Basic Python

1. Split this string

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

+ Code + Text

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

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

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

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

Double-click (or enter) to edit

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

```
planet = "Earth"
diameter = 12742
val="The diameter of {0} is {1} kilometers."
print(val.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']}]}]}
```

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

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

Numpy

```
import numpy as np
arr = np.array( [[ 1, 2, 3],
                 [ 4, 2, 5]] )

print("Array is of type: ", type(arr))
print("No. of dimensions: ", arr.ndim)
print("Shape of array: ", arr.shape)
print("Size of array: ", arr.size)
print("Array stores elements of type: ", arr.dtype)
```

```
Array is of type:  <class 'numpy.ndarray'>
No. of dimensions:  2
Shape of array:  (2, 3)
Size of array:  6
Array stores elements of type:  int64
```

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)
print("An array of 10 ones:")
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 ones:
[1. 1. 1. 1. 1. 1. 1. 1. 1. 1.]
An array of 10 fives:
[5. 5. 5. 5. 5. 5. 5. 5. 5. 5.]
```

```
import numpy as jc
array=jc.zeros(10)
print("An array of 10 zeros:")
print(array)
array=jc.ones(10)
print("An array of 10 ones:")
```

```
print("An array of 10 ones:")
print(array)
array=jc.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 ones:
[1. 1. 1. 1. 1. 1. 1. 1. 1. 1.]
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 cj
array=cj.arange(30,71,2)
print("Array of even int 30 to 70")
print(array)
```

```
Array of even int 30 to 70
[30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70]
```

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

```
import numpy as jcj
x =  jcj.arange(2, 11).reshape(3,3)
print(x)
```

```
[[ 2  3  4]
 [ 5  6  7]
 [ 8  9 10]]
```

7. Concatenate a and b

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

```
import numpy as geek

arr1 = geek.array([[1,2,3]])
arr2 = geek.array([[4,5,6]])

gfg = geek.concatenate((arr1, arr2), axis = 0)
```

```
print (gfg)
```

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

Pandas

8. Create a dataframe with 3 rows and 2 columns

```
import pandas as cd

df = cd.DataFrame()
print(df)
```

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

```
import pandas as jd

data = [10,20,30,40,50,60]
df = jd.DataFrame(data, columns=['Numbers'])
df
```

	Numbers
0	10
1	20
2	30
3	40
4	50
5	60

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

```
from datetime import timedelta, date

start = date(2023,1,1)
end = date(2023, 2, 10)
for dt in daterange(start, end):
```

```
print(dt.strftime("%Y-%m-%d"))
```

```
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
2023-01-11
2023-01-12
2023-01-13
2023-01-14
2023-01-15
2023-01-16
2023-01-17
2023-01-18
2023-01-19
2023-01-20
2023-01-21
2023-01-22
2023-01-23
2023-01-24
2023-01-25
2023-01-26
2023-01-27
2023-01-28
2023-01-29
2023-01-30
2023-01-31
2023-02-01
2023-02-02
2023-02-03
2023-02-04
2023-02-05
2023-02-06
2023-02-07
2023-02-08
2023-02-09
2023-02-10
```

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
```

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

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