

EXPERIMENT :33

AIM:-

Python program to draw a scatter plot with empty circles taking a random distribution in X and Y and plotted against each other.

CODE:-

33.py - C:/Users/Vishnu/Desktop/DSA0511-Query processing lab/33.py (3.11.0)

File Edit Format Run Options Window Help

```
import matplotlib.pyplot as plt
import numpy as np

x = np.random.randn(100)
y = np.random.randn(100)

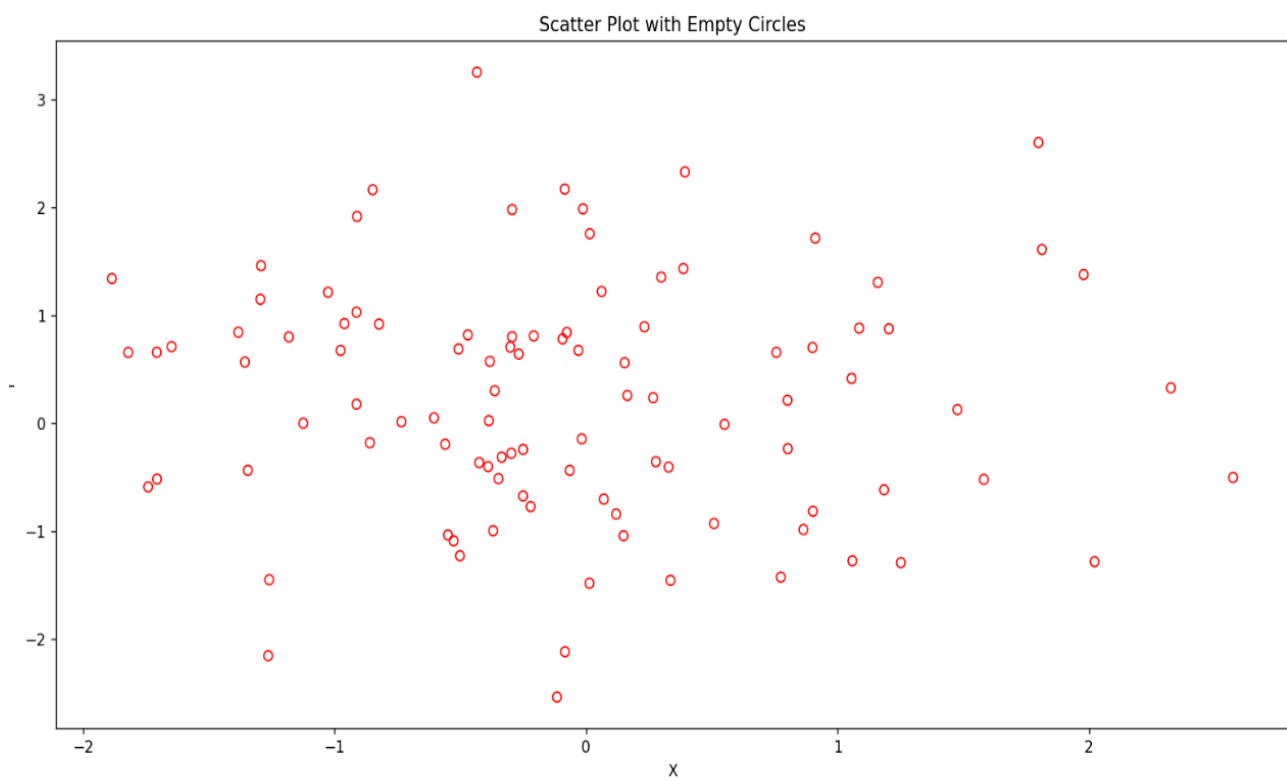
plt.scatter(x, y, facecolors='none', edgecolors='r')
plt.xlabel('X')
plt.ylabel('Y')
plt.title('Scatter Plot with Empty Circles')
plt.show()
```

INPUT:-

$X=(1,100)$

$Y=(1,100)$

OUTPUT:-




EXPERIMENT :34

AIM:-

Python program to draw a scatter plot using random distributions to generate balls of different sizes

CODE:-

 34.py - C:/Users/Vishnu/Desktop/DSA0511-Query processing lab/34.py (3.11.0)

File Edit Format Run Options Window Help

```
import matplotlib.pyplot as plt
```

```
import numpy as np
```

```
x = np.random.randn(100)
```

```
y = np.random.randn(100)
```

```
sizes = 1000 * np.random.rand(100)
```

```
plt.scatter(x, y, s=sizes, alpha=0.5)
```

```
plt.xlabel('X')
```

```
plt.ylabel('Y')
```

```
plt.title('Scatter Plot with Balls of Different Sizes')
```

