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# Basic Python
## 1. Split this string
s = "Hi there Sam!"
string = "Hi there Sam!"
x=string.split()
print(x)
## 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
string = "The diameter of Earth is 12742 kilometers"
print(string.format(planet,diameter))
## 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])
# Numpy
import numpy as np
## 4.1 Create an array of 10 zeros?
## 4.2 Create an array of 10 fives?
import numpy as np
arr=np.zeros(10)
print("An array of 10 zeros:")
print(arr)
arr=np.ones(10)*5
print("An array of 10 fives:")
print(arr)
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## 5. Create an array of all the even integers from 20 to 35
import numpy as np
a=np.arange(20,36,2)
print("Array of all the even integers from 20 to 35")
print(a)
## 6. Create a 3x3 matrix with values ranging from 0 to 8
import numpy as np
m =  np.arange(0, 9).reshape(3,3)
print(m)

## 7. Concatenate a and b
## a = np.array([1, 2, 3]), b = np.array([4, 5, 6])
import numpy as np
a = np.array([1, 2, 3])
b = np.array([4, 5, 6])
c = np.concatenate((a,b),axis=None)
print(c)

# Pandas
## 8. Create a dataframe with 3 rows and 2 columns
import pandas as pd

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# initialize list of lists
data = [['Jack', 'America'], ['peter', 'london'], ['maria', 'korea']]

# Create the pandas DataFrame
df = pd.DataFrame(data, columns=['Name', 'Country'])

# print dataframe.
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df
## 9. Generate the series of dates from 1st Jan, 2023 to 10th Feb, 2023
import datetime
import pandas as pd
test_date = datetime.datetime.strptime("01-1-2023", "%d-%m-%Y")
K = 41

date_generated = pd.date_range(test_date, periods=K)
print(date_generated.strftime("%d-%m-%Y"))
## 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]]
import pandas as pd
lst = [[1, 'aaa', 22], [2, 'bbb', 25], [3, 'ccc', 24]]
df = pd.DataFrame(lst)
print(df )
```