

KEY_Practice14_Pandas-Intro

November 1, 2019

1 Practice: Intro to Pandas

First we need to import the pandas package. Let's give it the same special nickname we used before—pd.

```
[1]: # import the pandas package with the nickname pd

import pandas as pd
```

Now we'll create a DataFrame. Modify this cell to save it to a variable called `car_data`.

```
[2]: # save the DataFrame to a variable
car_data = pd.DataFrame({'acceleration': [12.0,11.5,11.0,12.0,10.5,10.0,9.0,8.
↳5,10.0,8.5,10.0,8.0,9.5,10.0,15.0,15.5,15.5,16.0,14.5,20.5],
'cylinders': [8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 4, 6, 6, 6, 4, 4],
'displacement': [307.0,350.0,318.0,304.0,302.0,429.0,454.0,440.0,455.0,390.
↳0,383.0,340.0,400.0,455.0,113.0,198.0,199.0,200.0,97.0,97.0],
'horsepower': [130.0,165.0,150.0,150.0,140.0,198.0,220.0,215.0,225.0,190.0,170.
↳0,160.0,150.0,225.0,95.0,95.0,97.0,85.0,88.0,46.0],
'model_year': [70,70,70,70,70,70,70,70,70,70,70,70,70,70,70,70,70,70,70,70],
'mpg': [18.0,15.0,18.0,16.0,17.0,15.0,14.0,14.0,14.0,15.0,15.0,14.0,15.0,14.
↳0,24.0,22.0,18.0,21.0,27.0,26.0],
'name': ['chevrolet chevelle malibu','buick skylark 320','plymouth_
↳satellite','amc rebel sst','ford torino','ford galaxie 500','chevrolet_
↳impala','plymouth fury iii','pontiac catalina','amc ambassador dpl','dodge_
↳challenger se','plymouth cuda 340','chevrolet monte carlo','buick estate_
↳wagon (sw)','toyota corona mark ii','plymouth duster','amc hornet','ford_
↳maverick','datsun pl510','volkswagen 1131 deluxe sedan'],
'origin':_
↳['usa','usa','usa','usa','usa','usa','usa','usa','usa','usa','usa','usa','usa','usa',
'japan'],
'weight':_
↳[3504,3693,3436,3433,3449,4341,4354,4312,4425,3850,3563,3609,3761,3086,2372,2833,2774,2587,
```

Now explore the `car_data` DataFrame. View the first few rows:

```
[3]: # view the first 5 rows
      car_data.head(5)
```

```
[3]: acceleration cylinders displacement horsepower model_year mpg \
0      12.0          8      307.0      130.0          70  18.0
1      11.5          8      350.0      165.0          70  15.0
2      11.0          8      318.0      150.0          70  18.0
3      12.0          8      304.0      150.0          70  16.0
4      10.5          8      302.0      140.0          70  17.0
```

```

      name origin weight
0  chevrolet chevelle malibu    usa  3504
1      buick skylark 320      usa  3693
2    plymouth satellite      usa  3436
3      amc rebel sst      usa  3433
4      ford torino      usa  3449
```

```
[4]: # view the first 10 rows
```

```
car_data.head(10)
```

```
[4]: acceleration cylinders displacement horsepower model_year mpg \
0      12.0          8      307.0      130.0          70  18.0
1      11.5          8      350.0      165.0          70  15.0
2      11.0          8      318.0      150.0          70  18.0
3      12.0          8      304.0      150.0          70  16.0
4      10.5          8      302.0      140.0          70  17.0
5      10.0          8      429.0      198.0          70  15.0
6       9.0          8      454.0      220.0          70  14.0
7       8.5          8      440.0      215.0          70  14.0
8      10.0          8      455.0      225.0          70  14.0
9       8.5          8      390.0      190.0          70  15.0
```

```

      name origin weight
0  chevrolet chevelle malibu    usa  3504
1      buick skylark 320      usa  3693
2    plymouth satellite      usa  3436
3      amc rebel sst      usa  3433
4      ford torino      usa  3449
5    ford galaxie 500      usa  4341
6    chevrolet impala      usa  4354
7    plymouth fury iii      usa  4312
8    pontiac catalina      usa  4425
9    amc ambassador dpl      usa  3850
```

What does the end of the DataFrame look like? Try viewing the last few rows:

```
[5]: # view the last 5 rows
```

```
car_data.tail(5)
```

```
[5]: acceleration cylinders displacement horsepower model_year mpg \
15      15.5          6      198.0      95.0          70  22.0
```

16	15.5	6	199.0	97.0	70	18.0
17	16.0	6	200.0	85.0	70	21.0
18	14.5	4	97.0	88.0	70	27.0
19	20.5	4	97.0	46.0	70	26.0

	name	origin	weight
15	plymouth duster	usa	2833
16	amc hornet	usa	2774
17	ford maverick	usa	2587
18	datsum pl510	japan	2130
19	volkswagen 1131 deluxe sedan	europa	1835

What happens when you call head or tail without putting a number between the parentheses?

[6]: *# try using head without a number*

```
car_data.head()
```

[6]:

	acceleration	cylinders	displacement	horsepower	model_year	mpg	\
0	12.0	8	307.0	130.0	70	18.0	
1	11.5	8	350.0	165.0	70	15.0	
2	11.0	8	318.0	150.0	70	18.0	
3	12.0	8	304.0	150.0	70	16.0	
4	10.5	8	302.0	140.0	70	17.0	

	name	origin	weight
0	chevrolet chevelle malibu	usa	3504
1	buick skylark 320	usa	3693
2	plymouth satellite	usa	3436
3	amc rebel sst	usa	3433
4	ford torino	usa	3449

[7]: *# try using tail without a number*

```
car_data.tail()
```

[7]:

	acceleration	cylinders	displacement	horsepower	model_year	mpg	\
15	15.5	6	198.0	95.0	70	22.0	
16	15.5	6	199.0	97.0	70	18.0	
17	16.0	6	200.0	85.0	70	21.0	
18	14.5	4	97.0	88.0	70	27.0	
19	20.5	4	97.0	46.0	70	26.0	

	name	origin	weight
15	plymouth duster	usa	2833
16	amc hornet	usa	2774
17	ford maverick	usa	2587
18	datsum pl510	japan	2130
19	volkswagen 1131 deluxe sedan	europa	1835

What do the rows of the DataFrame represent?

Answers: Different types of cars

What measurements or observations do we have about the data?

Answer: acceleration, cylinder count, engine displacement, horsepower, model year, mpg, name, country of origin, and weight

What types of variables are in each of the columns?

- **acceleration:** float
- **cylinders:** int
- **displacement:** float
- **horsepower:** float
- **model_year:** int
- **mpg:** float
- **name:** string
- **origin:** string
- **weight:** int