

Pandas DataFrames

Pandas is a high-level data manipulation tool developed by Wes McKinney. It is built on the Numpy package and its key data structure is called the DataFrame. DataFrames allow you to store and manipulate tabular data in rows of observations and columns of variables.

Example1:

```
dict = {"country": ["Brazil", "Russia", "India", "China", "South Africa"],  
        "capital": ["Brasilia", "Moscow", "New Dehli", "Beijing", "Pretoria"],  
        "area": [8.516, 17.10, 3.286, 9.597, 1.221],  
        "population": [200.4, 143.5, 1252, 1357, 52.98] }  
  
import pandas as pd  
  
brics = pd.DataFrame(dict)  
  
print(brics)  
  
brics.index = ["BR", "RU", "IN", "CH", "SA"]  
  
# Print out brics with new index values  
  
print(brics)
```

Create a Series from ndarray

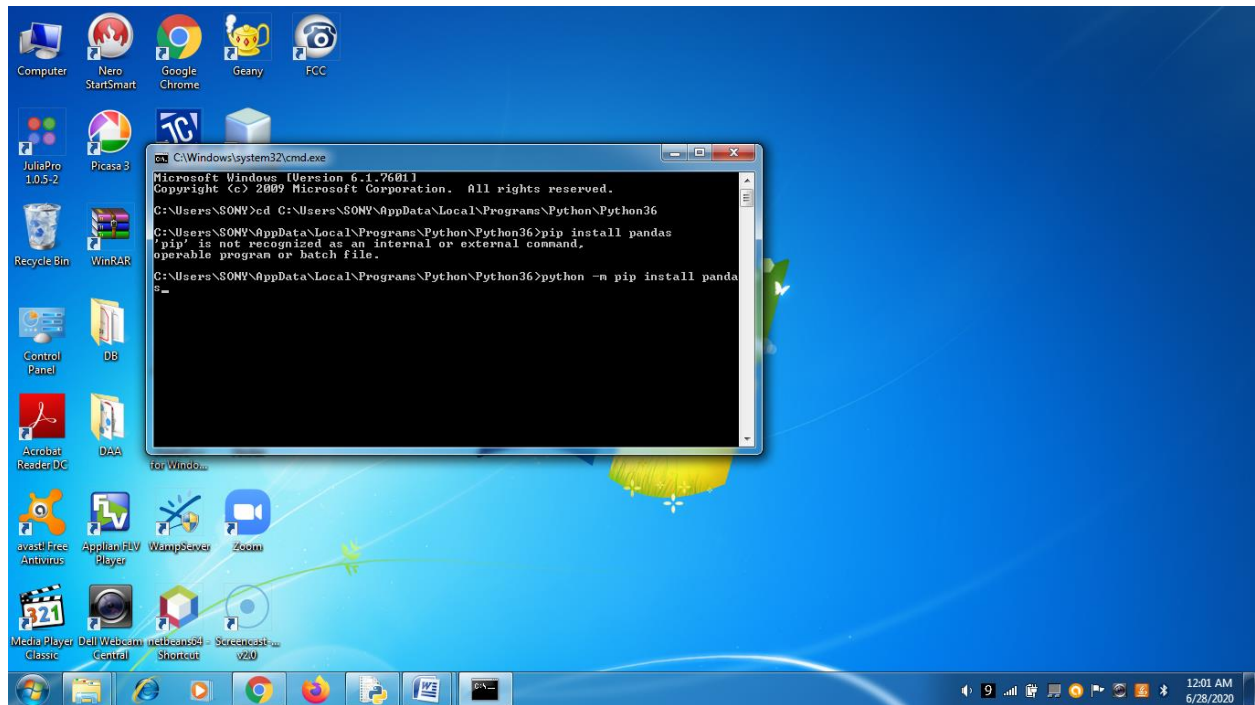
If data is an ndarray, then index passed must be of the same length. If no index is passed, then by default index will be **range(n)** where **n** is array length, i.e., [0,1,2,3.... **range(len(array))-1**].

