Basic Python

1. Split this string

```
s = "Hi there Sam!"
```

```
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
```

```
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':[1,2,3,{'tricky':['oh','man','inception',{'target':
[1,2,3,'hello']}]}]}
print(d['k1'][3]["tricky"][3]['target'][3])
```

```
hello
```

Numpy

```
import numpy as np
array=np.zeros(10)
print("An array of 10 zeros:")
print(array)
```

```
An array of 10 zeros:
[0. 0. 0. 0. 0. 0. 0. 0. 0. 0.]
```

4.1 Create an array of 10 zeros?

4.2 Create an array of 10 fives?

```
array=np.ones(10)*5
print("An array of 10 fives:")
print(array)
```

```
An array of 10 fives:
[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 numpy
array=np.arange(20,36,2)
print("Array of all the even integers from 20 to 35")
print(array)
```

```
Array of all the even integers from 20 to 35
[20 22 24 26 28 30 32 34]
```

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

```
import numpy as np
x=np.arange(0,9).reshape(3,3)
print(x)
```

```
[[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])
con=np.concatenate([a,b])
print(con)
```

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

Pandas

8. Create a dataframe with 3 rows and 2 columns

```
import pandas as pd

data={'Name':['Tom','Nick'],'Age':[20,21],'Gender':['Male','Male']}
df=pd.DataFrame(data)
print(df)
```

```
   Name  Age Gender
0   Tom   20   Male
1  Nick   21   Male
```

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

```
import pandas as pd
from datetime import datetime
pd.date_range(end=datetime.today(),periods=100).tolist()
pd.date_range(start="2023-01-01",end="2023-02-01.")
```

```
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', '2023-01-11', '2023-01-12',
               '2023-01-13', '2023-01-14', '2023-01-15', '2023-01-16',
               '2023-01-17', '2023-01-18', '2023-01-19', '2023-01-20',
               '2023-01-21', '2023-01-22', '2023-01-23', '2023-01-24',
               '2023-01-25', '2023-01-26', '2023-01-27', '2023-01-28',
               '2023-01-29', '2023-01-30', '2023-01-31', '2023-02-
01'],
              dtype='datetime64[ns]', 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]]
```

```
import pandas as pd
lists=[[1,'aaa',22],[2,'bbb',25],[3,'ccc',24]]
df=pd.DataFrame(lists,columns=['Rank','Lname','Age'],dtype=float)
print(df)
```

```
   Rank Lname   Age
0   1.0   aaa  22.0
1   2.0   bbb  25.0
2   3.0   ccc  24.0
```

```
/usr/local/lib/python3.7/dist-packages/IPython/core/
interactiveshell.py:3326: FutureWarning: Could not cast to float64,
falling back to object. This behavior is deprecated. In a future
version, when a dtype is passed to 'DataFrame', either all columns
will be cast to that dtype, or a TypeError will be raised
  exec(code_obj, self.user_global_ns, self.user_ns)
```