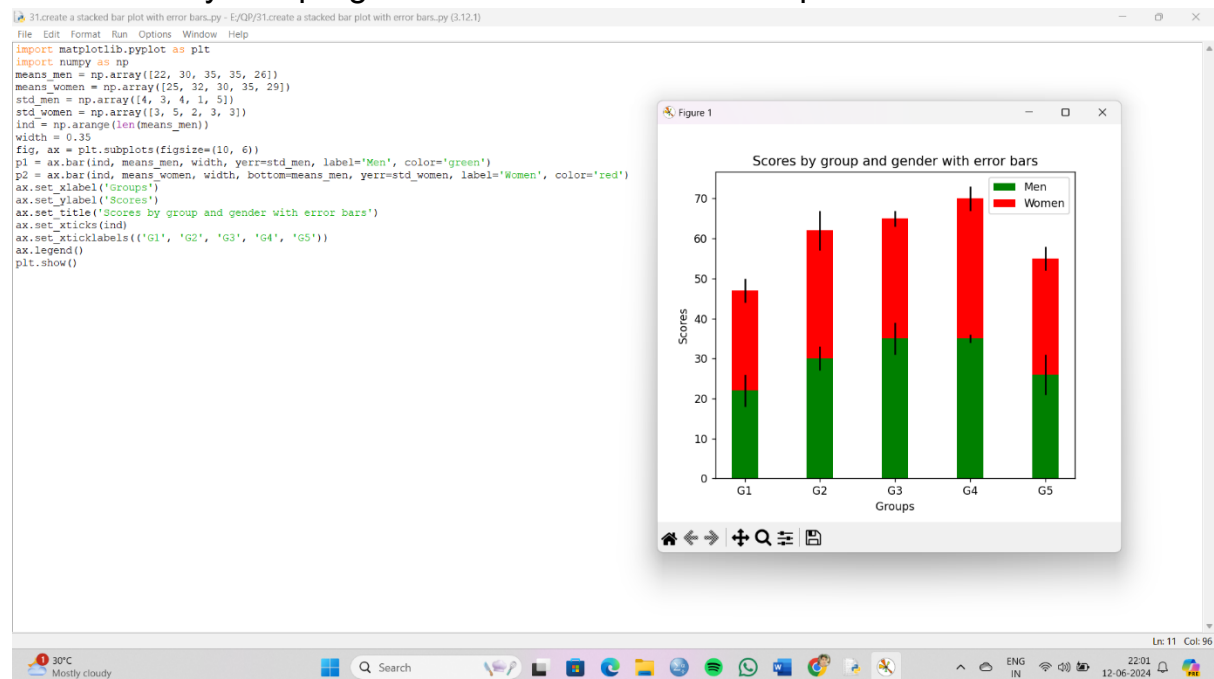
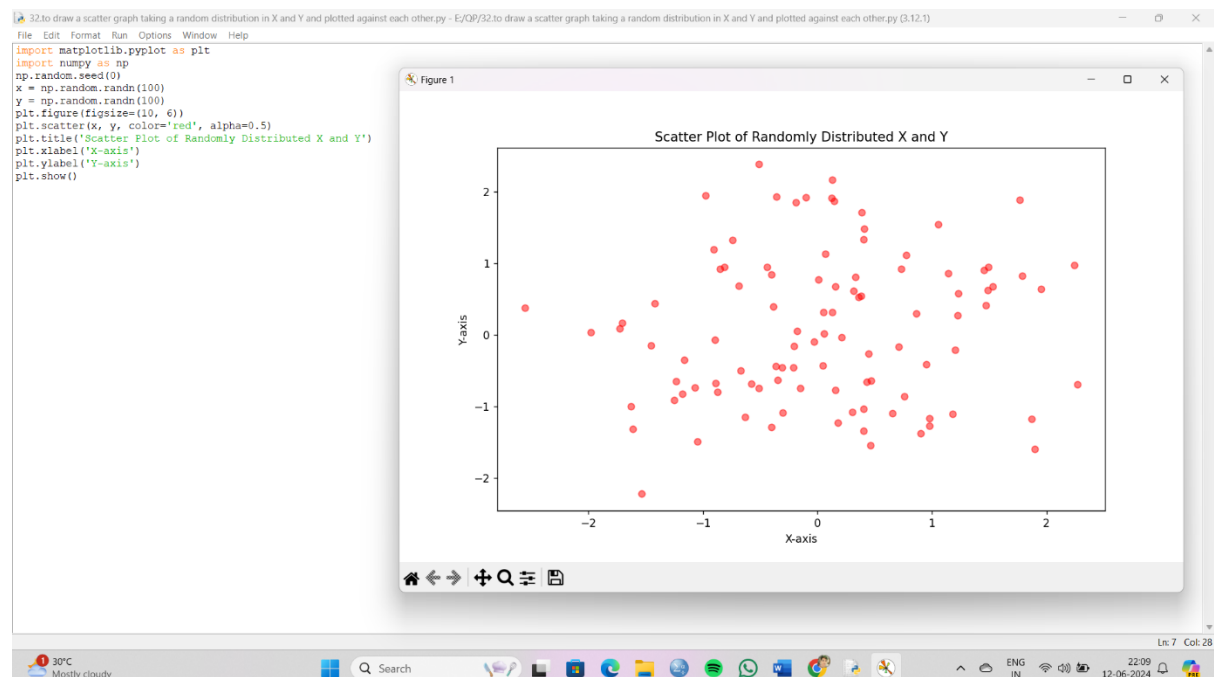


