# Basic Python

## Split this string

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

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

## 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

## In this nest dictionary grab the word "hello"

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

print(d['k1'][3]['tricky'][3]['target'][3]) hello

# Numpy

import numpy as np

## Create an array of 10 zeros?

* 1. **Create an array of 10 fives?**

np.zeros(10)

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

np.ones(10)\*5

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

## Create an array of all the even integers from 20 to 35

np.array([int(i) **for** i **in** range(20,35,2)]) array([20, 22, 24, 26, 28, 30, 32, 34])

## 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]])

## Concatenate a and b

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

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

# Pandas

## Create a dataframe with 3 rows and 2 columns

import pandas as pd pd.DataFrame({0:[1]\*3,1:[1]\*3})

|  |  |
| --- | --- |
| 0 | 1 |
| 0 1 | 1 |
| 1 1 | 1 |
| 2 1 | 1 |

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

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

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')

## 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]] pd.DataFrame(lists)

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