Creating and Accessing Pandas DataFrames

Course Code: CPE 031	**Program**: Computer Engineering
Course Title: Visualization and Data Analysis	**Date Performed**:15 / 10 / 24
Section: CPE21S4	**Date Submitted**:15 / 10 / 24
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Intended Learning Outcomes (ILO):

By the end of this laboratory session, learners will be able to

- 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.

Instructions:

1. **Loading your dataset**: 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 Google Colab. Watch this video to learn more about how to read CSV files in Google Colab.**(Take a screenshot to document successful execution.)**

2. **Creating a dataframe from your CSV file:** Once you have successfully loaded your dataset, you need to create a dataframe from your uploaded CSV file.**(Take a screenshot to document successful execution.)**

3. **Creating a dataframe from a dictionary of lists:** 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. **(Take a screenshot to document successful execution.)**

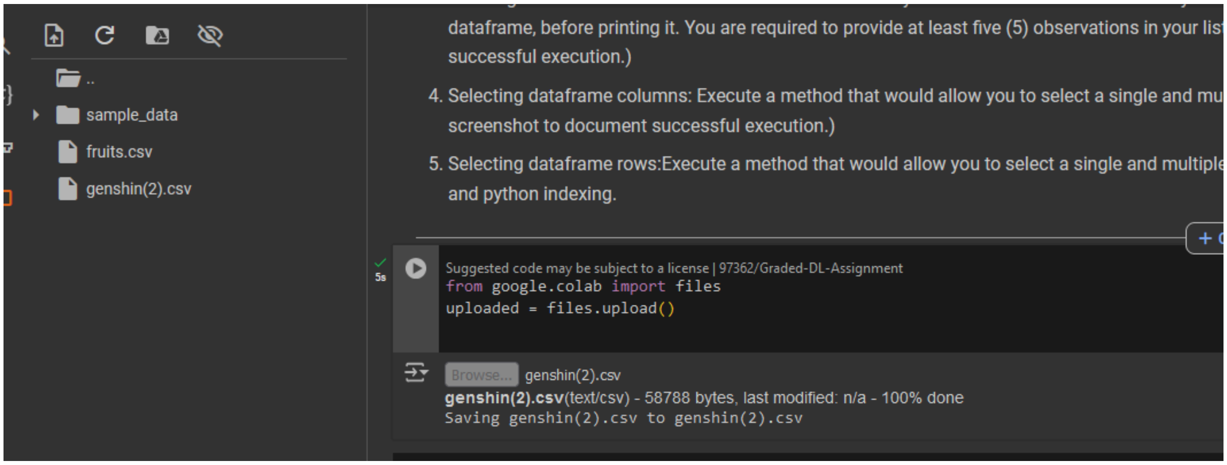
4. **Creating a dataframe from a list of dictionaries:** Manually create a list of dictionaries from your original dataset, then pass it into a dataframe, before printing it. You are required to provide at least five (5) observations in your list. **(Take a screenshot to document successful execution.)**

5. **Selecting dataframe columns:** Execute a method that would allow you to select a single and multiple dataframe columns. **(Take a screenshot to document successful execution.)**

6. **Selecting dataframe rows:**Execute a method that would allow you to select a single and multiple dataframe rows using panda indexing and python indexing.

Output:

1.



dataframe, before printing it. You are required to provide at least five (5) observations in your lis
successful execution.)

4. Selecting dataframe columns: Execute a method that would allow you to select a single and mu
screenshot to document successful execution.)