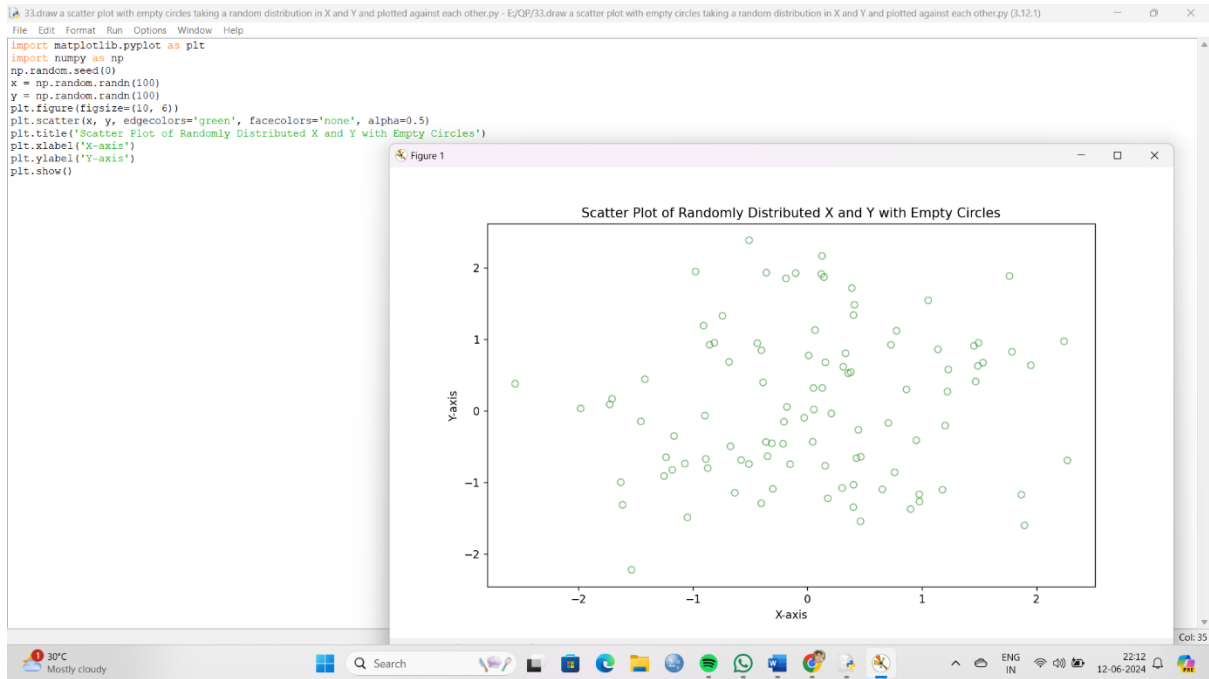
31. Write a Python program to create a stacked bar plot with error bars.



