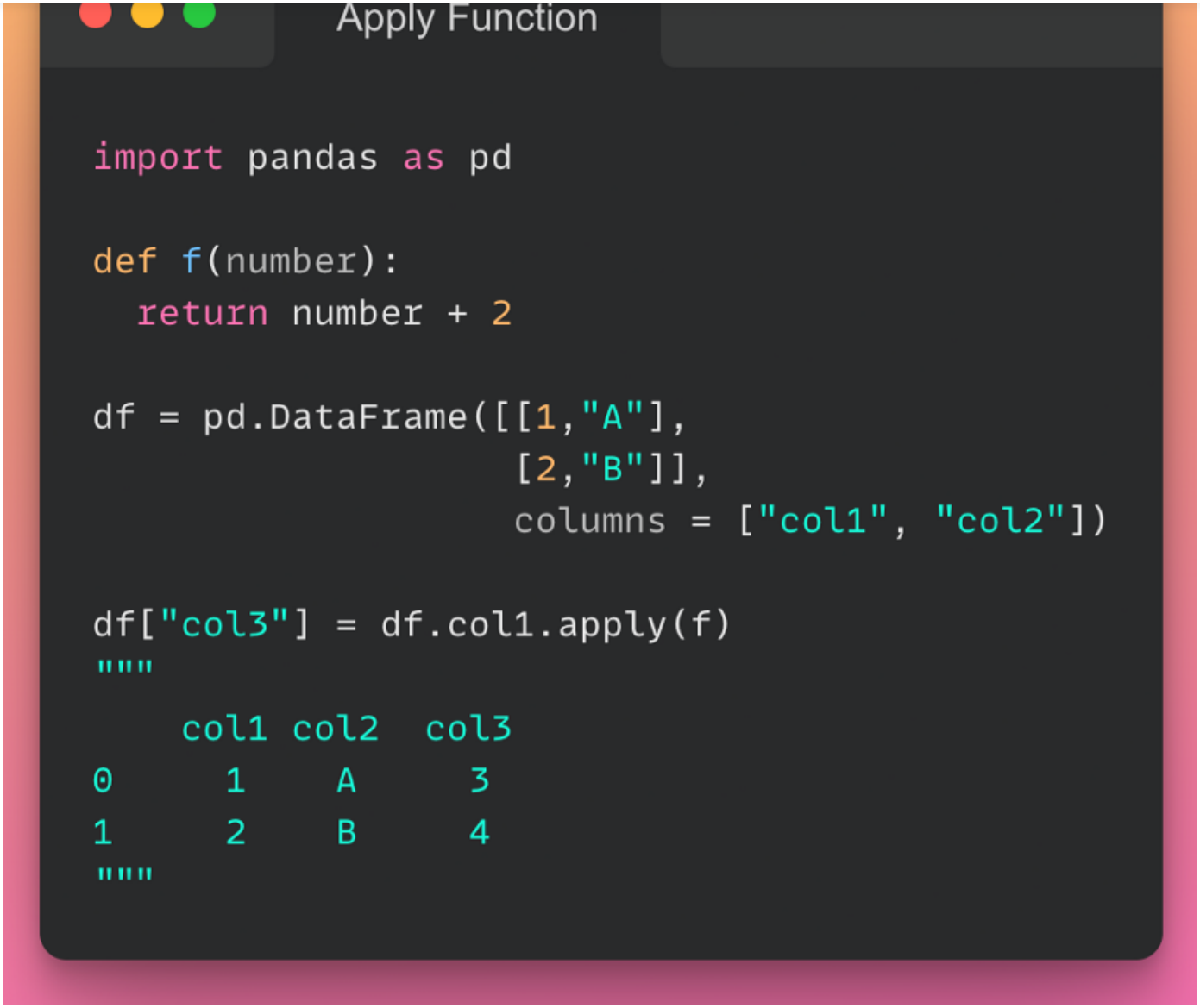


Code snippet for filling NaN values in a DataFrame (Image by author created using snappify.io)

Read the documentation here.