5. Selecting dataframe rows:Execute a method that would allow you to select a single and multiple
and python indexing.

Suggested code may be subject to a license | 97362/Graded-DL-Assignment

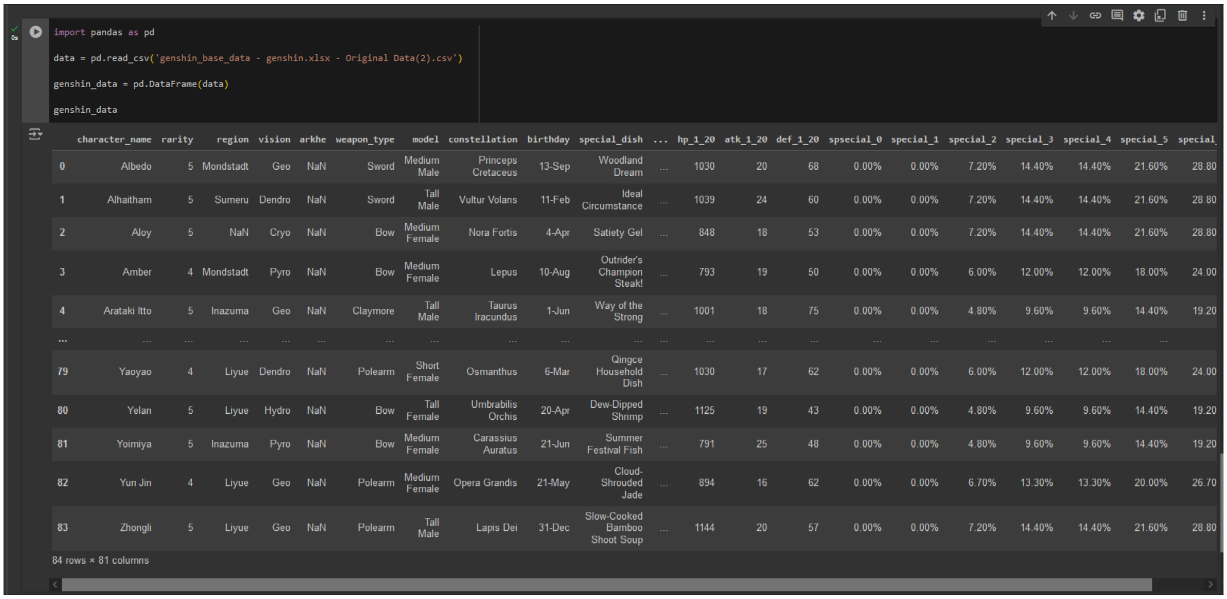
```
from google.colab import files
uploaded = files.upload()
```

Browse... genshin(2).csv

genshin(2).csv(text/csv) - 58788 bytes, last modified: n/a - 100% done

```
Saving genshin(2).csv to genshin(2).csv
```

2.

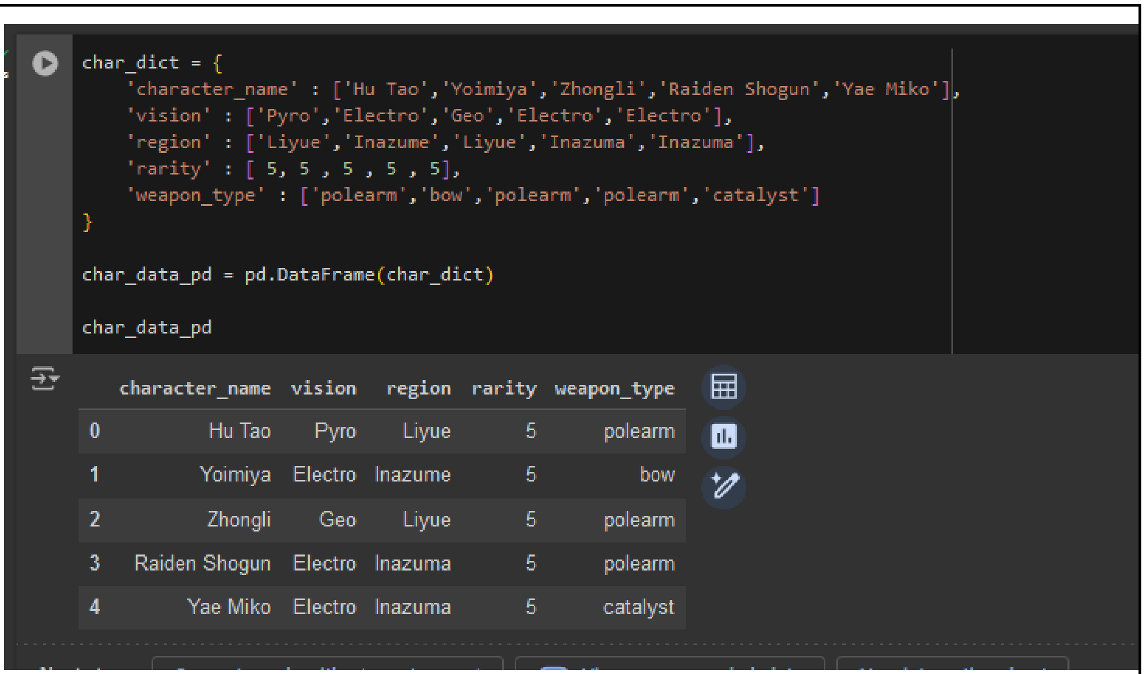


```
import pandas as pd

data = pd.read_csv('genshin_base_data - genshin.xlsx - Original Data(2).csv')

genshin_data = pd.DataFrame(data)

genshin_data
```