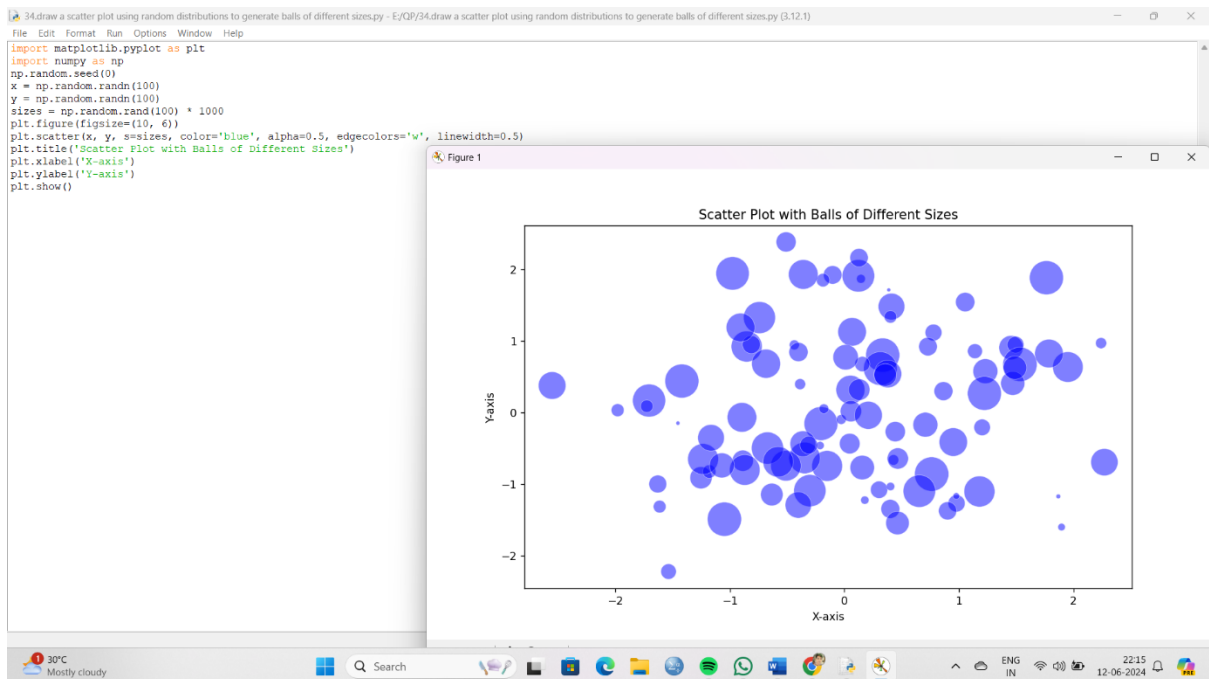
32. Write a Python program to draw a scatter graph taking a random distribution in X and Y and plotted against each other.



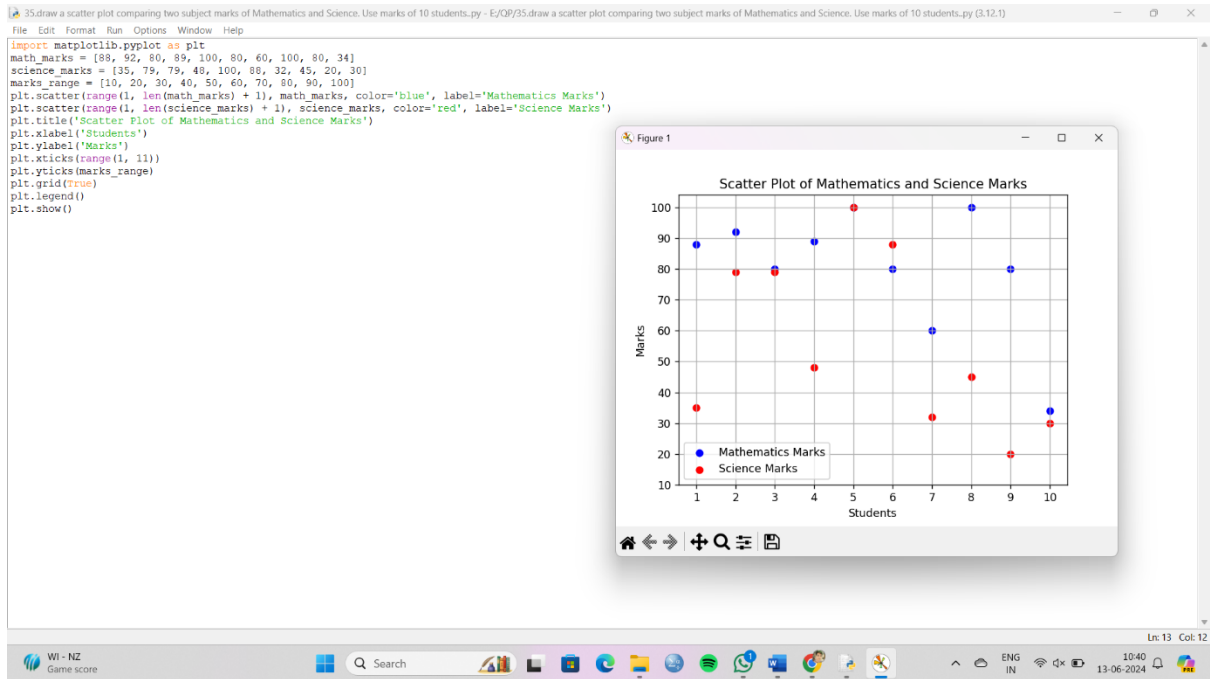
33. Write a Python program to draw a scatter plot with empty circles taking a random distribution in X and Y and plotted against each other.



