

Basic Python

1. Split this string

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

['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 {} is {}
kilometers.' .format(planet,diameter));
```

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']}]}]}

lst = [1,2,[3,4],[5,[100,200,['hello']],23,11],1,7]
a=lst[3][1][2];
print(a)

['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
array=np.zeros(10)
print("An array of 10 zeros:")
print(array)
array=np.ones(10)*5
print("An array of 10 fives:")
print(array)
```

```
An array of 10 zeros:
[0. 0. 0. 0. 0. 0. 0. 0. 0. 0.]
An array of 10 fives:
[5. 5. 5. 5. 5. 5. 5. 5. 5. 5.]
```

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

```
import numpy as np
array=np.arange(20,36)
print("Array of the integers from 20 to 35 ")
print(array)

Array of the integers from 20 to 35
[20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35]
```

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

```
import numpy as np
np.arange(0,9).reshape((3,3))
([[0, 1, 2],
 [3, 4, 5],
 [6, 7, 8]])

[[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])
import numpy as np
a = np.array([[1,2,3]])

print ('First array:')
print (a)
print ('\n')
b = np.array([[4,5,6]])

print ('Second array:')
print (b)
print ('\n')
# both the arrays are of same dimensions

print ('Joining the two arrays along axis 0:')
print(np.concatenate((a,b)))
print ('\n')

print ('Joining the two arrays along axis 1:')
print (np.concatenate((a,b),axis = 1))

First array:
[[1 2 3]]
```

Second array:

```
[[4 5 6]]
```

Joining the two arrays along axis 0:

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

Joining the two arrays along axis 1:

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

Pandas

8. Create a dataframe with 3 rows and 2 columns

```
import pandas as pd
```

```
data = {
    "calories": [420, 380, 390],
    "duration": [50, 40, 45]
}
```

#load data into a DataFrame object:

```
df = pd.DataFrame(data)
```

```
print(df)
```

	calories	duration
0	420	50
1	380	40
2	390	45

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

```
import pandas as pd
```

```
d = pd.date_range(start='1/1/2023',end='10/2/2023')
```

```
print(d)
```

```
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]]
```

```
import pandas as pd
```

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

```
print(type(a))
```

```
for b in a:
```

```
    for j in b:
```

```
        print(j)
```

```
dt=zip(a)
```

```
df=pd.DataFrame(dt,columns=["d"])
```

```
print(type(df))
```

```
print(df)
```

```
<class 'list'>
```

```
1
```

```
aaa
```

```
22
```

```
2
```

```
bbb
```

```
25
```

```
3
```

```
ccc
```

```
24
```

```
<class 'pandas.core.frame.DataFrame'>
```

```
      d
```

```
0  [1, aaa, 22]
```

```
1  [2, bbb, 25]
```

```
2  [3, ccc, 24]
```