Pandas Exercises, Practice, Solution

pandas is a Python package providing fast, flexible, and expressive data structures designed to make working with 'relationa' or 'labeled' data both easy and intuitive. It aims to be the fundamental high-level building block for doing practical, real world data analysis in Python.

Pandas: Data Series Exercise-1 with Solution

Write a Pandas program to create and display a one-dimensional array-like object containing an array of data.

Sample Solution :

Python Code :

```
import pandas as pd

ds = pd.Series([2, 4, 6, 8, 10])

print(ds)
```

Pandas: Data Series Exercise-2 with Solution

Write a Pandas program to convert a Panda module Series to Python list and it's type.

Sample Solution :

Python Code :

```
import pandas as pd

ds = pd.Series([2, 4, 6, 8, 10])

print("Pandas Series and type")

print(ds)

print(type(ds))

print("Convert Pandas Series to Python list")

print(ds.tolist())

print(type(ds.tolist()))
```

Pandas: Data Series Exercise-3 with Solution

Write a Pandas program to add, subtract, multiple and divide two Pandas Series.

Sample Series: [2, 4, 6, 8, 10], [1, 3, 5, 7, 9]

Sample Solution :

Python Code :

```
import pandas as pd

ds1 = pd.Series([2, 4, 6, 8, 10])

ds2 = pd.Series([1, 3, 5, 7, 9])

ds = ds1 + ds2

print("Add two Series:")

print(ds)

print("Subtract two Series:")

ds = ds1 - ds2

print(ds)

print("Multiply two Series:")

ds = ds1 * ds2

print(ds)

print("Divide Series1 by Series2:")

ds = ds1 / ds2

print(ds)
```

Pandas: Data Series Exercise-4 with Solution

Write a Pandas program to compare the elements of the two Pandas Series.

Sample Series: [2, 4, 6, 8, 10], [1, 3, 5, 7, 10]

Sample Solution:

Python Code :

```
import pandas as pd
ds1 = pd.Series([2, 4, 6, 8, 10])
ds2 = pd.Series([1, 3, 5, 7, 10])
print("Series1:")
print(ds1)
print("Series2:")
print(ds2)
print("Compare the elements of the said Series:")
print("Equals:")
print(ds1 == ds2)
print("Greater than:")
print(ds1 > ds2)
print("Less than:")
print(ds1 < ds2)
```

Pandas: Data Series Exercise-5 with Solution

Write a Pandas program to convert a dictionary to a Pandas series.

Sample dictionary: d1 = {'a': 100, 'b': 200, 'c':300, 'd':400, 'e':800}

Sample Solution :

Python Code :

```
import pandas as pd
d1 = {'a': 100, 'b': 200, 'c':300, 'd':400, 'e':800}
print("Original dictionary:")
print(d1)
new_series = pd.Series(d1)
print("Converted series:")
print(new_series)
```

Pandas: Data Series Exercise-6 with Solution

Write a Pandas program to convert a NumPy array to a Pandas series.

Sample NumPy array: d1 = [10, 20, 30, 40, 50]
Sample Solution :

Python Code :

```
import numpy as np
import pandas as pd
np_array = np.array([10, 20, 30, 40, 50])
print("NumPy array:")
print(np_array)
new_series = pd.Series(np_array)
print("Converted Pandas series:")
print(new_series)
```

Pandas: Data Series Exercise-7 with Solution

Write a Pandas program to change the data type of given a column or a Series.

Sample Series:
Original Data Series:
0 100
1 200
2 python
3 300.12
4 400
dtype: object
Change the said data type to numeric:
0 100.00
1 200.00
2 NaN
3 300.12
4 400.00
dtype: float64

Sample Solution :

Python Code :

```
import pandas as pd

s1 = pd.Series(['100', '200', 'python', '300.12', '400'])

print("Original Data Series:")

print(s1)

print("Change the said data type to numeric:")

s2 = pd.to_numeric(s1, errors='coerce')

print(s2)
```

Pandas: Data Series Exercise-8 with Solution

Write a Pandas program to convert the first column of a DataFrame as a Series.

Sample Solution :

Python Code :

```
import pandas as pd

d = {'col1': [1, 2, 3, 4, 7, 11], 'col2': [4, 5, 6, 9, 5, 0],
'col3': [7, 5, 8, 12, 1,11]}

df = pd.DataFrame(data=d)

print("Original DataFrame")

print(df)

s1 = df.ix[:,0]

print("\n1st column as a Series:")

print(s1)

print(type(s1))
```

Pandas: Data Series Exercise-9 with Solution

Write a Pandas program to convert a given Series to an array.

Sample Solution :

Python Code :

```
import pandas as pd
import numpy as np
s1 = pd.Series(['100', '200', 'python', '300.12', '400'])
print("Original Data Series:")
print(s1)
print("Series to an array")
a = np.array(s1.values.tolist())
print (a)
```

Pandas: Data Series Exercise-10 with Solution

Write a Pandas program to convert Series of lists to one Series.

Sample Solution :

Python Code :

```
import pandas as pd
s = pd.Series([
    ['Red', 'Green', 'White'],
    ['Red', 'Black'],
    ['Yellow']])
print("Original Series of list")
print(s)
s = s.apply(pd.Series).stack().reset_index(drop=True)
print("One Series")
print(s)
```

Pandas: Data Series Exercise-11 with Solution

Write a Pandas program to sort a given Series.

Sample Solution :

Python Code :

```
import pandas as pd

s = pd.Series(['100', '200', 'python', '300.12', '400'])

print("Original Data Series:")

print(s)

new_s = pd.Series(s).sort_values()

print(new_s)
```

Pandas: Data Series Exercise-12 with Solution

Write a Pandas program to add some data to an existing Series.

Sample Solution :

Python Code :

```
import pandas as pd

s = pd.Series(['100', '200', 'python', '300.12', '400'])

print("Original Data Series:")

print(s)

print("\nData Series after adding some data:")

new_s = s.append(pd.Series(['500', 'php']))

print(new_s)
```