Example 2:

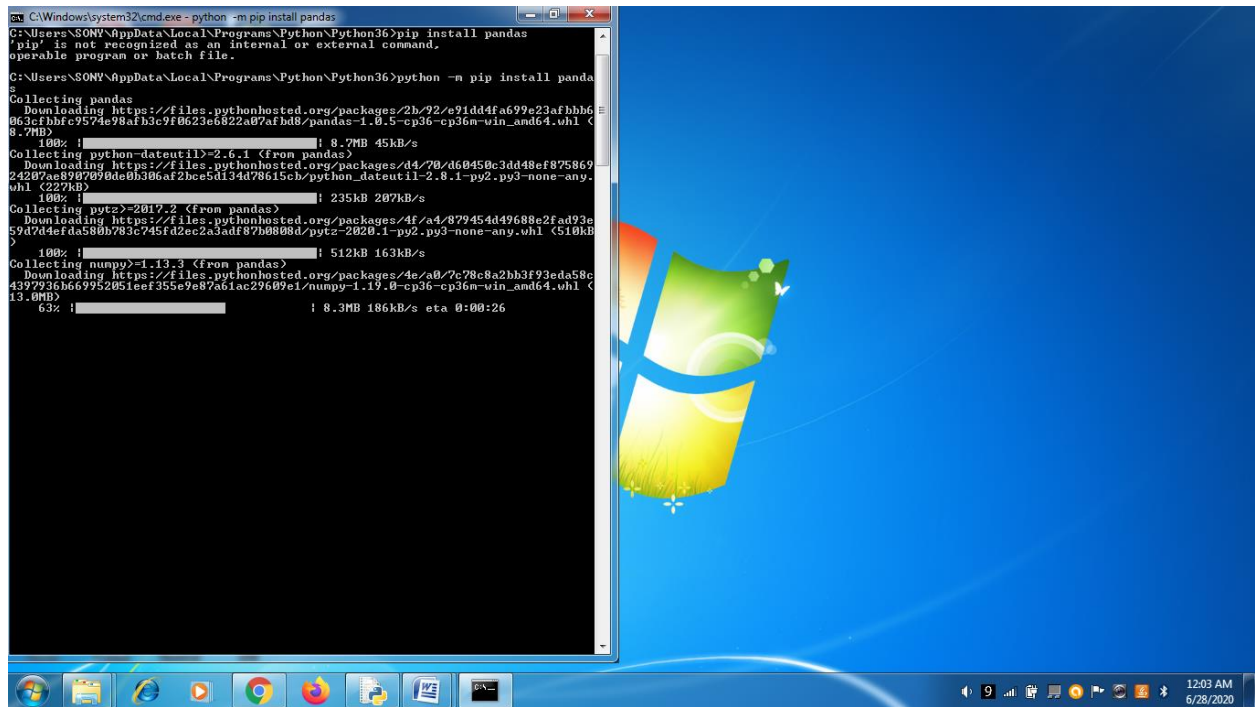
```
import pandas as pd  
  
import numpy as np  
  
data = np.array(['a','b','c','d'])  
  
s = pd.Series(data,index=[100,101,102,103])  
  
#s = pd.Series(data)  
  
print(s)
```