	character_name	rarity	region	vision	arkhe	weapon_type	model	constellation	birthday	special_dish	...	hp_1_20	atk_1_20	def_1_20	spsecial_0	special_1	special_2	special_3	special_4	special_5	special_
0	Albedo	5	Mondstadt	Geo	NaN	Sword	Medium Male	Princeps Cretaceus	13-Sep	Woodland Dream	...	1030	20	68	0.00%	0.00%	7.20%	14.40%	14.40%	21.60%	28.80
1	Alhaitham	5	Sumeru	Dendro	NaN	Sword	Tall Male	Vultur Volans	11-Feb	Ideal Circumstance	...	1039	24	60	0.00%	0.00%	7.20%	14.40%	14.40%	21.60%	28.80
2	Aloy	5	NaN	Cryo	NaN	Bow	Medium Female	Nora Fortis	4-Apr	Satiety Gel	...	848	18	53	0.00%	0.00%	7.20%	14.40%	14.40%	21.60%	28.80
3	Amber	4	Mondstadt	Pyro	NaN	Bow	Medium Female	Lepus	10-Aug	Outrider's Champion Steak!	...	793	19	50	0.00%	0.00%	6.00%	12.00%	12.00%	18.00%	24.00
4	Arataki Itto	5	Inazuma	Geo	NaN	Claymore	Tall Male	Taurus Iracundus	1-Jun	Way of the Strong	...	1001	18	75	0.00%	0.00%	4.80%	9.60%	9.60%	14.40%	19.20
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
79	Yaoyao	4	Liyue	Dendro	NaN	Polearm	Short Female	Osmanthus	6-Mar	Qingce Household Dish	...	1030	17	62	0.00%	0.00%	6.00%	12.00%	12.00%	18.00%	24.00
80	Yelan	5	Liyue	Hydro	NaN	Bow	Tall Female	Umbrabilis Orchis	20-Apr	Dew-Dipped Shrimp	...	1125	19	43	0.00%	0.00%	4.80%	9.60%	9.60%	14.40%	19.20
81	Yoimiya	5	Inazuma	Pyro	NaN	Bow	Medium Female	Carassius Auratus	21-Jun	Summer Festival Fish	...	791	25	48	0.00%	0.00%	4.80%	9.60%	9.60%	14.40%	19.20
82	Yun Jin	4	Liyue	Geo	NaN	Polearm	Medium Female	Opera Grandis	21-May	Cloud-Shrouded Jade	...	894	16	62	0.00%	0.00%	6.70%	13.30%	13.30%	20.00%	26.70
83	Zhongli	5	Liyue	Geo	NaN	Polearm	Tall Male	Lapis Dei	31-Dec	Slow-Cooked Bamboo Shoot Soup	...	1144	20	57	0.00%	0.00%	7.20%	14.40%	14.40%	21.60%	28.80