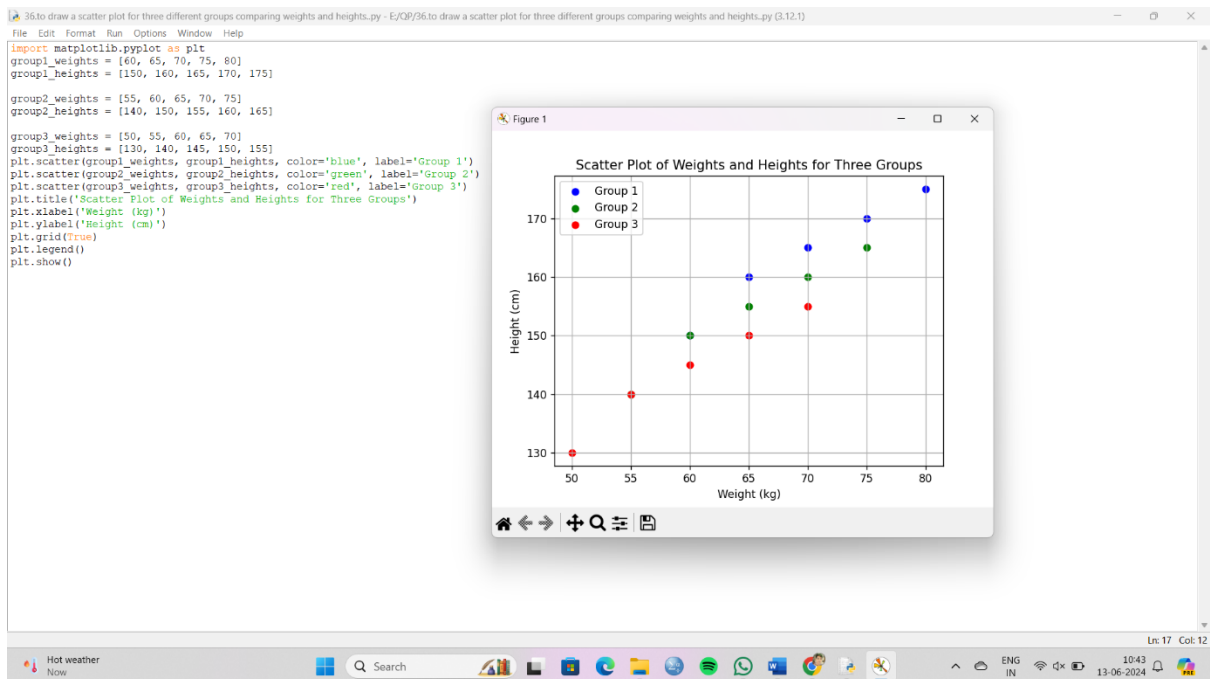
34. Write a Python program to draw a scatter plot using random distributions to generate balls of different sizes.