Procedure to install pandas

1.cmd prompt type `cd C:\Users\SONY\AppData\Local\Programs\Python\Python36`

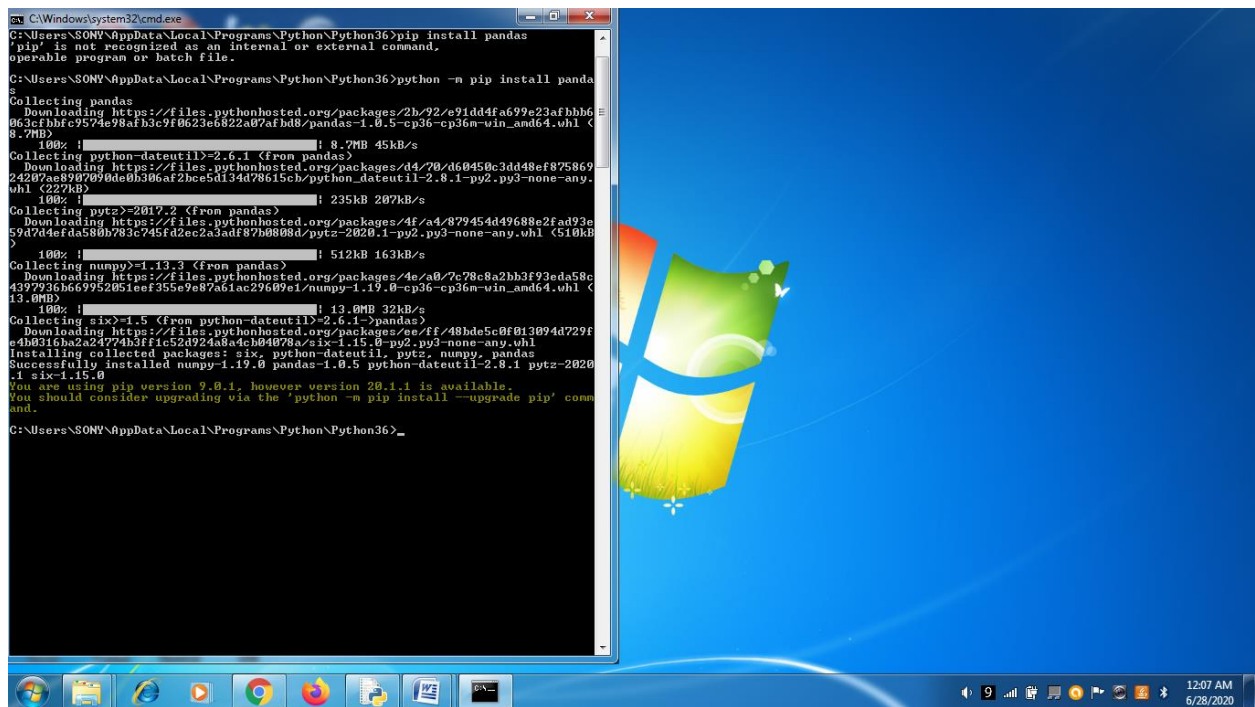


2. Type the command `python -m pip install pandas`



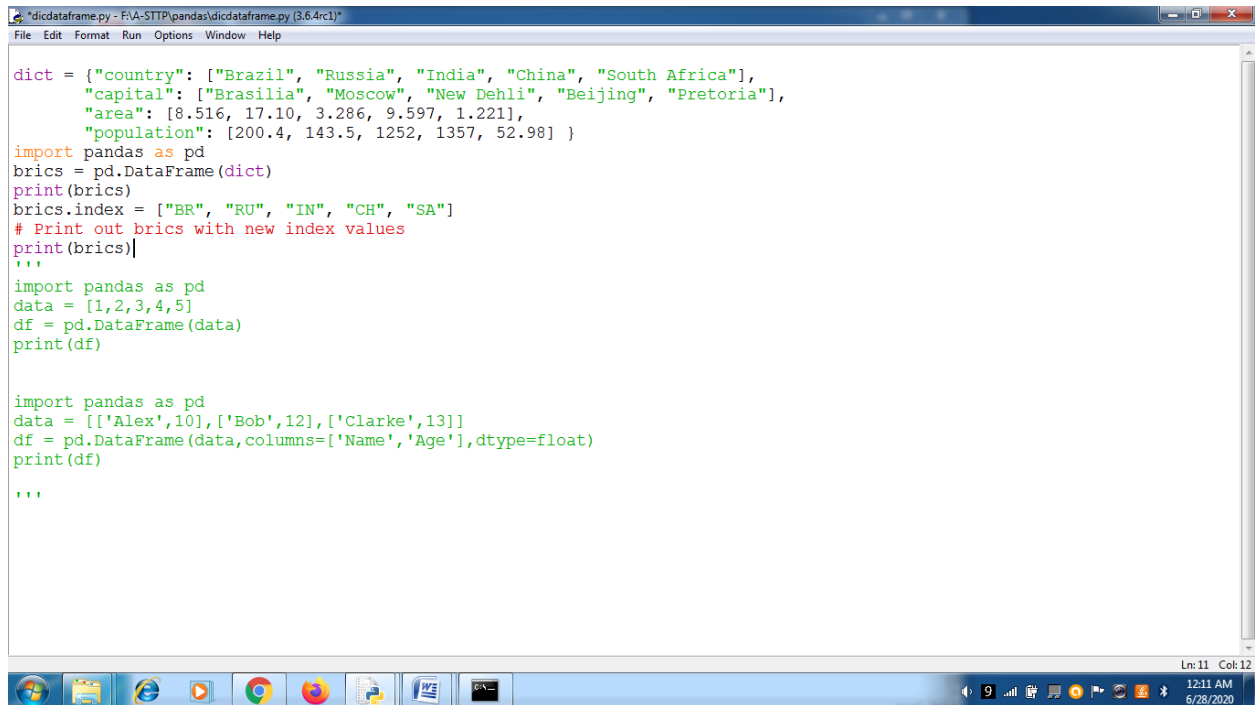
```
C:\Windows\system32\cmd.exe - python -m pip install pandas
C:\Users\SONY\AppData\Local\Programs\Python\Python36>pip install pandas
'pip' is not recognized as an internal or external command,
operable program or batch file.
C:\Users\SONY\AppData\Local\Programs\Python\Python36>python -m pip install pandas
Collecting pandas
  Downloading https://files.pythonhosted.org/packages/2b/92/e91dd4fa699e23afbbb6
063cfbbfc9574e98af3c9f0623e6822a07afbd8/pandas-1.0.5-cp36-cp36m-win_and64.whl (8
.7MB)
    100% |#####| 8.7MB 45kB/s
Collecting python-dateutil>=2.6.1 (from pandas)
  Downloading https://files.pythonhosted.org/packages/d4/20/d60450c3dd48ef875869
24207ae8907090de0b306af2bce5d134d78615cb/python_dateutil-2.8.1-py2.py3-none-any.
whl (227kB)
    100% |#####| 235kB 207kB/s
Collecting pytz>=2017.2 (from pandas)
  Downloading https://files.pythonhosted.org/packages/4f/a4/879454d49688e2fad93e
59d74defda580b783c745fd2ec2a3adf87b0808d/pytz-2020.1-py2.py3-none-any.whl (510kB)
    100% |#####| 512kB 163kB/s
Collecting numpy>=1.13.3 (from pandas)
  Downloading https://files.pythonhosted.org/packages/4e/a0/7c78c8a2bb3f93eda58c
4397936b66952051eef355e9e87a61ac29609e1/numpy-1.19.0-cp36-cp36m-win_and64.whl (
13.0MB)
    63% |#####| 8.3MB 186kB/s eta 0:00:26
```

