

Experiment 36

Aim:

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

Code:

```
1 import matplotlib.pyplot as plt
2
3 group1_weights = [60, 65, 70, 75, 80]
4 group1_heights = [160, 165, 170, 175, 180]
5
6 group2_weights = [55, 62, 64, 72, 76]
7 group2_heights = [155, 160, 165, 170, 175]
8
9 group3_weights = [71, 78, 85, 90, 95]
10 group3_heights = [165, 170, 175, 180, 185]
11
12 plt.figure(figsize=(10, 6))
13
14 plt.scatter(group1_weights, group1_heights, color='red', label='Group 1')
15 plt.scatter(group2_weights, group2_heights, color='blue', label='Group 2')
16 plt.scatter(group3_weights, group3_heights, color='green', label='Group 3')
17
18 plt.title('Scatter Plot of Weights vs Heights for Three Groups')
19 plt.xlabel('Weight (kg)')
```

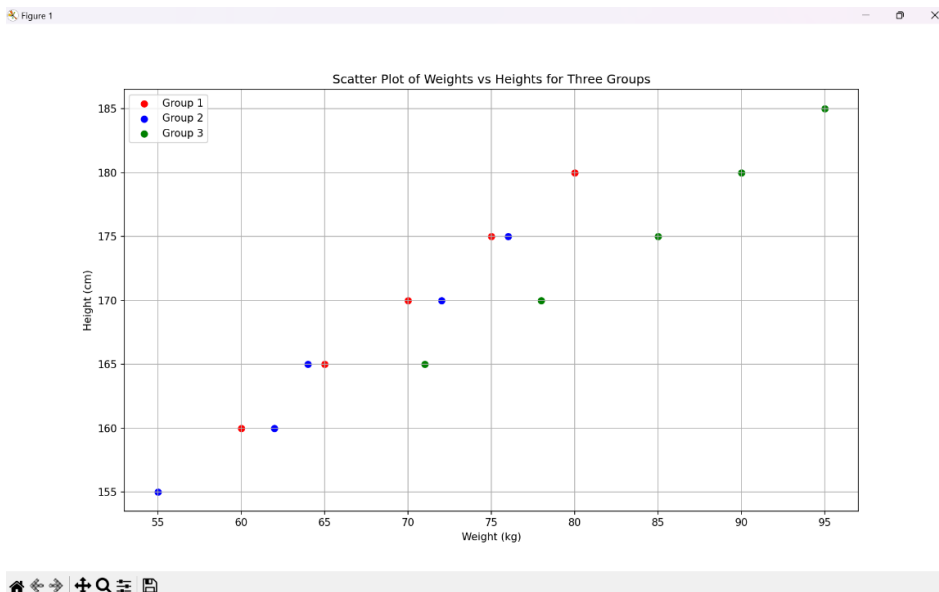
Input:

```
group1_weights = [60, 65, 70, 75, 80]
group1_heights = [160, 165, 170, 175, 180]

group2_weights = [55, 62, 64, 72, 76]
group2_heights = [155, 160, 165, 170, 175]

group3_weights = [71, 78, 85, 90, 95]
group3_heights = [165, 170, 175, 180, 185]
```

Output:

