

PYTHON – WORKSHEET 9 (PANDAS)

1. (D) All of the above
2. (A) True
3. (D) All of the above
4. (A) <NA>
5. (C) 3 dimensional
6. (D) 1
7. (C) ix
8. (B) value, size
9. (B) Series can be passed into most NumPy methods expecting an ndarray.
(C) A key difference between Series and ndarray is that operations between Series automatically align the data based on label
(D) In pandas, Index values must be unique
10. (A) JSON
(B) HTML
(C) CSV
(D) TXT

11.

```
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 = ['I', 'II', 'III', 'IV', 'V', 'VI', 'VII', 'VIII', 'IX', 'X']

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

	name	score	attempts	qualify
I	Anastasia	12.5	1	yes
II	Dima	9.0	3	no
III	Katherine	16.5	2	yes
IV	James	NaN	3	no
V	Emily	9.0	2	no
VI	Michael	20.0	3	yes
VII	Matthew	14.5	1	yes
VIII	Laura	NaN	1	no
IX	Kevin	8.0	2	no
X	Jonas	19.0	1	yes

12.

```
print("First five rows of the data frame:")
print(df.iloc[:5])
```

First five rows of the data frame:

	name	score	attempts	qualify
I	Anastasia	12.5	1	yes
II	Dima	9.0	3	no
III	Katherine	16.5	2	yes
IV	James	NaN	3	no
V	Emily	9.0	2	no

13.

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

Select specific columns:

	name	score
I	Anastasia	12.5
II	Dima	9.0
III	Katherine	16.5
IV	James	NaN
V	Emily	9.0
VI	Michael	20.0
VII	Matthew	14.5
VIII	Laura	NaN
IX	Kevin	8.0
X	Jonas	19.0

14.

```
print("Select specific columns and rows:")
print(df.iloc[[3, 5, 6, 8], [0, 1]])
```

Select specific columns and rows:

	name	score
IV	James	NaN
VI	Michael	20.0
VII	Matthew	14.5
IX	Kevin	8.0

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15.

```
print("Rows where score between 15 and 20 (inclusive):")
print(df[df['score'].between(15, 20)])
```

Rows where score between 15 and 20 (inclusive):

	name	score	attempts	qualify
III	Katherine	16.5	2	yes
VI	Michael	20.0	3	yes
X	Jonas	19.0	1	yes