

Creating and Accessing Pandas DataFrames	
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Intended Learning Outcomes (ILO): By the end of this laboratory session, learners will be able to <ul style="list-style-type: none"> - 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: <ol style="list-style-type: none"> 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. from google.colab import files
uploaded=files.upload()
```

hsr_character-data.csv

Unnamed: 0 apples oranges			
2	Lily	0	7
3	David	1	2

7s

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

Choose Files hsr_character-data.csv

- hsr_character-data.csv(text/csv) - 9251 bytes, last modified: 10/15/2024 - 100% done
- Saving hsr_character-data.csv to hsr_character-data.csv

```
2. import pandas as pd
data=pd.read_csv('hsr_character-data.csv')
display=pd.DataFrame(data)
display
```

	character	rarity	path	combat_type	wb_b-atk	wb_skill	wb_ult	er_b-atk	er_skill	er_ult	...	hp_40	atk_20a	def_20a	hp_20a	atk_20	def_20	hp_20	atk_1	def_1	hp_1
0	march_7th	4	preservation	ice	30	0	60	20	30	5	...	540	163.56	183.30	338	135.72	152.10	281	69.60	78.0	144
1	dan_heng	4	hunt	wind	30	60	90	20	30	5	...	450	174.84	126.90	282	145.08	105.30	234	74.40	54.0	120
2	himeko	5	erudition	fire	30	60	60	20	10	5	...	535	241.96	139.59	335	200.77	115.83	278	102.96	59.4	143
3	welt	5	nihlity	imaginary	30	30	60	20	30	5	...	574	198.53	162.86	360	164.74	135.14	299	84.48	69.3	153
4	kafka	5	nihlity	lightning	30	60	60	20	30	5	...	554	217.14	155.10	347	180.18	128.70	288	92.40	66.0	148
5	silver_wolf	5	nihlity	quantum	30	60	90	20	30	5	...	535	204.73	147.34	335	169.88	122.26	278	87.12	62.7	143
6	arlan	4	destruction	lightning	30	60	60	20	30	5	...	612	191.76	105.75	384	159.12	87.75	318	81.60	45.0	163
7	asta	4	harmony	fire	30	30	0	20	6	5	...	522	163.56	148.05	327	135.72	122.85	271	69.60	63.0	139
8	herta	4	erudition	ice	30	30	60	20	30	5	...	486	186.12	126.90	305	154.44	105.30	253	79.20	54.0	130
9	bronya	5	harmony	wind	30	0	0	20	30	5	...	634	186.12	170.61	397	154.44	141.57	329	79.20	72.6	169
10	seele	5	hunt	quantum	30	60	90	20	30	5	...	475	204.73	116.33	298	169.88	96.53	247	87.12	49.5	127
11	serval	4	erudition	lightning	30	60	60	20	30	5	...	468	208.68	119.85	293	173.16	99.45	243	88.80	51.0	125
12	gepard	5	preservation	ice	30	60	0	20	30	5	...	713	173.71	209.39	447	144.14	173.75	371	73.92	89.1	190
13	natasha	4	abundance	physical	30	0	0	20	30	5	...	594	152.28	162.15	372	126.36	134.55	309	64.80	69.0	158
14	pela	4	nihlity	ice	30	60	60	20	30	5	...	504	174.84	148.05	316	145.08	122.85	262	74.40	63.0	134
15	clara	5	destruction	physical	30	30	0	20	30	5	...	634	235.75	155.10	397	195.62	128.70	329	100.32	66.0	169
16	sampo	4	nihlity	wind	30	30	60	20	6	5	...	522	197.40	126.90	327	163.80	105.30	271	84.00	54.0	139
17	hook	4	destruction	fire	30	60	90	20	30	5	...	684	197.40	112.80	429	163.80	93.60	356	84.00	48.0	182
18	luka	4	nihlity	physical	30	60	90	20	30	5	...	468	186.12	155.10	293	154.44	128.70	243	79.20	66.0	125
19	qingque	4	erudition	quantum	30	0	60	20	0	5	...	522	208.68	141.00	327	173.16	117.00	271	88.80	60.0	139
20	tingyun	4	harmony	lightning	30	0	0	20	30	5	...	432	169.20	126.90	271	140.40	105.30	225	72.00	54.0	115
21	luocha	5	abundance	imaginary	30	0	60	20	30	5	...	653	241.96	116.33	409	200.77	96.53	340	102.96	49.5	174

3.