3.Pandas installed successfully



```
C:\Windows\system32\cmd.exe
C:\Users\SONY\AppData\Local\Programs\Python\Python36>pip install pandas
'pip' is not recognized as an internal or external command,
operable program or batch file.
C:\Users\SONY\AppData\Local\Programs\Python\Python36>python -m pip install pandas
Collecting pandas
  Downloading https://files.pythonhosted.org/packages/2b/92/e91dd4fa699e23afbbb6
063cfbbfc9574e98af3c9f0623e6822a07afbd8/pandas-1.0.5-cp36-cp36m-win_and64.whl (8
.7MB)
    100% |#####| 8.7MB 45kB/s
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24207ae8907090de0b306af2bce5d134d78615cb/python_dateutil-2.8.1-py2.py3-none-any.
whl (227kB)
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Collecting pytz>=2017.2 (from pandas)
  Downloading https://files.pythonhosted.org/packages/4f/a4/879454d49688e2fad93e
59d74defda580b783c745fd2ec2a3adf87b0808d/pytz-2020.1-py2.py3-none-any.whl (510kB)
    100% |#####| 512kB 163kB/s
Collecting numpy>=1.13.3 (from pandas)
  Downloading https://files.pythonhosted.org/packages/4e/a0/7c78c8a2bb3f93eda58c
4397936b66952051eef355e9e87a61ac29609e1/numpy-1.19.0-cp36-cp36m-win_and64.whl (
13.0MB)
    100% |#####| 13.0MB 32kB/s
Collecting six>=1.5 (from python-dateutil>=2.6.1->pandas)
  Downloading https://files.pythonhosted.org/packages/ee/ff/48bde5c0f013094d729f
e4bb316ba2a2724b3ff1e52492ada4eb4078a/six-1.15.0-py2.py3-none-any.whl
Installing collected packages: six, python-dateutil, pytz, numpy, pandas
Successfully installed numpy-1.19.0 pandas-1.0.5 python-dateutil-2.8.1 pytz-2020
.1 six-1.15.0
You are using pip version 9.0.1, however version 20.1.1 is available.
You should consider upgrading via the 'python -m pip install --upgrade pip' comm
and.
C:\Users\SONY\AppData\Local\Programs\Python\Python36>
```

