**Basic Python**

**1. Split this string**

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

s**.**split(' ')

['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

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']}]}]}

d['k1'][**-**1]['tricky'][**-**1]['target'][**-**1]

'hello'

**Numpy**

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

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

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

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

a

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

b**=**np**.**ones(10)**\***5

b

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

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

c**=**np**.**arange(20,35,2)

c

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

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

m**=**np**.**arange(0,9)**.**reshape(3,3)

m

array([[0, 1, 2],

[3, 4, 5],

[6, 7, 8]])

**7. Concatinate a and b**

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

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

c**=**np**.**concatenate((a,b),axis**=**0)

c

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

**Pandas**

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

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

df**=**[['aaa','bbb'],['ccc','ddd'],['eee','fff']]

df**=**pd**.**DataFrame(df)

df

**0** **1**

**0** aaa bbb

**1** ccc ddd

**2** eee fff

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

dates**=**pd**.**date\_range('01-01-2023','10-02-2023')

dates

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]]

l**=**pd**.**DataFrame(lists)

l

**0** **1** **2**

**0** 1 aaa 22

**1** 2 bbb 25

**2** 3 ccc 24