15/n: Apply Function on a column:

If you want to apply a function to a column, use the *apply()* method as demonstrated below:

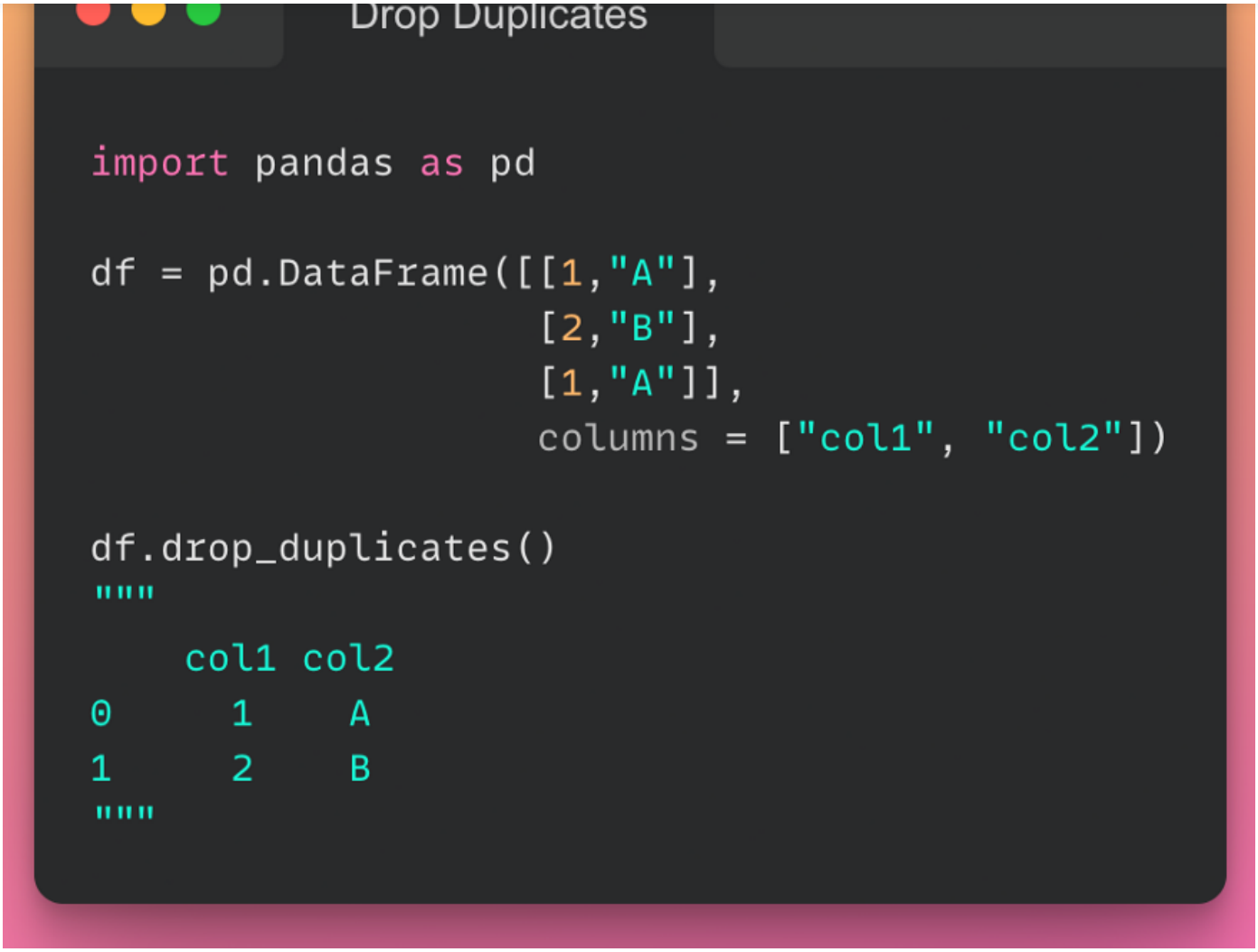


Code snippet for applying a function on a DataFrame (Image by author created using snappify.io)

Read the documentation here.

16/n: Remove Duplicates:

If you want to remove duplicate values, use the *drop_duplicates()* method as demonstrated below:



Code snippet for removing duplicated from a DataFrame (Image by author created using snappify.io)

Read the documentation here.

