Basic Python

1. Split this string

InÂ [2]:

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

InÂ [3]:

```
s.split( )
```

Out[3]:

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

italicized text## 2. Use .format() to print the following string.

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

InÂ [4]:

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

InÂ [5]:

```
fact="The diameter of {} is {} kilometers.".format(planet, diameter)
fact
```

Out[5]:

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

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

InÂ [6]:

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

InÂ [7]:

```
d['k1'][3]['tricky'][3]['target'][3]
```

Out[7]:

```
'hello'
```

Numpy

InÂ [8]:

```
import numpy as np
```

4.1 Create an array of 10 zeros?

4.2 Create an array of 10 fives?

InÂ [9]:

```
np.zeros(10)
```

Out[9]:

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

InÂ [10]:

```
np.ones(10)*5
```

Out[10]:

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

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

InÂ [11]:

```
np.arange(20,36,2)
```

Out[11]:

```
array([20, 22, 24, 26, 28, 30, 32, 34])
```

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

InÂ [12]:

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

Out[12]:

```
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])

InÂ [13]:

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

Out[13]:

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

Pandas

8. Create a dataframe with 3 rows and 2 columns

InÂ [14]:

```
import pandas as pd
```

InÂ [15]:

```
pd.DataFrame(index=np.arange(3),columns=np.arange(2))
```

Out[15]:

	0	1
0	NaN	NaN
1	NaN	NaN
2	NaN	NaN

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

InÂ [16]:

```
import datetime
day_delta=datetime.timedelta(days=1)
start_date=datetime.datetime(2023,1,1)
end_date=datetime.datetime(2023,2,11)
for i in range((end_date-start_date).days):
        print(start_date+i*day_delta)
```

```
2023-01-01 00:00:00
2023-01-02 00:00:00
2023-01-03 00:00:00
2023-01-04 00:00:00
2023-01-05 00:00:00
2023-01-06 00:00:00
2023-01-07 00:00:00
2023-01-08 00:00:00
2023-01-09 00:00:00
2023-01-10 00:00:00
2023-01-11 00:00:00
2023-01-12 00:00:00
2023-01-13 00:00:00
2023-01-14 00:00:00
2023-01-15 00:00:00
2023-01-16 00:00:00
2023-01-17 00:00:00
2023-01-18 00:00:00
2023-01-19 00:00:00
2023-01-20 00:00:00
2023-01-21 00:00:00
```

```
2023-01-22 00:00:00
2023-01-23 00:00:00
2023-01-24 00:00:00
2023-01-25 00:00:00
2023-01-26 00:00:00
2023-01-27 00:00:00
2023-01-28 00:00:00
2023-01-29 00:00:00
2023-01-30 00:00:00
2023-01-31 00:00:00
2023-02-01 00:00:00
2023-02-02 00:00:00
2023-02-03 00:00:00
2023-02-04 00:00:00
2023-02-05 00:00:00
2023-02-06 00:00:00
2023-02-07 00:00:00
2023-02-08 00:00:00
2023-02-09 00:00:00
2023-02-10 00:00:00
```

10. Create 2D list to DataFrame

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

InÂ [17]:

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

InÂ [18]:

```
pd.DataFrame(lists)
```

Out[18]:

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