4.Type the python code



```

dict = {"country": ["Brazil", "Russia", "India", "China", "South Africa"],
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        "population": [200.4, 143.5, 1252, 1357, 52.98] }
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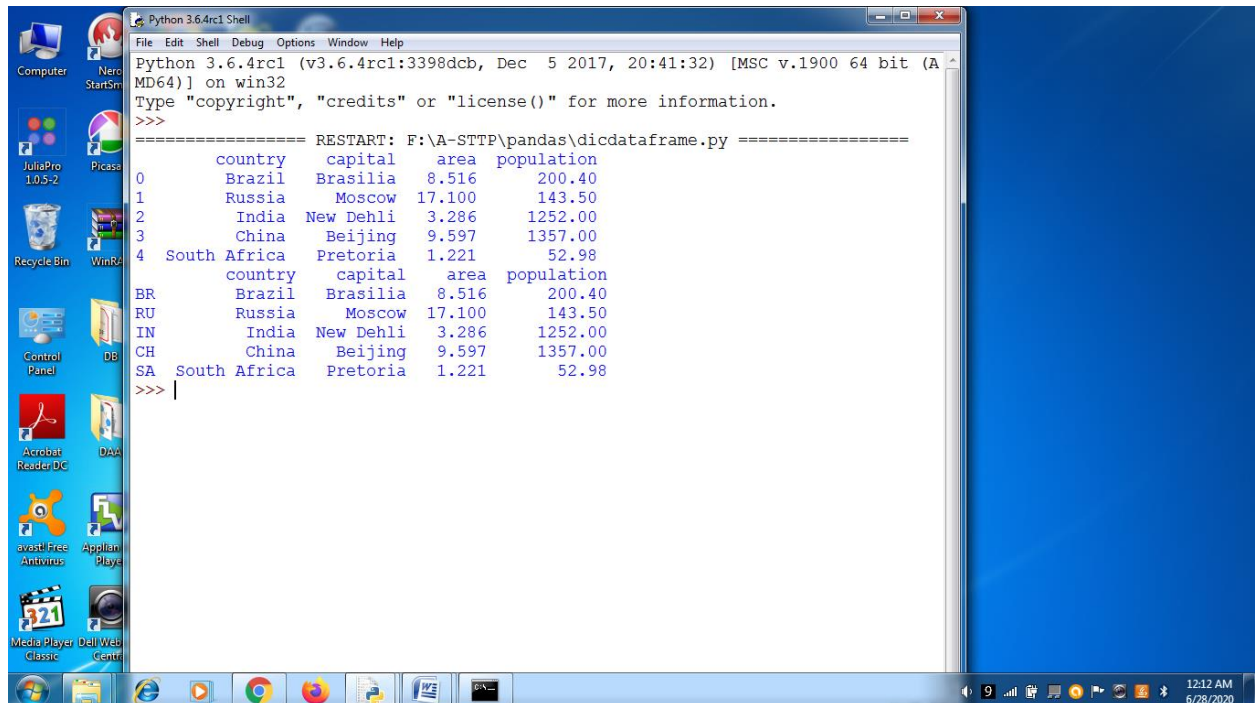
'''
import pandas as pd
data = [1,2,3,4,5]
df = pd.DataFrame(data)
print(df)

import pandas as pd
data = [['Alex',10],['Bob',12],['Clarke',13]]
df = pd.DataFrame(data,columns=['Name','Age'],dtype=float)
print(df)

'''

```

5. Output :



```

Python 3.6.4rc1 Shell
File Edit Shell Debug Options Window Help
Python 3.6.4rc1 (v3.6.4rc1:3398dcb, Dec 5 2017, 20:41:32) [MSC v.1900 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: F:\A-STTP\pandas\dicdataframe.py =====
country capital area population
0 Brazil Brasilia 8.516 200.40
1 Russia Moscow 17.100 143.50
2 India New Dehli 3.286 1252.00
3 China Beijing 9.597 1357.00
4 South Africa Pretoria 1.221 52.98
country capital area population
BR Brazil Brasilia 8.516 200.40
RU Russia Moscow 17.100 143.50
IN India New Dehli 3.286 1252.00
CH China Beijing 9.597 1357.00
SA South Africa Pretoria 1.221 52.98
>>>

```