Basic Python

1. Split this string

```
s = "Hi there Sam!"
```

```
s = "Hi there Sam!"
x=s.split()
print(x)
```

```
['Hi', 'there', 'Sam!']
```

2. Use .format() to print the following string.

Output should be: The diameter of Earth is 12742 kilometers.

```
planet = "Earth"
diameter = 12742
```

```
planet = "Earth"
diameter = 12742
print("The diameter of Earth is {diameter} kilometers".format(diameter=12742))
```

```
The diameter of Earth is 12742 kilometers
```

3. In this nest dictionary grab the word "hello"

```
d = {'k1':[1,2,3,{'tricky':['oh','man','inception',{'target':[1,2,3,'hello']}]}]}
```

```
d = {'k1':[1,2,3,{'tricky':['oh','man','inception',{'target':[1,2,3,'hello']}]}]}
d['k1'][3]['tricky'][3]['target'][3]
```

```
'hello'
```

Numpy

```
import numpy as np
```

4.1 Create an array of 10 zeros?

4.2 Create an array of 10 fives?

```
import numpy as np
np.zeros(10)
```

```
array([0., 0., 0., 0., 0., 0., 0., 0., 0., 0.])
```

```
import numpy as np
np.ones(10)*5
```

```
array([5., 5., 5., 5., 5., 5., 5., 5., 5., 5.])
```

5. Create an array of all the even integers from 20 to 35

```
print(np.arange(20,35,2))
```

```
[20 22 24 26 28 30 32 34]
```

6. Create a 3x3 matrix with values ranging from 0 to 8

```
np.arange(0,9).reshape((3,3))
```

```
array([[0, 1, 2],
       [3, 4, 5],
       [6, 7, 8]])
```

7. Concatinate a and b

a = np.array([1, 2, 3]), b = np.array([4, 5, 6])

```
a·=·np.array([1,·2,·3])
b·=·np.array([4,·5,·6])
c=np.concatenate((a,b))
print(c)
```

```
print(c)
```

```
[1 2 3 4 5 6]
```

Pandas

8. Create a dataframe with 3 rows and 2 columns

```
import pandas as pd
```

```
import pandas as pd
a=pd.DataFrame()
print(a)
```

```
Empty DataFrame
Columns: []
Index: []
```

9. Generate the series of dates from 1st Jan, 2023 to 10th Feb, 2023

```
import·datetime
import·pandas
test_date·=datetime.datetime.strptime("01-01-2023","%d-%m-%Y")
K·=41

date_generated·=·pd.date_range(test_date,periods=K)
print(date_generated.strftime("d-%m-%Y"))
```

```
Index(['d-01-2023', 'd-01-2023', 'd-01-2023', 'd-01-2023', 'd-01-2023',
       'd-01-2023', 'd-01-2023', 'd-01-2023', 'd-01-2023', 'd-01-2023',
       'd-01-2023', 'd-01-2023', 'd-01-2023', 'd-01-2023', 'd-01-2023',
       'd-01-2023', 'd-01-2023', 'd-01-2023', 'd-01-2023', 'd-01-2023',
       'd-01-2023', 'd-01-2023', 'd-01-2023', 'd-01-2023', 'd-01-2023',
       'd-01-2023', 'd-01-2023', 'd-01-2023', 'd-01-2023', 'd-01-2023',
       'd-01-2023', 'd-02-2023', 'd-02-2023', 'd-02-2023', 'd-02-2023',
       'd-02-2023', 'd-02-2023', 'd-02-2023', 'd-02-2023', 'd-02-2023',
       'd-02-2023'],
      dtype='object')
```

10. Create 2D list to DataFrame

lists = [[1, 'aaa', 22], [2, 'bbb', 25], [3, 'ccc', 24]]

```
lists·=·[[1,·'aaa',·22],·[2,·'bbb',·25],·[3,·'ccc',·24]]
```

```
lists·=·[[1,·'aaa',·22],·[2,·'bbb',·25],·[3,·'ccc',·24]]
a=pd.DataFrame(lists)
print(a)
```

```
   0    1   2
0  1  aaa  22
1  2  bbb  25
2  3  ccc  24
```

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