PYTHON LAB – 26

PANDAS DATAFRAME

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QUESTIONS

1. Write a Pandas program to create a dataframe from a dictionary and display it.
   Sample data: score={'Math':[78,85,96,80,86] ,
   English':[84,94,89,83,86] , 'Hindi':[86,97,96,72,83] }
2. Write a Pandas program to create and display a DataFrame from aspecified dictionary data which has the index labels. Sample Python dictionary data and list labels:
   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']}
3. Write a Pandas program to get the first 3 rows of a given DataFrame. Sample DataFrame:
   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']}
4. Write a Pandas program to select the 'name' and 'score' columns from the following DataFrame. Sample Python dictionary data and list labels:
5. 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']}

1. **Write a Pandas program to create a dataframe from a dictionary and display it.**
   Sample data: score={'Math':[78,85,96,80,86] , English':[84,94,89,83,86] , 'Hindi':[86,97,96,72,83] }

Code:

```
# Import necessary package
import pandas as pd

# Input data
score={'Math':[78,85,96,80,86] ,
'English':[84,94,89,83,86] , 'Hindi':[86,97,96,72,83] }

# Creating new dataframe
data = pd.DataFrame(score)

# Printing dataframe
print(data)
```

Output:

```
   Math  English  Hindi
0    78       84     86
1    85       94     97
2    96       89     96
3    80       83     72
4    86       86     83
```

2. **Write a Pandas program to create and display a DataFrame from aspecified dictionary data which has the index labels. Sample Python dictionary data and list labels:**
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Code:

```
# Import necessary package
import numpy as np
import pandas as pd

# Input data
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']}
# Creating new dataframe
data = pd.DataFrame(exam_data)

# Printing dataframe
print(data)
```

Output:

```
        name  score  attempts qualify
0  Anastasia   12.5         1     yes
1       Dima    9.0         3      no
2  Katherine   16.5         2     yes
3      James    NaN         3      no
4      Emily    9.0         2      no
5    Michael   20.0         3     yes
6    Matthew   14.5         1     yes
7      Laura    NaN         1      no
8      Kevin    8.0         2      no
9      Jonas   19.0         1     yes
```

3. **Write a Pandas program to get the first 3 rows of a given DataFrame. Sample DataFrame:**
   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']}

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'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']}
# Creating new dataframe
data = pd.DataFrame(exam_data)

# Printing first 3 rows
print(data.head(3))
```

Output:

```
        name  score  attempts qualify
0  Anastasia   12.5         1     yes
1       Dima    9.0         3      no
2  Katherine   16.5         2     yes
```

4. **Write a Pandas program to select the 'name' and 'score' columns from the following DataFrame. Sample Python dictionary data and list labels: 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']}**

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import numpy as np
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# Input data
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']}
# Creating new dataframe
data = pd.DataFrame(exam_data)

# Selecting specific columns
selected_columns = data[['name','score']]

# Printing specific columns
print(selected_columns)
```

Output:

```
        name  score
0  Anastasia   12.5
1       Dima    9.0
2  Katherine   16.5
3      James    NaN
4      Emily    9.0
5    Michael   20.0
6    Matthew   14.5
7      Laura    NaN
8      Kevin    8.0
9      Jonas   19.0
```