

Basic Python

1. Split this string

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

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

output:

```
['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));
```

output:

```
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' ][3][ "tricky" ][3][ 'target' ][3])
```

output:

```
hello
```

Numpy

```
import numpy as np
```

4.1 Create an array of 10 zeros?

```
array=np.zeros(10)  
print("An array of 10 zeros:")  
  
print(array)
```

output:

```
An array of 10 zeros:
```

```
[ 0.,  0.,  0.,  0.,  0.,  0.,  0.,  0.,  0.,  0.]
```

4.2 Create an array of 10 fives?

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

output:

```
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

```
x = np.arange(20,35)  
y = (x%2 == 0)  
z = x[y]  
print(z)
```

output:

```
[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. Concatenate a and b

```
a = np.array([1, 2, 3]), b = np.array([4, 5, 6])  
arr1 = np.array([1,2,3])  
arr2 = np.array([4,5,6])  
arr = np.concatenate((arr1, arr2))  
print(arr)
```

output:

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

Pandas

8. Create a dataframe with 3 rows and 2 columns

```
import pandas as pd

import numpy as np

arrayA = ['f', 'd']
arrayB = ['1' '2']
arrayC = [4, 5]

pd.DataFrame(np.array([arrayA, arrayB, arrayC]), columns = ["AA", "NN"])
```

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

```
import datetime

# The size of each step in days
day_delta = datetime.timedelta(days=1)

start_date = datetime.date.today()
end_date = start_date + 7*day_delta

for i in range((end_date - start_date).days):
    print(start_date + i*day_delta)
```

Output

start date = 2023-01-01

end date = 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]]

df = pd.DataFrame(lists, columns = ['s.no', 'name', 'mark'])

print(df)
```