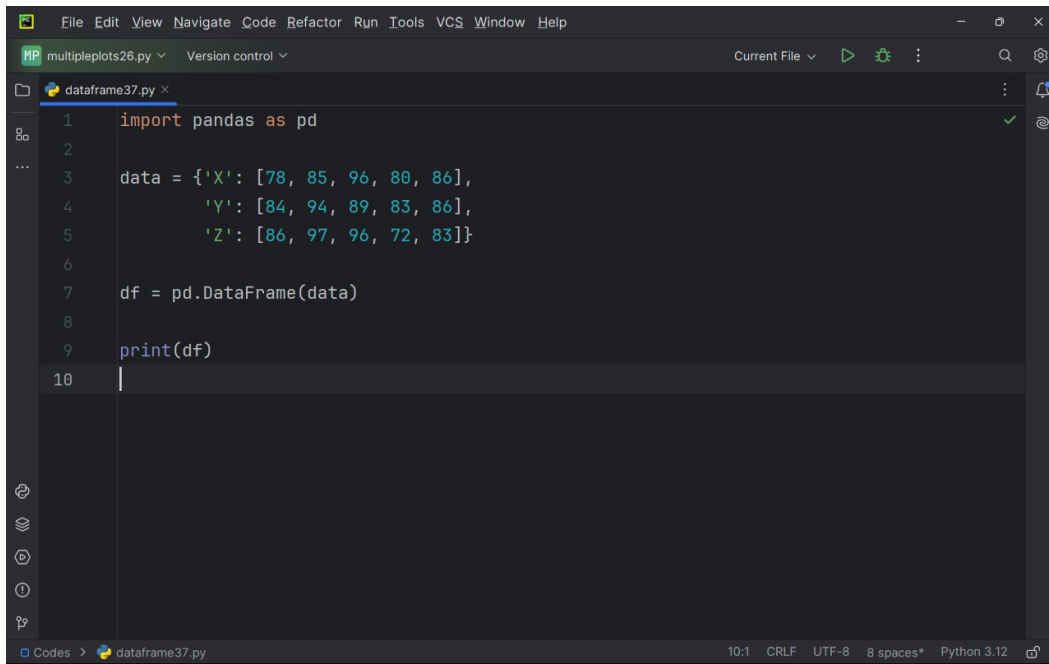


Experiment 37

Aim:

To develop a Pandas program to create a dataframe from a dictionary and display it.

Code:

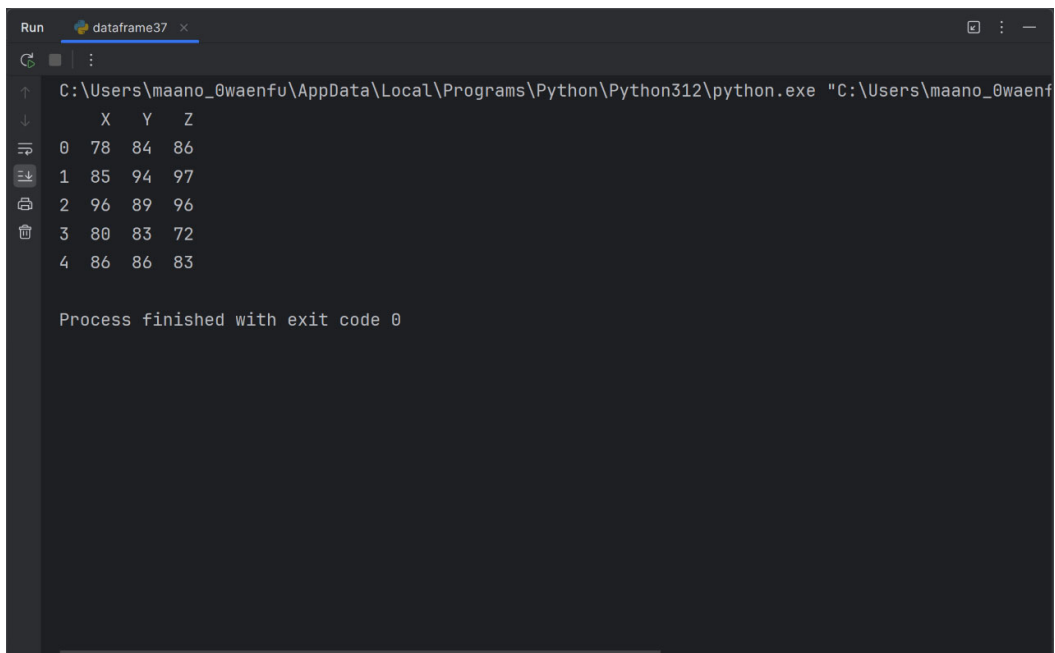


```
1 import pandas as pd
2
3 data = {'X': [78, 85, 96, 80, 86],
4         'Y': [84, 94, 89, 83, 86],
5         'Z': [86, 97, 96, 72, 83]}
6
7 df = pd.DataFrame(data)
8
9 print(df)
10
```

Input:

```
data = {'X': [78, 85, 96, 80, 86],
        'Y': [84, 94, 89, 83, 86],
        'Z': [86, 97, 96, 72, 83]}
```

Output:



```
Run dataframe37
C:\Users\maano_0waenfu\AppData\Local\Programs\Python\Python312\python.exe "C:\Users\maano_0waenf
  X  Y  Z
0  78  84  86
1  85  94  97
2  96  89  96
3  80  83  72
4  86  86  83

Process finished with exit code 0
```

