Basic Python

1. Split this string
s = "Hi there Sam!"

```
x=s.split()
print(x)
```
['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(f'The diameter of {planet} is {diameter} kilometers.')
```
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']}]}]}
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```
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
```

4.1 Create an array of 10 zeros?
4.2 Create an array of 10 fives?
```
arr=np.zeros(10)
print(arr)
```
[0. 0. 0. 0. 0. 0. 0. 0. 0. 0.]
```
arr=np.ones(10)*5
print(arr)
```
[5. 5. 5. 5. 5. 5. 5. 5. 5. 5.]

5. Create an array of all the even integers from 20 to 35
```
import numpy as np

array=np.arange(20,36,2)
print(array)
```
[20 22 24 26 28 30 32 34]

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

```
arr=np.arange(0,9).reshape(3,3)
print(arr)
```

```
[[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])

```
import numpy as np
a=np.array([1,2,3])
b=np.array([4,5,6])
x=np.concatenate((a,b),axis=0)print(x)
```

```
[1 2 3 4 5 6]
```

Pandas

8. Create a dataframe with 3 rows and 2 columns

```
import pandas as pd
import pandas as pd
df = pd.DataFrame()
print(df)
```

```
Empty DataFrame
Columns: []
Index: []
```

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("01-01-2023", "%d-%m-%Y")
k=41
date_generated = pd.date_range(test_date, periods=k)
print(date_generated.strftime("%d-%m-%Y"))
```

```
Index(['01-01-2023', '02-01-2023', '03-01-2023', '04-01-2023', '05-01-2023',
       '06-01-2023', '07-01-2023', '08-01-2023', '09-01-2023', '10-01-2023',
       '11-01-2023', '12-01-2023', '13-01-2023', '14-01-2023', '15-01-2023',
       '16-01-2023', '17-01-2023', '18-01-2023', '19-01-2023', '20-01-2023',
       '21-01-2023', '22-01-2023', '23-01-2023', '24-01-2023', '25-01-2023',
       '26-01-2023', '27-01-2023', '28-01-2023', '29-01-2023', '30-01-2023',
       '31-01-2023', '01-02-2023', '02-02-2023', '03-02-2023', '04-02-2023',
       '05-02-2023', '06-02-2023', '07-02-2023', '08-02-2023', '09-02-2023',
       '10-02-2023'],
      dtype='object')
```

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