84 rows × 81 columns

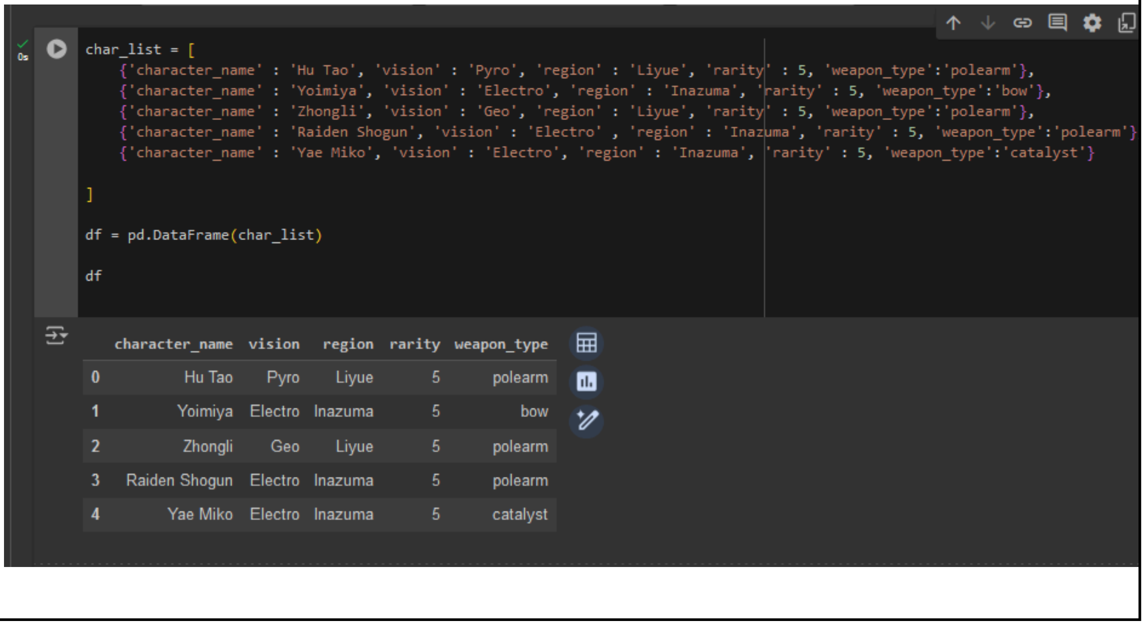
3.



```
char_dict = {
    'character_name' : ['Hu Tao','Yoimiya','Zhongli','Raiden Shogun','Yae Miko'],
    'vision' : ['Pyro','Electro','Geo','Electro','Electro'],
    'region' : ['Liyue','Inazume','Liyue','Inazuma','Inazuma'],
    'rarity' : [ 5, 5 , 5 , 5 , 5],
    'weapon_type' : ['polearm','bow','polearm','polearm','catalyst']
}

char_data_pd = pd.DataFrame(char_dict)

char_data_pd
```

```
   character_name   vision   region  rarity  weapon_type
0          Hu Tao     Pyro    Liyue       5      polearm
1         Yoimiya  Electro  Inazume       5          bow
2         Zhongli      Geo    Liyue       5      polearm
3   Raiden Shogun  Electro  Inazuma       5      polearm
4        Yae Miko  Electro  Inazuma       5     catalyst
```