Experiment 38

Aim:

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

Code:

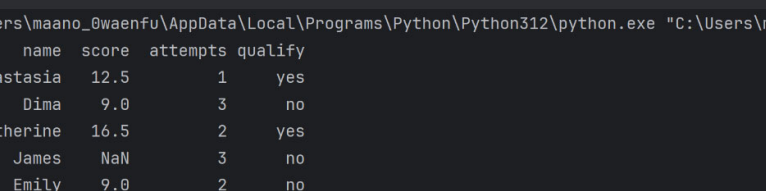
```
File Edit View Navigate Code Refactor Run Tools VCS Window Help
multipleplots26.py Version control Current File
dataframedict38.py
1 import pandas as pd
2 import numpy as np
3
4 exam_data = {
5     'name': ['Anastasia', 'Dima', 'Katherine', 'James', 'Emily', 'Michael', 'Matthew',
6     'score': [12.5, 9, 16.5, np.nan, 9, 20, 14.5, np.nan, 8, 19],
7     'attempts': [1, 3, 2, 3, 2, 3, 1, 1, 2, 1],
8     'qualify': ['yes', 'no', 'yes', 'no', 'no', 'yes', 'yes', 'no', 'no', 'yes']
9 }
10
11 labels = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j']
12
13 df = pd.DataFrame(exam_data, index=labels)
14
15 print(df)
16
```

Input:

```
exam_data = {
    'name': ['Anastasia', 'Dima', 'Katherine', 'James', 'Emily', 'Michael', 'Mattheo'],
    '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:



```
Run dataframedict38 x
C:\Users\maano_0waenfu\AppData\Local\Programs\Python\Python312\python.exe "C:\Users\maano_0waenfu\AppData\Local\Programs\Python\Python312\python.exe"
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

