# **Data science and Machine learning with Python**



Designed by Abdur Rahman Joy - MCSD, MCPD, MCSE, MCTS, OCJP, Sr. Technical Trainer for VFX at IDB BISW (Scholarship program), and C#.net, R, Scala, Kotlin, JAVA, Android/IOS/Windows Mobile Apps, SQL server, Azure, Oracle, SharePoint Development, AWS, CEH, KALI Linux, Python, Data Science, Machine Learning, Software Testing, Graphics, Multimedia and Game Developer at Joy Infosys and other premises like BITM, SkillsJob, PNTL, Leads Training and New Horizon inc , Cell #: +880-1712587348, email: jspaonline@gmail.com. Web URL: http://www.joyinfosys.com/me.

### Python for Data Analysis - Pandas (Continue)

Data Analysis with Pandas and Python. In this tutorial, we will begin discussing IO, or input/output, with Pandas, and begin with a realistic use-case.

Let's say we're interested in maybe purchasing or selling a home in Austin, Texas. The zipcode there is 77006. We could go to the local housing listings and see what the current prices are, but this doesn't really give us any real historical information, so let's just try to get some data on this. Let's guery for "home value index 77006."

Starting with this code, loading in a CSV to a dataframe can be as simple as:

#### Create a .py file and run it:

import pandas as pd

df = pd.read\_csv('ZILL-Z77006\_3B.csv')
print(df.head())

#### Output:

```
Date Value
0 2015-06-30 502300
1 2015-05-31 501500
2 2015-04-30 500100
3 2015-03-31 495800
4 2015-02-28 492700
```

#### What if the file doesn't have headers? No problem

import pandas as pd

df = pd.read\_csv('newcsv2.csv', names = ['Date','House\_Price'], index\_col=0)
print(df.head())

#### Output:

	House_Price
Date	
2015-06-30	502300
2015-05-31	501500
2015-04-30	500100
2015-03-31	495800
2015-02-28	492700

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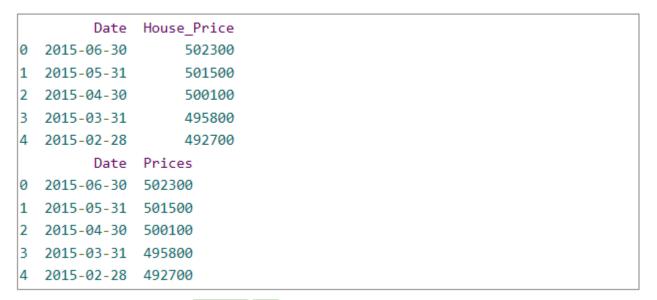
Finally, what if we want to actually rename just one of the columns? Earlier, you were shown how to name all columns, but maybe you just want to change one without having to type all the others out. Easy enough:

```
import pandas as pd

df = pd.read_csv('newcsv2.csv', names = ['Date','House_Price'])
print(df.head())

df.rename(columns={'House_Price':'Prices'}, inplace=True)
print(df.head())
```





So here, we first imported the headless file, giving the column names of Date and House\_Price. Then, we decided, nope we want to call House\_Price just Price instead. So, we used df.rename, specifying that we wanted to rename columns, then, in dictionary form, the Key is the original name and the value is the new name. We finally use inplace=True so the original object is modified.



One interesting thing is the use of Pandas for conversion. So, maybe you are inputting data from a CSV, but you'd really like to display that data to HTML on your website. Since HTML is one of the datatypes, we can just export to HTML, like so:

import pandas as pd

df = pd.read\_csv('newcsv2.csv', names = ['Date', 'House\_Price'])

df.to\_html('example.html')

Now we have an HTML file. Open it up, and boom you have a table in HTML.

## House\_Prices Date 2015-06-30 502300 2015-05-31 501500 2015-04-30 500100 2015-03-31 495800 2015-02-28 492700 2015-01-31 493000 2014-12-31 494200 2014-11-30 490900



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2014-10-31	486000
2014-09-30	479800
2014-08-31	473900
2014-07-31	467100
2014-06-30	461400
2014-05-31	455400
2014-04-30	450500
2014-03-31	450300

Note, this table is automatically assigned the class of "dataframe." This means you can have custom CSS to handle for dataframe-specific tables!

I particularly like to use Pandas when I have an SQL dump of data. I tend to pour the database data right into a Pandas dataframe, perform the operations that I want to perform, then I display the data in a graph maybe, or I otherwise serve the data in some way.



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