```
data = pd.read_csv('hsr_character-data.csv')
```

```
data_dict = {  
    'Name': data['character'].tolist(),  
    'Path': data['path'].tolist(),  
    'Combat Type': data['combat_type'].tolist(),  
    'HP at lvl 80': data['hp_80'].tolist(),  
    'ATK at lvl 80': data['atk_80'].tolist(),  
    'DEF at lvl 80': data['def_80'].tolist(),  
}
```

```
new_df = pd.DataFrame(data_dict)
```

```
print(new_df)
```

	Name	Path	Combat Type	HP at lvl 80	ATK at lvl 80 \
0	march_7th	preservation	ice	1058.00	511.56
1	dan_heng	hunt	wind	882.00	546.84
2	himeko	erudition	fire	1048.00	756.76
3	welt	nihility	imaginary	1125.43	620.93
4	kafka	nihility	lightning	1086.62	679.14
5	silver_wolf	nihility	quantum	1047.82	640.33
6	arlan	destruction	lightning	1199.52	599.76
7	asta	harmony	fire	1023.00	511.56
8	herta	erudition	ice	953.00	582.12
9	bronya	harmony	wind	1242.00	582.12
10	seele	hunt	quantum	931.00	640.33
11	serval	erudition	lightning	917.00	652.68
12	gepard	preservation	ice	1397.00	543.31
13	natasha	abundance	physical	1164.00	476.28
14	pela	nihility	ice	988.00	546.84
15	clara	destruction	physical	1242.00	737.35
16	sampo	nihility	wind	1023.00	617.40
17	hook	destruction	fire	1341.00	617.40
18	luka	nihility	physical	917.28	582.12
19	qingque	erudition	quantum	1023.00	652.68
20	tingyun	harmony	lightning	847.00	529.20
21	luocha	abundance	imaginary	1281.00	756.76
22	jing_yuan	erudition	lightning	1164.00	698.54
23	blade	destruction	wind	1358.00	543.31
24	sushang	hunt	physical	917.00	564.48
25	yukong	harmony	imaginary	917.00	599.76
26	yanqing	hunt	ice	893.00	679.14
27	bailu	abundance	lightning	1319.00	562.72
28	trailblazer_0	destruction	physical	1203.00	620.93
29	trailblazer_1	preservation	fire	1242.00	601.52
30	dan_heng_IL	destruction	imaginary	1242.00	698.54
31	lynx	abundance	quantum	1058.00	493.92
32	fu_xuan	preservation	quantum	1475.00	465.70

```
      DEF at lvl 80
0      573.30
1      396.90
2      436.59
3      509.36
4      485.10
5      460.84
6      330.75
7      463.05
8      396.90
9      533.61
10     363.83
11     374.85
12     654.89
13     507.15
14     463.05
15     485.10
16     396.90
17     352.80
18     485.10
19     441.00
20     396.90
21     363.83
22     485.10
23     485.10
24     418.95
25     374.85
26     412.34
27     485.10
28     460.84
29     606.37
30     363.83
31     551.25
32     606.37
```

4.

```
import pandas as pd
data = pd.read_csv('hsr_character-data.csv')
data = [{'character': 'Trailblazer (Physical)', 'path':
'Destruction', 'combat_type': 'Physical', 'hp_80': 1203, 'atk_80':
620.93, 'def_80': 460.84},
        {'character': 'Trailblazer (Fire)', 'path': 'Preservation',
'combat_type': 'Fire', 'hp_80': 1242, 'atk_80': 601.52, 'def_80':
606.37},
```

```

        {'character': 'Seele', 'path': 'The Hunt', 'combat_type':
'Quantum', 'hp_80': 931, 'atk_80': 640.33, 'def_80': 363.83 },
        {'character': 'Himeko', 'path': 'Erudition', 'combat_type':
'Fire', 'hp_80': 1048, 'atk_80': 756.76, 'def_80': 436.59},
        {'character': 'Welt', 'path': 'Nihility', 'combat_type':
'Imaginary', 'hp_80': 1125.43, 'atk_80': 620.93, 'def_80': 509.36},
    ]

```

```
df = pd.DataFrame(data)
```

```
print(df)
```

```

➡
   0 Trailblazer (Physical) Destruction Physical 1203.00 620.93 460.84
   1 Trailblazer (Fire) Preservation Fire 1242.00 601.52 606.37
   2 Seele The Hunt Quantum 931.00 640.33 363.83
   3 Himeko Erudition Fire 1048.00 756.76 436.59
   4 Welt Nihility Imaginary 1125.43 620.93 509.36

```

5. Single column

```
column = df['character']
```

```
print(column)
```

```

➡
   0 Trailblazer (Physical)
   1 Trailblazer (Fire)
   2 Seele
   Name: character, dtype: object

```

Double columns

```
twocolumns = df[['character', 'path']]
```

```
print(twocolumns)
```

```

   character path
0 Trailblazer (Physical) Destruction
1 Trailblazer (Fire) Preservation
2 Seele The Hunt

```

6. Single row

```
single_row = df.loc[0]  
print(single_row)
```

```
▶ single_row = df.loc[0]  
print(single_row)
```

```
↔ character      Trailblazer (Physical)  
path            Destruction  
combat_type     Physical  
hp_80           12584  
atk_80          992  
def_80          677  
Name: 0, dtype: object
```

Multiple Rows

```
multiple_rows = df.loc[0:2]  
print(multiple_rows)
```

```
▶ multiple_rows = df.loc[0:2]  
print(multiple_rows)
```

```
↔
```

	character	path	combat_type	hp_80	atk_80	def_80
0	Trailblazer (Physical)	Destruction	Physical	12584	992	677
1	Trailblazer (Fire)	Preservation	Fire	13716	919	769
2	Seele	The Hunt	Quantum	11360	1094	633