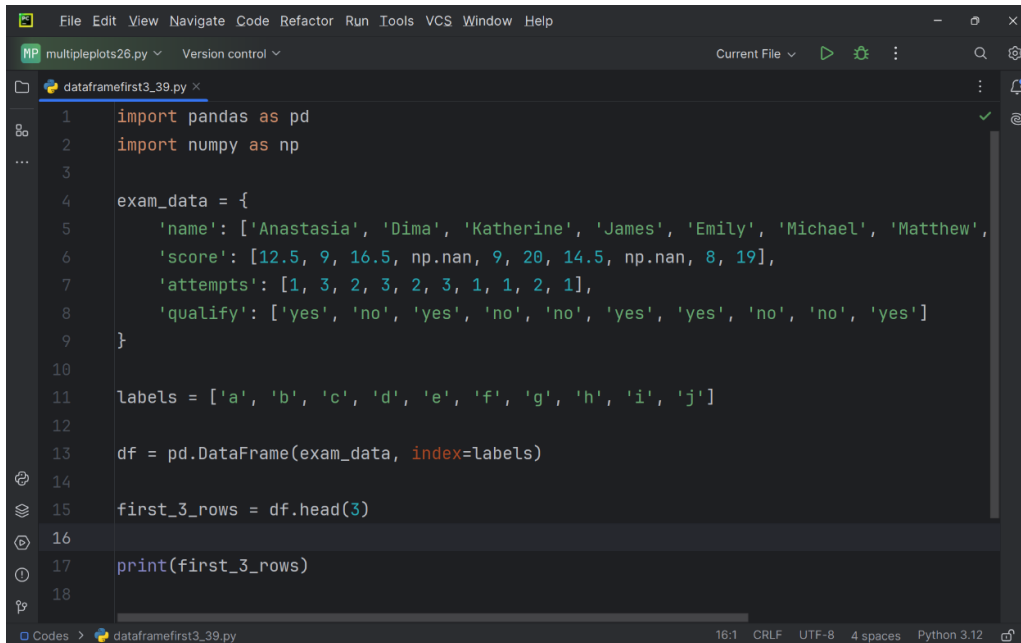
Process finished with exit code 0
```

Experiment 39

Aim:

To develop a Pandas program to get the first 3 rows of a given DataFrame.

Code:



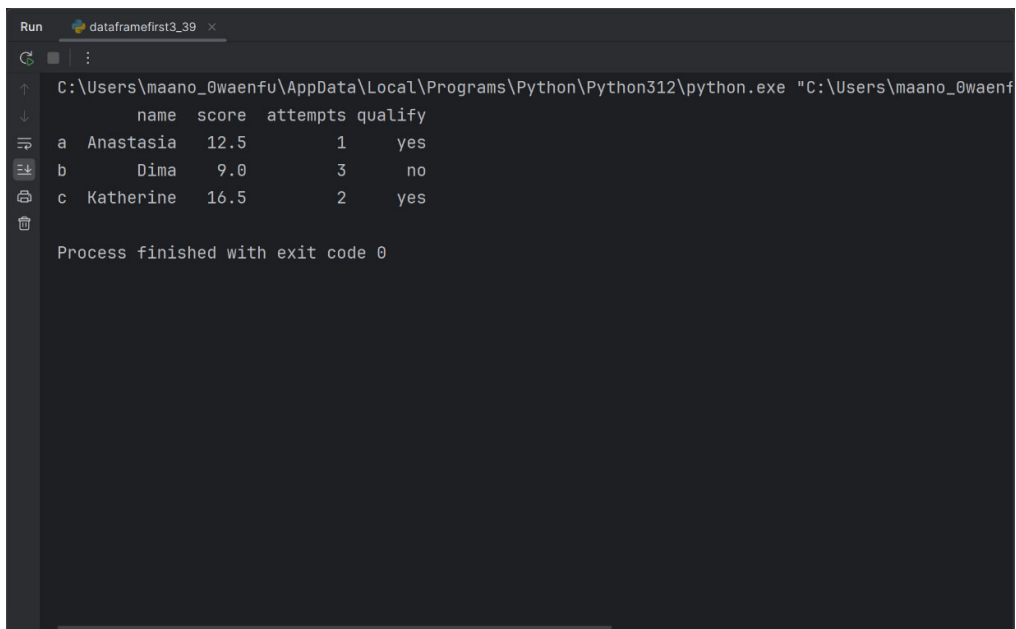
```
1 import pandas as pd
2 import numpy as np
3
4 exam_data = {
5     'name': ['Anastasia', 'Dima', 'Katherine', 'James', 'Emily', 'Michael', 'Matthew',
6     'score': [12.5, 9, 16.5, np.nan, 9, 20, 14.5, np.nan, 8, 19],
7     'attempts': [1, 3, 2, 3, 2, 3, 1, 1, 2, 1],
8     'qualify': ['yes', 'no', 'yes', 'no', 'no', 'yes', 'yes', 'no', 'no', 'yes']
9 }
10
11 labels = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j']
12
13 df = pd.DataFrame(exam_data, index=labels)
14
15 first_3_rows = df.head(3)
16
17 print(first_3_rows)
```

Input:

```
exam_data = {
    'name': ['Anastasia', 'Dima', 'Katherine', 'James', 'Emily', 'Michael', 'Matthew',
    '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:



```
Run dataframefirst3_39
C:\Users\maano_0waenfu\AppData\Local\Programs\Python\Python312\python.exe "C:\Users\maano_0waenf
    name score attempts qualify
a Anastasia 12.5      1    yes
b Dima      9.0      3    no
c Katherine 16.5      2    yes

Process finished with exit code 0
```

Experiment 40

Aim:

To develop a Pandas program to select the 'name' and 'score' columns from the following DataFrame.

Code:

```
File Edit View Navigate Code Refactor Run Tools VCS Window Help
multipleplots26.py Version control
namescoredf40.py
1 import pandas as pd
2 import numpy as np
3
4 exam_data = {
5     'name': ['Anastasia', 'Dima', 'Katherine', 'James', 'Emily', 'Michael', 'Matthew',
6     'score': [12.5, 9, 16.5, np.nan, 9, 20, 14.5, np.nan, 8, 19],
7     'attempts': [1, 3, 2, 3, 2, 3, 1, 1, 2, 1],
8     'qualify': ['yes', 'no', 'yes', 'no', 'no', 'yes', 'yes', 'no', 'no', 'yes']
9 }
10
11 labels = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j']
12
13 df = pd.DataFrame(exam_data, index=labels)
14
15 name_score = df[['name', 'score']]
16
17 print(name_score)
18
```

Input:

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

Output:

```
Run namescoredf40.py
C:\Users\maano_0waenfu\AppData\Local\Programs\Python\Python312\python.exe "C:\Users\maano_0waenfu
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

Process finished with exit code 0
```