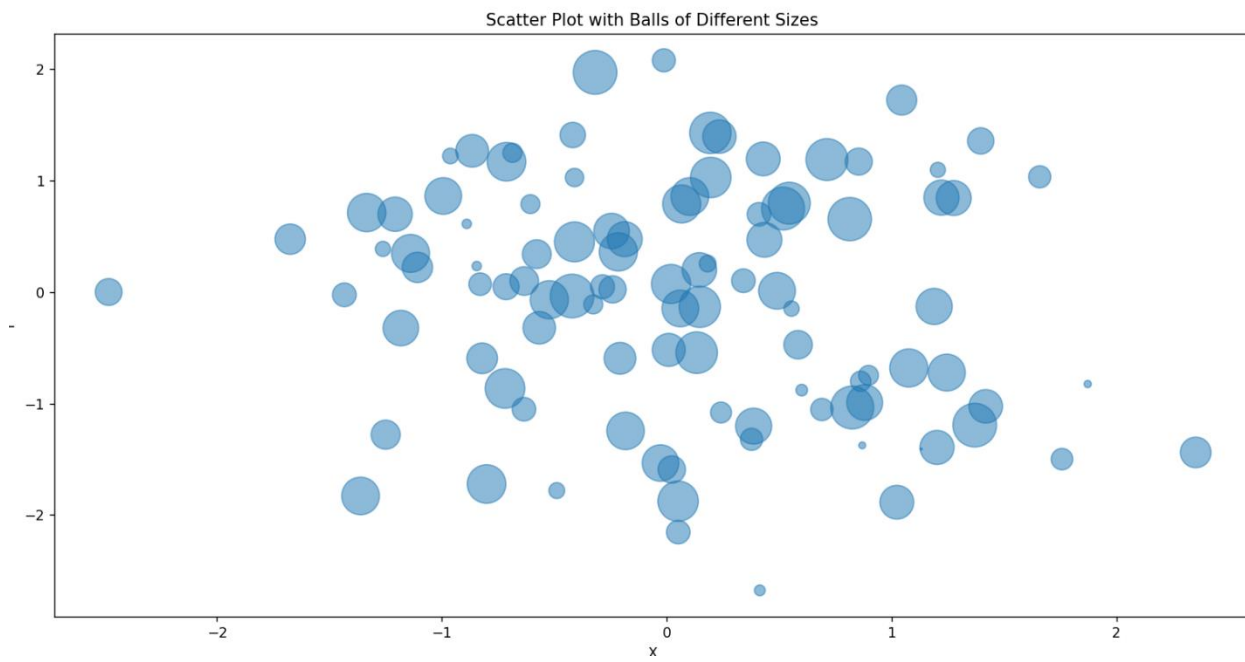
```
plt.show()
```

INPUT:-

$X=(1,100)$

$Y=(1,100)$

OUTPUT:-



EXPERIMENT :35

AIM:-

Python program to draw a scatter plot comparing two subject marks of Mathematics and Science. Use marks of 10 students

CODE:-

```
35.py - C:/Users/Vishnu/Desktop/DSA0511-Query processing lab/35.py (3.11.0)
File Edit Format Run Options Window Help

import matplotlib.pyplot as plt

math_marks = [88, 92, 80, 89, 100, 80, 60, 100, 80, 34]
science_marks = [35, 79, 79, 48, 100, 88, 32, 45, 20, 30]
marks_range = [10, 20, 30, 40, 50, 60, 70, 80, 90, 100]

plt.scatter(math_marks, science_marks)
plt.xlabel('Math Marks')
plt.ylabel('Science Marks')
plt.title('Scatter Plot of Mathematics vs Science Marks')
plt.show()
```

