PP Experiment 12

Aim: Demonstration of Pandas
Class: SE COMPS
Year: 2020-21
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Performance date: 12-05-2021

1. Write a Pandas program to convert a NumPy array to a Pandas series.
2. Write a Pandas program to convert a NumPy array to a Pandas series.
3. Write a Pandas program to – a) Create and display a DataFrame from a specified dictionary data indexed with labels. b) select the 'name' and 'score' columns from the following DataFrame. c) count the number of rows and columns of a DataFrame. d) select the rows the score is between 12 and 20 (inclusive).

In [1]:
```
#Write a Pandas program to convert a NumPy array to a Pandas series.

import numpy as np
import pandas as pd
np_array = np.array([11, 22, 33, 44, 55])
print("Array:")
print(np_array)
new_series = pd.Series(np_array)
print("Pandas series:")
print(new_series)
```

```
Array:
[11 22 33 44 55]
Pandas series:
0    11
1    22
2    33
3    44
4    55
dtype: int32
```

In [9]:
```
#Write a Pandas program to convert a Series to a array.

s1 = pd.Series(['11', '22', 'python', '300.12', '400'])
print("Series:")
print(s1)
print("Array:")
a = np.array(s1.values.tolist())
print (a)
```

```
Series:
0        11
1        22
2    python
3    300.12
4       400
dtype: object
Array:
['11' '22' 'python' '300.12' '400']
```

In [3]:

```
#Create and display a DataFrame from a specified dictionary data indexed wi

exam_data  = {'sailor': ['Jack', 'Rose', 'Emma', 'James', 'Suzan', 'Michael
        'rating': [5, 4, 3, np.nan, 1, 5, 4, np.nan, 2, 3],
        'sailing': ['yes', 'no', 'yes', 'no', 'no', 'yes', 'yes', 'no', 'no
labels = ['1', '2', '3', '4', '5', '6', '7', '8', '9', '10']

df = pd.DataFrame(exam_data , index=labels)
print(df)
```

```
     sailor  rating sailing
1      Jack     5.0     yes
2      Rose     4.0      no
3      Emma     3.0     yes
4     James     NaN      no
5     Suzan     1.0      no
6   Michael     5.0     yes
7       Mal     4.0     yes
8     Jonas     NaN      no
9     Jonny     2.0      no
10     Mary     3.0     yes
```

In [10]:

```
exam_data  = {'name': ['Anastasia', 'Dima', 'Katherine', 'James', 'Emily',
        'score': [12.5, 9, 16.5, np.nan, 9, 20, 14.5, np.nan, 8, 19],
        'attempts': [1, 3, 2, 3, 2, 3, 1, 1, 2, 1],
        'qualify': ['yes', 'no', 'yes', 'no', 'no', 'yes', 'yes', 'no', 'no
labels = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j']

df = pd.DataFrame(exam_data , index=labels)
print(df)
```

```
        name  score  attempts qualify
a  Anastasia   12.5         1     yes
b       Dima    9.0         3      no
c  Katherine   16.5         2     yes
d      James    NaN         3      no
e      Emily    9.0         2      no
f    Michael   20.0         3     yes
g    Matthew   14.5         1     yes
h      Laura    NaN         1      no
i      Kevin    8.0         2      no
j      Jonas   19.0         1     yes
```

In [5]:

```
#select the name; and score; columns from the following DataFrame.

print("Select specific columns:")
print(df[['name', 'score']])
```

```
Select specific columns:
        name  score
a  Anastasia   12.5
b       Dima    9.0
c  Katherine   16.5
d      James    NaN
e      Emily    9.0
f    Michael   20.0
g    Matthew   14.5
h      Laura    NaN
i      Kevin    8.0
j      Jonas   19.0
```

In [6]:

```
#count the number of rows and columns of a DataFrame.

total_rows=len(df.axes[0])
total_cols=len(df.axes[1])
print("Number of Rows: "+str(total_rows))
print("Number of Columns: "+str(total_cols))
```

```
Number of Rows: 10
Number of Columns: 4
```

In [7]:

```
#select the rows the score is between 12 and 20 (inclusive).

print("Rows where score between 12 and 20 (inclusive):")
print(df[df['score'].between(12, 20)])
```

```
Rows where score between 12 and 20 (inclusive):
        name  score  attempts qualify
a  Anastasia   12.5         1     yes
c  Katherine   16.5         2     yes
f    Michael   20.0         3     yes
g    Matthew   14.5         1     yes
j      Jonas   19.0         1     yes
```