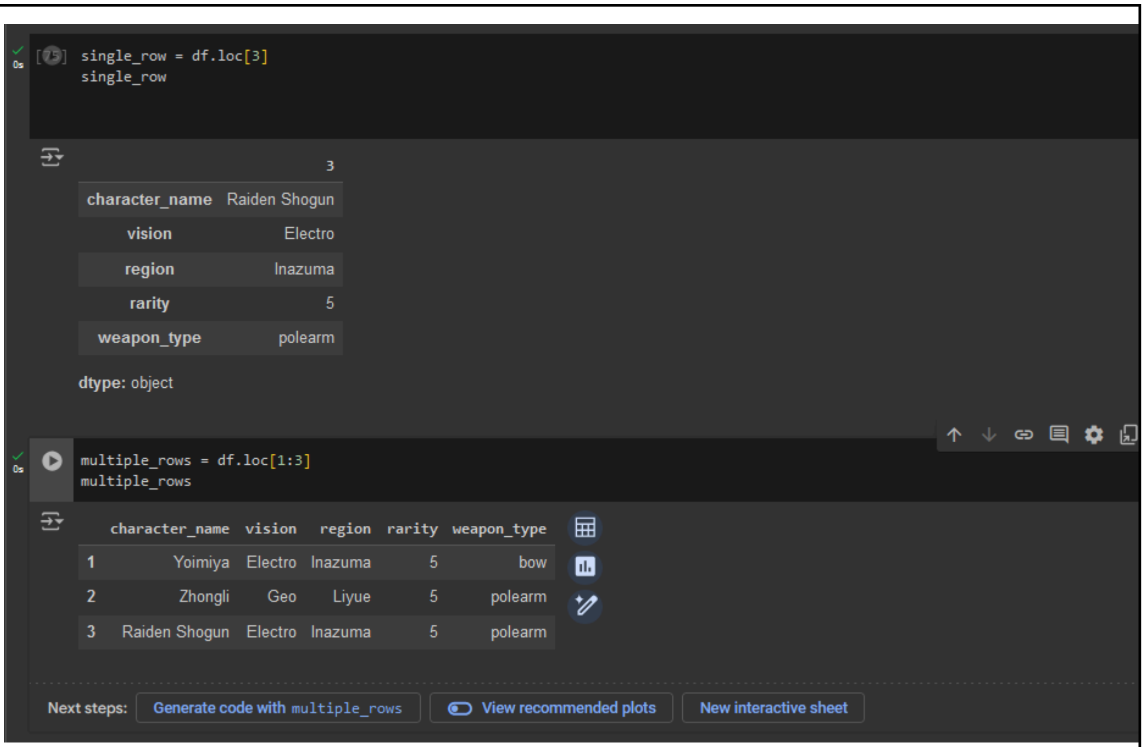
4.



```
char_list = [
    {'character_name' : 'Hu Tao', 'vision' : 'Pyro', 'region' : 'Liyue', 'rarity' : 5, 'weapon_type':'polearm'},
    {'character_name' : 'Yoimiya', 'vision' : 'Electro', 'region' : 'Inazuma', 'rarity' : 5, 'weapon_type':'bow'},
    {'character_name' : 'Zhongli', 'vision' : 'Geo', 'region' : 'Liyue', 'rarity' : 5, 'weapon_type':'polearm'},
    {'character_name' : 'Raiden Shogun', 'vision' : 'Electro' , 'region' : 'Inazuma', 'rarity' : 5, 'weapon_type':'polearm'}
    {'character_name' : 'Yae Miko', 'vision' : 'Electro', 'region' : 'Inazuma', 'rarity' : 5, 'weapon_type':'catalyst'}

]

df = pd.DataFrame(char_list)

df
```

```
   character_name   vision   region  rarity  weapon_type
0          Hu Tao     Pyro    Liyue       5      polearm
1         Yoimiya  Electro  Inazuma       5          bow
2         Zhongli      Geo    Liyue       5      polearm
3   Raiden Shogun  Electro  Inazuma       5      polearm
4        Yae Miko  Electro  Inazuma       5     catalyst
```

5.



```
[75] single_row = df.loc[3]
     single_row
```

	3
character_name	Raiden Shogun
vision	Electro
region	Inazuma
rarity	5
weapon_type	polearm

dtype: object

```
multiple_rows = df.loc[1:3]
multiple_rows
```

	character_name	vision	region	rarity	weapon_type
1	Yoimiya	Electro	Inazuma	5	bow
2	Zhongli	Geo	Liyue	5	polearm
3	Raiden Shogun	Electro	Inazuma	5	polearm