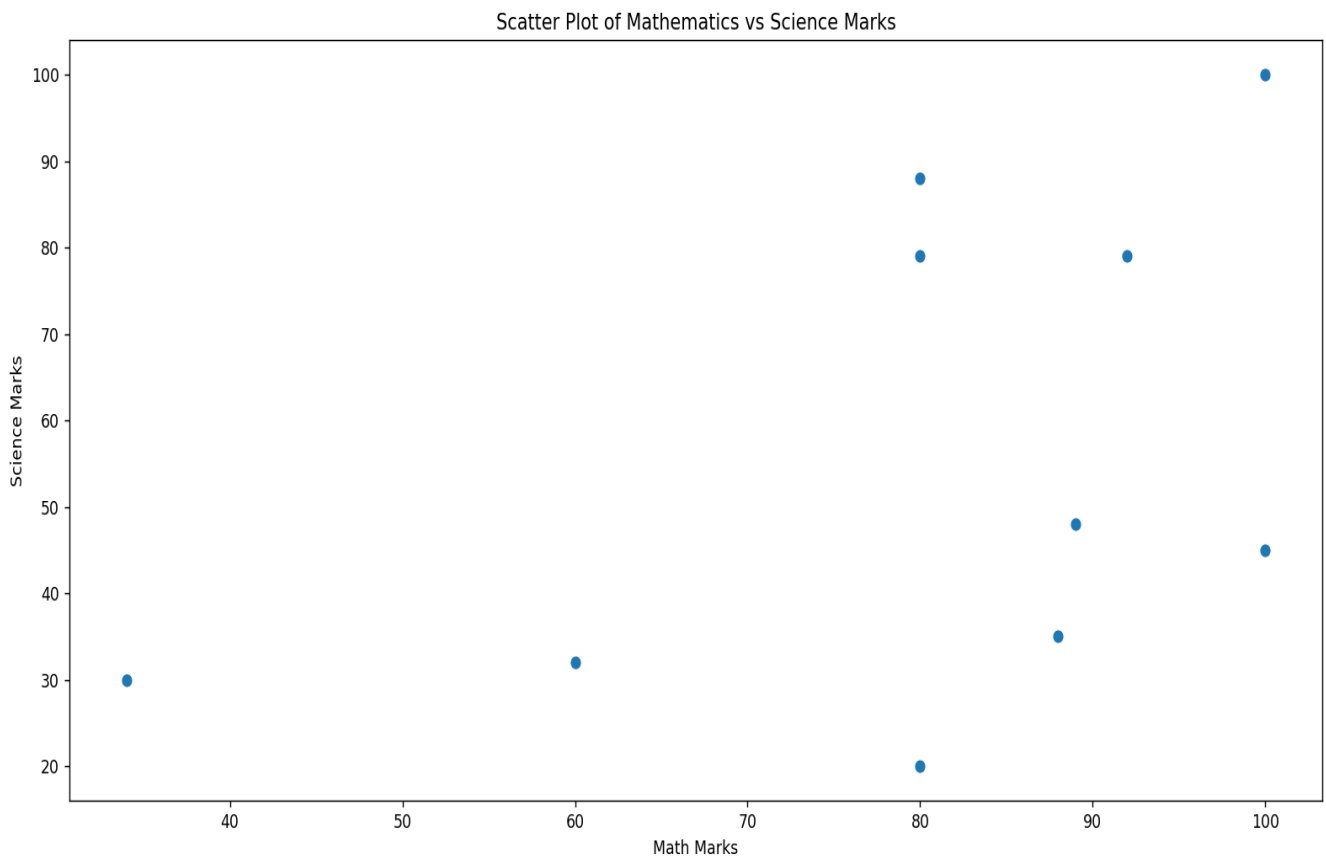
INPUT

```
math_marks = [88, 92, 80, 89, 100, 80, 60, 100, 80, 34]
```

```
science_marks = [35, 79, 79, 48, 100, 88, 32, 45, 20, 30]
```

```
marks_range = [10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
```

OUTPUT



EXPERIMENT :36

AIM

Python program to draw a scatter plot for three different groups comparing weights and heights