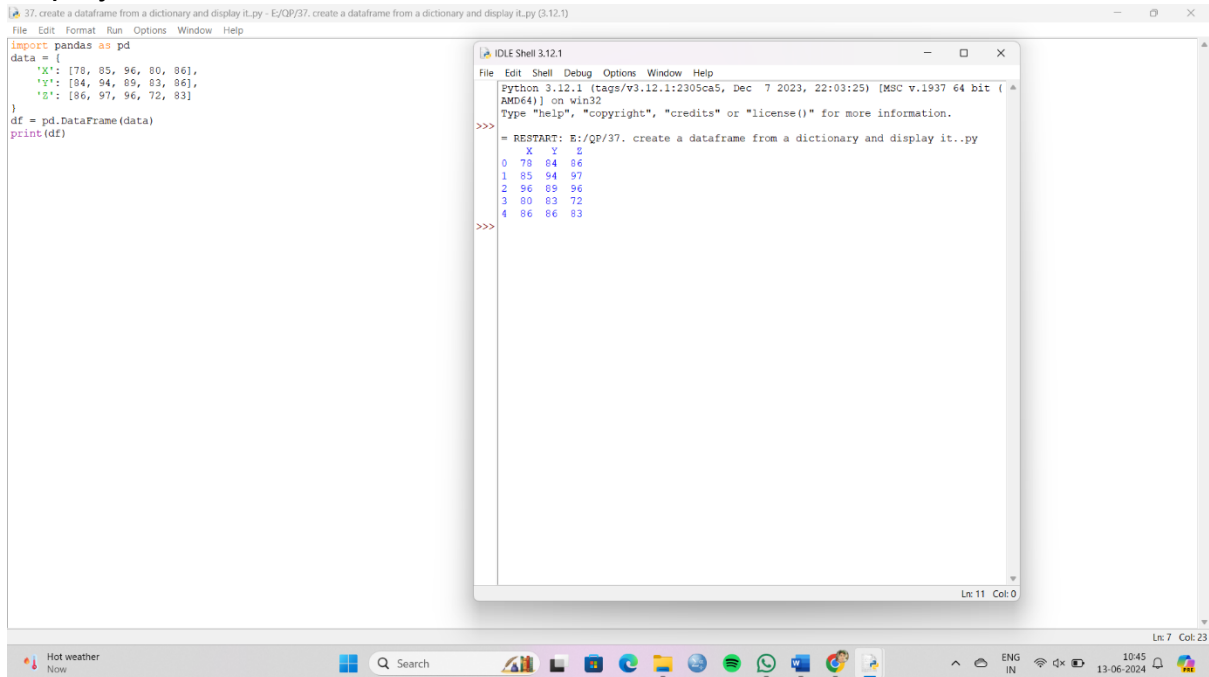
35. Write a Python program to draw a scatter plot comparing two subject marks of Mathematics and Science. Use marks of 10 students.



