**Basic Python**

**1. Split this string**

In [ ]:

s **=** "Hi there Sam!"

In [ ]:

s**=**s**.**split(" ")

s

Out[ ]:

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

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

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

In [ ]:

planet **=** "Earth"

diameter **=** 12742

In [ ]:

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"**

In [ ]:

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

In [ ]:

d['k1'][3]['tricky'][3]

Out[ ]:

{'target': [1, 2, 3, 'hello']}

**Numpy**

In [2]:

**import** numpy **as** np

**4.1 Create an array of 10 zeros?**

**4.2 Create an array of 10 fives?**

In [ ]:

np**.**zeros(10,dtype**=**int)

Out[ ]:

array([0, 0, 0, 0, 0, 0, 0, 0, 0, 0])

In [ ]:

np**.**ones(10,dtype**=**int)**\***5

Out[ ]:

array([5, 5, 5, 5, 5, 5, 5, 5, 5, 5])

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

In [ ]:

evenIntegers **=** np**.**arange(20,36,2)

evenIntegers

Out[ ]:

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

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

In [ ]:

values**=**np**.**random**.**randint(9,size**=**(3,3))

values

Out[ ]:

array([[4, 8, 2],

[1, 4, 0],

[8, 7, 0]])

**7. Concatenate a and b**

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

In [ ]:

a**=**np**.**array([1,2,3])

b**=**np**.**array([4,5,6])

conc**=**np**.**concatenate((a,b))

conc

Out[ ]:

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

**Pandas**

**8. Create a dataframe with 3 rows and 2 columns**

In [1]:

**import** pandas **as** pd

In [ ]:

s1 **=** pd**.**Series(np**.**random**.**rand(2))

s2 **=** pd**.**Series(np**.**random**.**rand(2))

s3 **=** pd**.**Series(np**.**random**.**rand(2))

df **=** pd**.**DataFrame([s1,s2,s3])

df

Out[ ]:

|  | **0** | **1** |
| --- | --- | --- |
| **0** | 0.238527 | 0.343665 |
| **1** | 0.306049 | 0.645804 |
| **2** | 0.908118 | 0.925606 |

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

In [3]:

date**=**pd**.**date\_range(start**=**'1st Jan,2023',end**=**'10th Feb,2023')

dates **=** pd**.**Series(date)

dates

Out[3]:

0 2023-01-01

1 2023-01-02

2 2023-01-03

3 2023-01-04

4 2023-01-05

5 2023-01-06

6 2023-01-07

7 2023-01-08

8 2023-01-09

9 2023-01-10

10 2023-01-11

11 2023-01-12

12 2023-01-13

13 2023-01-14

14 2023-01-15

15 2023-01-16

16 2023-01-17

17 2023-01-18

18 2023-01-19

19 2023-01-20

20 2023-01-21

21 2023-01-22

22 2023-01-23

23 2023-01-24

24 2023-01-25

25 2023-01-26

26 2023-01-27

27 2023-01-28

28 2023-01-29

29 2023-01-30

30 2023-01-31

31 2023-02-01

32 2023-02-02

33 2023-02-03

34 2023-02-04

35 2023-02-05

36 2023-02-06

37 2023-02-07

38 2023-02-08

39 2023-02-09

40 2023-02-10

dtype: datetime64[ns]

**10. Create 2D list to DataFrame**

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

In [4]:

lists **=** [['aaa', 22], ['bbb', 25], ['ccc', 24]]

In [ ]:

df **=** pd**.**DataFrame(lists, columns **=**['name','number'])

print(df)

name number

0 aaa 22

1 bbb 25

2 ccc 24