CODE

```
36.py - C:/Users/Vishnu/Desktop/DSA0511-Query processing lab/36.py (3.11.0)
File Edit Format Run Options Window Help
import matplotlib.pyplot as plt
import numpy as np

group1_height = np.random.normal(170, 10, 30)
group1_weight = np.random.normal(70, 10, 30)
group2_height = np.random.normal(160, 10, 30)
group2_weight = np.random.normal(60, 10, 30)
group3_height = np.random.normal(180, 10, 30)
group3_weight = np.random.normal(80, 10, 30)

plt.scatter(group1_height, group1_weight, color='r', label='Group 1')
plt.scatter(group2_height, group2_weight, color='g', label='Group 2')
plt.scatter(group3_height, group3_weight, color='b', label='Group 3')

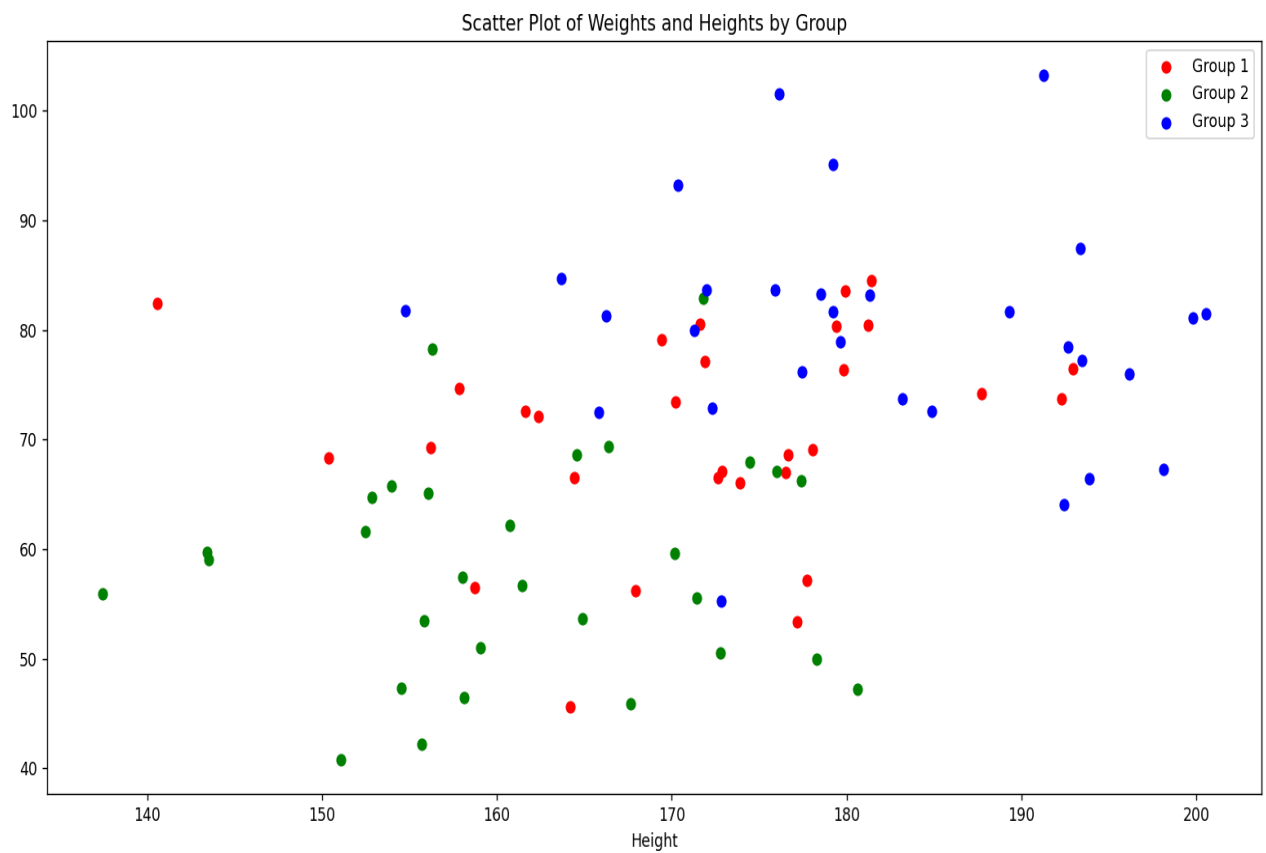
plt.xlabel('Height')
plt.ylabel('Weight')
plt.title('Scatter Plot of Weights and Heights by Group')
plt.legend()
plt.show()
|
```