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



37. Write a Pandas program to create a dataframe from a dictionary and display it.

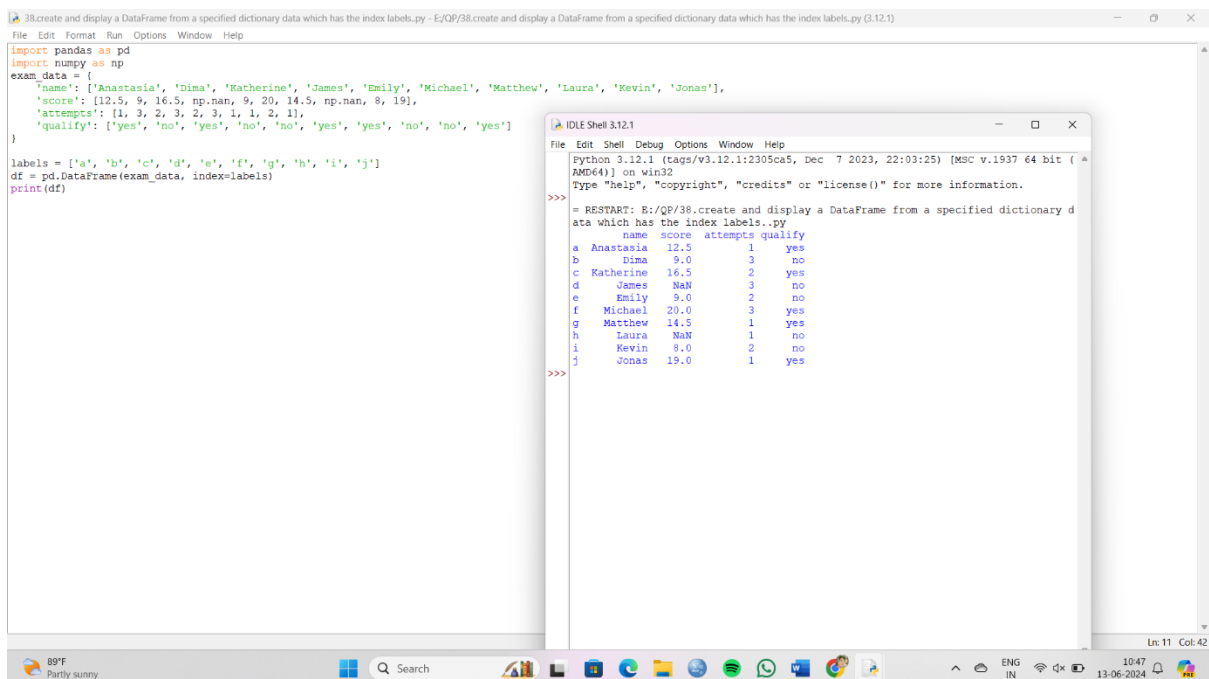


The screenshot shows a Python IDE with a file named "37.create a dataframe from a dictionary and display it.py". The code defines a dictionary 'data' with three keys: 'X', 'Y', and 'Z', each containing a list of five integers. A DataFrame is created from this dictionary and displayed. An IDE Shell window shows the execution output, which is a table with columns X, Y, and Z, and five rows of data.

```
import pandas as pd
data = {
    'X': [78, 85, 96, 80, 86],
    'Y': [84, 94, 89, 83, 86],
    'Z': [86, 97, 96, 72, 83]
}
df = pd.DataFrame(data)
print(df)
```

	X	Y	Z
0	78	84	86
1	85	94	97
2	96	89	96
3	80	83	72
4	86	86	83

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



The screenshot shows a Python IDE with a file named "38.create and display a DataFrame from a specified dictionary data which has the index labels.py". The code defines a dictionary 'exam\_data' with four keys: 'name', 'score', 'attempts', and 'qualify'. The 'name' key contains a list of names, 'score' contains a list of scores, 'attempts' contains a list of attempt counts, and 'qualify' contains a list of boolean values. A DataFrame is created from this dictionary with index labels 'a' through 'j' and displayed. An IDE Shell window shows the execution output, which is a table with columns name, score, attempts, and qualify, and ten rows of data.

```
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	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

### 39. Write a Pandas program to get the first 3 rows of a given DataFrame.

The screenshot shows a Python IDE with a file named '39.program to get the first 3 rows of a given DataFrame.py'. The code defines a DataFrame 'exam\_data' with columns 'name', 'score', 'attempts', and 'qualify'. It then uses 'df.head(3)' to print the first three rows. The output in the IDLE Shell shows the first three rows of the DataFrame.

```
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))
```

```
Python 3.12.1 (tags/v3.12.1:2305ca5, Dec 7 2023, 22:03:25) [MSC v.1937 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.

>>>
= RESTART: E:/QP/39.program to get the first 3 rows of a given DataFrame.py
a Anastasia 12.5 1 yes
b Dima 9.0 3 no
c Katherine 16.5 2 yes
>>>
```

### 40. Write a Pandas program to select the 'name' and 'score' columns from the following DataFrame

The screenshot shows a Python IDE with a file named '40.Pandas program to select the 'name' and 'score' columns from the following DataFrame.py'. The code defines a DataFrame 'exam\_data' with columns 'name', 'score', 'attempts', and 'qualify'. It then uses 'df[['name', 'score']]' to select only the 'name' and 'score' columns. The output in the IDLE Shell shows the selected columns for all rows.

```
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)
selected_columns = df[['name', 'score']]
print(selected_columns)
```

```
Python 3.12.1 (tags/v3.12.1:2305ca5, Dec 7 2023, 22:03:25) [MSC v.1937 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.

>>>
= RESTART: E:/QP/40.Pandas program to select the 'name' and 'score' columns from the following DataFrame.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
>>>
```