17/n: Value Counts:

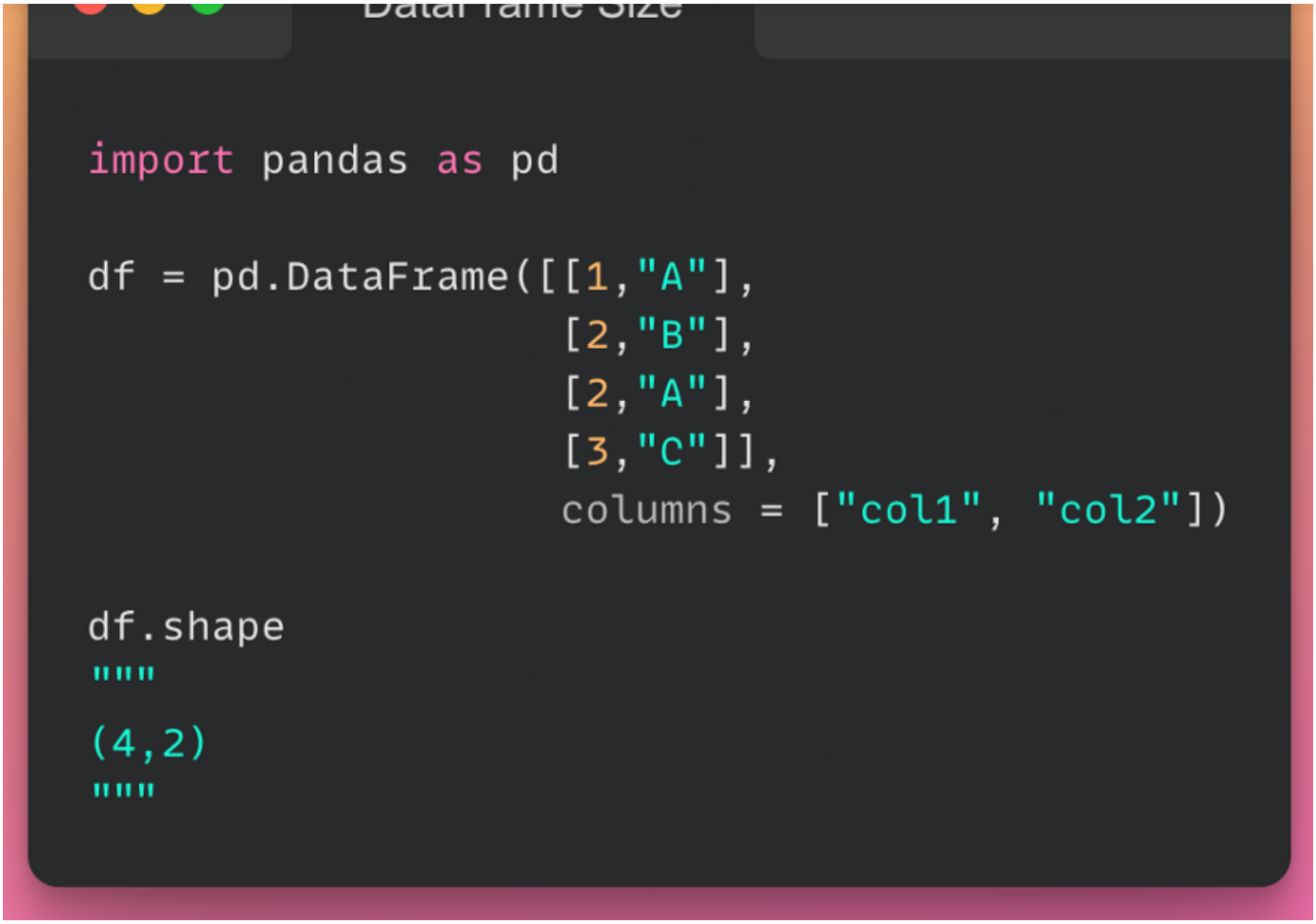
If you want to find the frequency of each value in a column, use the *value_counts()* method as demonstrated below:

```
import pandas as pd

df = pd.DataFrame([[1,"A"],
                   [2,"B"],
                   [2,"A"],
                   [3,"C"]],
                   columns = ["col1", "col2"])

df.col2.value_counts()
"""
A    2
B    1
C    1
"""
```

Code snippet for counting the frequency of values in a column (Image by author created using snappify.io)

18/n: Size of a DataFrame:

If you want to find the size of a DataFrame, use the *.shape* attribute as demonstrated below:



To conclude, in this post, I covered some of the most commonly used functions/methods in Pandas to help you get started with this library. Though this post will be helpful for you to make you comfortable with the syntax, I would highly recommend creating a dummy DataFrame of your own and experimenting with it in a jupyter notebook.

Further, there is no better place than referencing the official Pandas documentation available here to acquire fundamental and practical knowledge of various methods in Pandas. Pandas official documentation provides a detailed explanation of each of the arguments accepted by a function along with a practical example, which in my opinion, is an excellent way to acquire Pandas expertise.