INPUT

X= 170,10,30

Y=160,10,30

OUTPUT

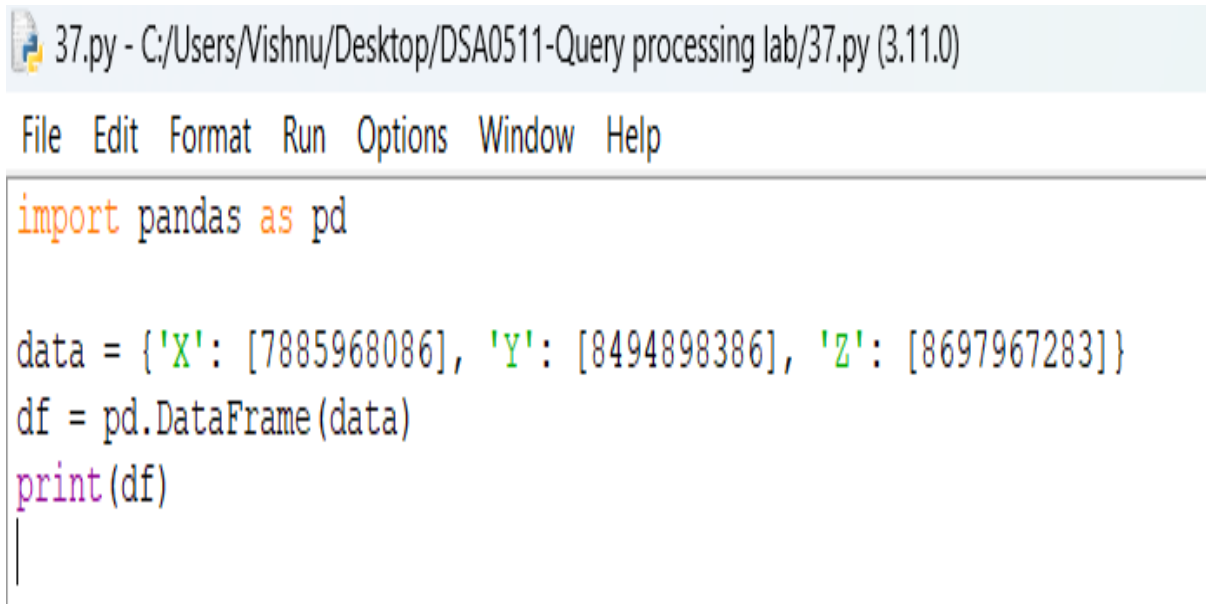


EXPERIMENT :37

AIM

Pandas program to create a data frame from a dictionary and display it.

CODE



```
37.py - C:/Users/Vishnu/Desktop/DSA0511-Query processing lab/37.py (3.11.0)
File Edit Format Run Options Window Help

import pandas as pd

data = {'X': [7885968086], 'Y': [8494898386], 'Z': [8697967283]}
df = pd.DataFrame(data)
print(df)
```

INPUT

X=7885968086

Y=8494898386

Z=8697967283

OUTPUT

IDLE Shell 3.11.0

File Edit Shell Debug Options Window Help

```
Python 3.11.0 (main, Oct 24 2022, 18:26:48) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
```

>>

```
===== RESTART: C:/Users/Vishnu/Desktop/DSA0511-Query processing lab/37.py =====
```

```
          X          Y          Z
```

```
0 7885968086 8494898386 8697967283
```

>> |

EXPERIMENT :38

AIM

Pandas program to create and display a DataFrame from a specified dictionary data which has the index labels.

CODE

38.py - C:/Users/Vishnu/Desktop/DSA0511-Query processing lab/38.py (3.11.0)

File Edit Format Run Options Window Help

```
import pandas as pd
import numpy as np

exam_data = {
    'name': ['Anastasia', 'Dima', 'Katherine', 'James', 'Emily', 'Michael', 'Matthew', 'Laura', 'Kevin', 'Jonas'],
    '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', 'yes']
}

labels = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j']

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

INPUT

```
exam_data = {'name': ['Anastasia', 'Dima', 'Katherine', 'James',  
'Emily', 'Michael', 'Matthew', 'Laura', 'Kevin', 'Jonas'],  
'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', 'yes']}  
labels = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j']
```

OUTPUT

```

IDLE Shell 3.11.0
File Edit Shell Debug Options Window Help
Python 3.11.0 (main, Oct 24 2022, 18:26:48) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/Vishnu/Desktop/DSA0511-Query processing lab/38.py =====
      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
>>>

```

EXPERIMENT :39

AIM:-

Pandas program to get the first 3 rows of a given Data Frame

CODE:-

```
39.py - C:/Users/Vishnu/Desktop/DSA0511-Query processing lab/39.py (3.11.0)
File Edit Format Run Options Window Help

import pandas as pd
import numpy as np

exam_data = {
    'name': ['Anastasia', 'Dima', 'Katherine', 'James', 'Emily', 'Michael', 'Matthew', 'Laura', 'Kevin', 'Jonas'],
    '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', 'yes']
}

labels = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j']

df = pd.DataFrame(exam_data, index=labels)
print(df.head(3))
|
```

INPUT:-

```
exam_data = {'name': ['Anastasia', 'Dima', 'Katherine', 'James', 'Emily',  
'Michael', 'Matthew', 'Laura', 'Kevin', 'Jonas'],  
'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', 'yes']}
```

labels = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j']

OUTPUT:-

