KEY_Practice10_Pandas-Intro

August 15, 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.

[0]:
```
# 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`.

[0]:
```
# 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, 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','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:

[0]:
```
# view the first 5 rows

car_data.head(5)
```

[0]:
```
   acceleration  cylinders  …  origin  weight
0          12.0          8  …     usa    3504
1          11.5          8  …     usa    3693
2          11.0          8  …     usa    3436
3          12.0          8  …     usa    3433
4          10.5          8  …     usa    3449

[5 rows x 9 columns]
```

[0]:
```
# view the first 10 rows

car_data.head(10)
```

[0]:
```
   acceleration  cylinders  …  origin  weight
0          12.0          8  …     usa    3504
1          11.5          8  …     usa    3693
2          11.0          8  …     usa    3436
3          12.0          8  …     usa    3433
4          10.5          8  …     usa    3449
5          10.0          8  …     usa    4341
6           9.0          8  …     usa    4354
7           8.5          8  …     usa    4312
8          10.0          8  …     usa    4425
9           8.5          8  …     usa    3850

[10 rows x 9 columns]
```

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

[0]:
```
# view the last 5 rows

car_data.tail(5)
```

[0]:
```
    acceleration  cylinders  …  origin  weight
15          15.5          6  …     usa    2833
16          15.5          6  …     usa    2774
17          16.0          6  …     usa    2587
18          14.5          4  …   japan    2130
19          20.5          4  …  europe    1835

[5 rows x 9 columns]
```

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

[0]:
```
# try using head without a number

car_data.head()
```

[0]:
```
   acceleration  cylinders  …  origin  weight
0          12.0          8  …     usa    3504
1          11.5          8  …     usa    3693
2          11.0          8  …     usa    3436
3          12.0          8  …     usa    3433
4          10.5          8  …     usa    3449

[5 rows x 9 columns]
```

[0]:
```
# try using tail without a number

car_data.tail()
```

[0]:
```
    acceleration  cylinders  …  origin  weight
15          15.5          6  …     usa    2833
16          15.5          6  …     usa    2774
17          16.0          6  …     usa    2587
18          14.5          4  …   japan    2130
19          20.5          4  …  europe    1835

[5 rows x 9 columns]
```

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