Basic Python

1. Split this string

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

print(s.split(" "))

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

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

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

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

print("The diameter of {} is {} kilometers.".format(planet, diameter))

The diameter of Earth is 12742 kilometers.
```

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

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

print(d['k1'][3]['tricky'][3]['target'][3])

hello
```

Numpy

```python
import numpy as np
```

4.1 Create an array of 10 zeros?

4.2 Create an array of 10 fives?

```python
print(np.full(10, 0))

[0 0 0 0 0 0 0 0 0 0]

print(np.full(10, 5))

[5 5 5 5 5 5 5 5 5 5]
```

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

```python
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

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

```
[[0 1 2]
 [3 4 5]
 [6 7 8]]
```

7. Concatenate 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])

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

Pandas

8. Create a dataframe with 3 rows and 2 columns
```
import pandas as pd

df = pd.DataFrame(None, [1,2,3], [1,2])
print(df)
```
```
     1    2
1  NaN  NaN
2  NaN  NaN
3  NaN  NaN
```

9. Generate the series of dates from 1st Jan, 2023 to 10th Feb, 2023
```
df = pd.date_range(start="01-01-2023", end="10-02-2023")
print(df)
```
```
DatetimeIndex(['2023-01-01', '2023-01-02', '2023-01-03', '2023-01-04',
               '2023-01-05', '2023-01-06', '2023-01-07', '2023-01-08',
               '2023-01-09', '2023-01-10',
               ...
               '2023-09-23', '2023-09-24', '2023-09-25', '2023-09-26',
               '2023-09-27', '2023-09-28', '2023-09-29', '2023-09-30',
               '2023-10-01', '2023-10-02'],
              dtype='datetime64[ns]', length=275, freq='D')
```

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]]

df = pd.DataFrame(lists)
print(df)
```

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