**Pandas: Data Series Exercise-1**

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

import pandas as pd

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

**OUTPUT:**

0 2

1 4

2 6

3 8

4 10

dtype: int64

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

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)

**OUTPUT:**

Add two Series:

0 3

1 7

2 11

3 15

4 19

dtype: int64

Subtract two Series:

0 1

1 1

2 1

3 1

4 1

dtype: int64

Multiply two Series:

0 2

1 12

2 30

3 56

4 90

dtype: int64

Divide Series1 by Series2:

0 2.000000

1 1.333333

2 1.200000

3 1.142857

4 1.111111

dtype: float64

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

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()))

**OUTPUT:**

Pandas Series and type

0 2

1 4

2 6

3 8

4 10

dtype: int64

<class 'pandas.core.series.Series'>

Convert Pandas Series to Python list

[2, 4, 6, 8, 10]

<class 'list'>

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

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)

**OUTPUT:**

Series1:

0 2

1 4

2 6

3 8

4 10

dtype: int64

Series2:

0 1

1 3

2 5

3 7

4 10

dtype: int64

Compare the elements of the said Series:

Equals:

0 False

1 False

2 False

3 False

4 True

dtype: bool

Greater than:

0 True

1 True

2 True

3 True

4 False

dtype: bool

Less than:

0 False

1 False

2 False

3 False

4 False

dtype: bool

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

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)

**OUTPUT:**

Original dictionary:

{'a': 100, 'b': 200, 'c': 300, 'd': 400, 'e': 800}

Converted series:

a 100

b 200

c 300

d 400

e 800

dtype: int64

**6.Write a Pandas program to sort a given Series.**

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()

**OUTPUT:**

Original Data Series:

0 100

1 200

2 python

3 300.12

4 400

dtype: object

**7.Write a Pandas program to change the order of index of a given series.**

import pandas as pd

s = pd.Series(data = [1,2,3,4,5], index = ['A', 'B', 'C','D','E'])

print("Original Data Series:")

print(s)

s = s.reindex(index = ['B','A','C','D’,'E’])

print("Data Series after changing the order of index:")

print(s)

**OUTPUT:**

Original Data Series:

A 1

B 2

C 3

D 4

E 5

dtype: int64

Data Series after changing the order of index:

B 2

A 1

C 3

D 4

E 5

dtype: int64

**8.Write a Pandas program to check the equality of two given series.**

import pandas as pd

nums1 = pd.Series([1, 8, 7, 5, 6, 5, 3, 4, 7, 1])

nums2 = pd.Series([1, 8, 7, 5, 6, 5, 3, 4, 7, 1])

print("Original Series:”)

print(nums1)

print(nums2)

print(“Check 2 series are equal or not?")

print(nums1 == nums2)

**OUTPUT:**

Original Series:

0 1

1 8

2 7

3 5

4 6

5 5

6 3

7 4

8 7

9 1

dtype: int64

0 1

1 8

2 7

3 5

4 6

5 5

6 3

7 4

8 7

9 1

dtype: int64

Check 2 series are equal or not?

0 True

1 True

2 True

3 True

4 True

5 True

6 True

7 True

8 True

9 True

dtype: bool

**9.Write a Pandas program to find the index of the first occurrence of the smallest and largest value of a given series.**

import pandas as pd

nums = pd.Series([1, 3, 7, 12, 88, 23, 3, 1, 9, 0])

print("Original Series:")

print(nums)

print("Index of the first occurrence of the smallest and largest value of the said series:”)

print(nums.idxmin())

print(nums.idxmax())

**OUTPUT:**

Original Series:

0 1

1 3

2 7

3 12

4 88

5 23

6 3

7 1

8 9

9 0

dtype: int64

Index of the first occurrence of the smallest and largest value of the said series:

9

4

## 10.Creating Series using list:

import pandas as pd

ser1 = pd.Series([1.5, 2.5, 3, 4.5, 5.0, 6])

print(ser1)

**OUTPUT:**

0 1.5

1 2.5

2 3.0

3 4.5

4 5.0

5 6.0

dtype: float64

## 11.Creating Series of string values with name:

import pandas as pd

ser2 = pd.Series(["India”, "Canada", "Germany"], name="Countries")

print(ser2)

**OUTPUT:**

0 India

1 Canada

2 Germany

Name: Countries, dtype: object

## 12.Python shorthand for list creation used to create Series:

import pandas as pd

ser3 = pd.Series(["A”]\*4)

print(ser3)

**OUTPUT:**

0 A

1 A

2 A

3 A

dtype: object

**13.Creating Series using dictionary:**

import pandas as pd

ser4 = pd.Series({"India": "New Delhi","Japan": "Tokyo","UK": "London”})

print(ser4)

**OUTPUT:**

India New Delhi

Japan Tokyo

UK London

dtype: object