**Basic Python**

**1. Split this string**

In [2]:

S **=** "Hi there Sam!"

In [ ]:

S**.**split()

Out[ ]:

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

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

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

In [3]:

planet **=** "Earth"

diameter **=** 12742

In [ ]:

"The diameter of {} is {} kilometers"**.**format(planet,diameter)

Out[ ]:

'The diameter of Earth is 12742 kilometers'

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

In [4]:

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

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

Out[4]:

'hello'

**NumPy**

In [5]:

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

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

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

In [6]:

np**.**zeros(shape**=**10)

Out[6]:

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

In [7]:

np**.**full(shape**=**10,fill\_value**=**5)

Out[7]:

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 [8]:

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

Out[8]:

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

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

In [9]:

np**.**arange(9)**.**reshape(3,3)

Out[9]:

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])**

In [10]:

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

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

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

Out[10]:

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

**Pandas**

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

In [11]:

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

In [13]:

pd**.**DataFrame(np**.**array([1,2,3,4,5,6])**.**reshape(3,2))

Out[13]:

|  | **0** | **1** |
| --- | --- | --- |
| **0** | 1 | 2 |
| **1** | 3 | 4 |
| **2** | 5 | 6 |

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

In [12]:

pd**.**date\_range(start**=**'01/01/2023', end**=**'10/02/2023')

Out[12]:

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]]

In [14]:

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

In [15]:

pd**.**DataFrame(lists)

Out[15]:

|  | **0** | **1** | **2** |
| --- | --- | --- | --- |
| **0** | 1 | aaa | 22 |
| **1** | 2 | bbb | 25 |
| **2** | 3 | ccc | 24 |