```
File Edit Shell Debug Options Window Help
Python 3.11.0 (main, Oct 24 2022, 18:26:48) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/Vishnu/Desktop/DSA0511-Query processing lab/39.py =====
      name  score  attempts  qualify
a Anastasia  12.5         1     yes
b      Dima   9.0         3     no
c Katherine  16.5         2     yes
>>> |
```

EXPERIMENT :40

AIM:-

Pandas program to select the 'name' and 'score' columns from the following DataFrame

CODE:-

```
40.py - C:/Users/Vishnu/Desktop/DSA0511-Query processing lab/40.py (3.11.0)
File Edit Format Run Options Window Help

import pandas as pd
import numpy as np

exam_data = {
    'name': ['Anastasia', 'Dima', 'Katherine', 'James', 'Emily', 'Michael', 'Matthew', 'Laura', 'Kevin', 'Jonas'],
    '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', 'yes']
}

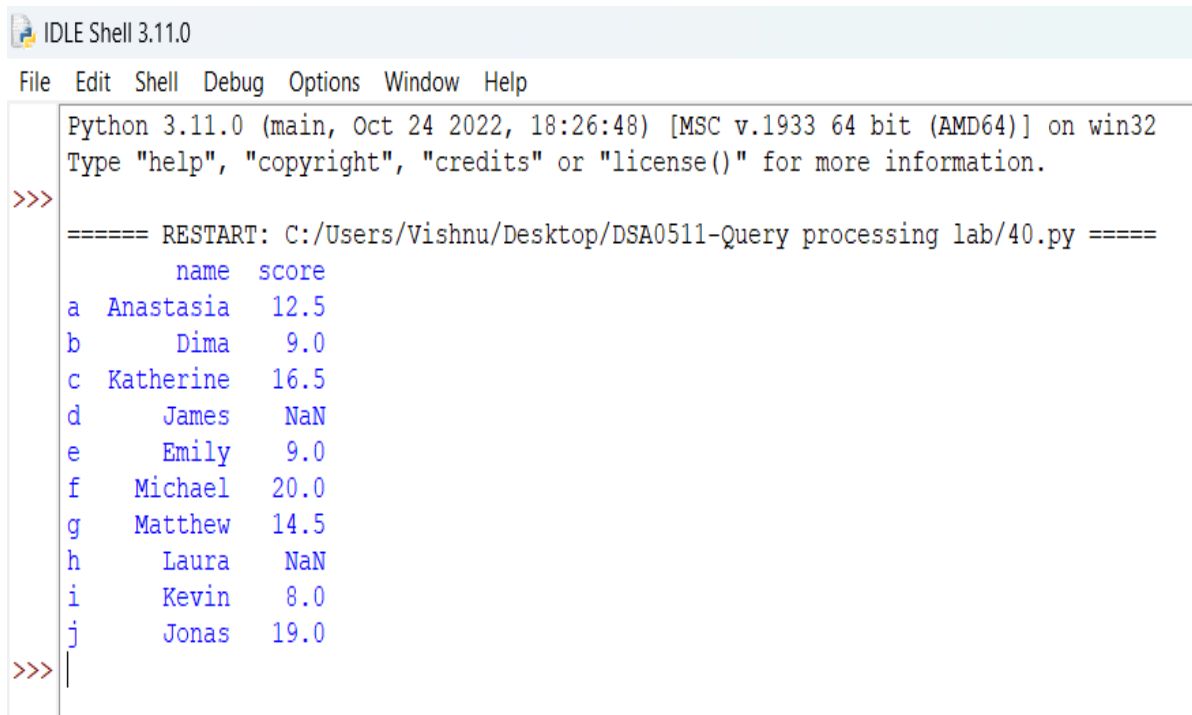
labels = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j']

df = pd.DataFrame(exam_data, index=labels)
print(df[['name', 'score']])
|
```

INPUT:-

```
exam_data = {'name': ['Anastasia', 'Dima', 'Katherine', 'James', 'Emily',  
'Michael', 'Matthew', 'Laura', 'Kevin', 'Jonas'],  
'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', 'yes']}  
labels = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j']
```

OUTPUT:-



```
IDLE Shell 3.11.0
File Edit Shell Debug Options Window Help
Python 3.11.0 (main, Oct 24 2022, 18:26:48) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/Vishnu/Desktop/DSA0511-Query processing lab/40.py =====
      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
>>> |
```