Summer Training Internship

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Summer Training

Training at
Zeetron Networks,
Tonk Road,
Jaipur

Field - Machine Learning with Deep learning

Lesson Plan

Week 1

- Revision of Python Concepts
- Introduction to NumPy module
- Introduction to Datetime and Colorama Module
- Advance Python concepts
- Map Filter and Reduce Function

Week 2

- Arrays Functions in NumPy
- Operations performed on Arrays
- Linear Algebra
- Statistical Analysis
- Introduction to CSV files

Week 3

- Introduction to Pandas
- DataFrame creation and manipulation
- Introduction to Series
- Introduction to Web Scraping
- Converting scraped data to DataFrames

Week 1

1. Basics of Python
2. Reshape and Map Function
3. Lambda Function
4. Introduction to Numpy
5. Numpy 2D Array
6. Conversion of Python Data type into Numpy Arrays
7. Colorama Module

Week 1 - Revision of Python Concepts

- Basics of Python
- Defining and Calling functions
- Lambda function
- Control flow

```
np.char.replace(["qwe","rty"], "qw","QW",1)
```

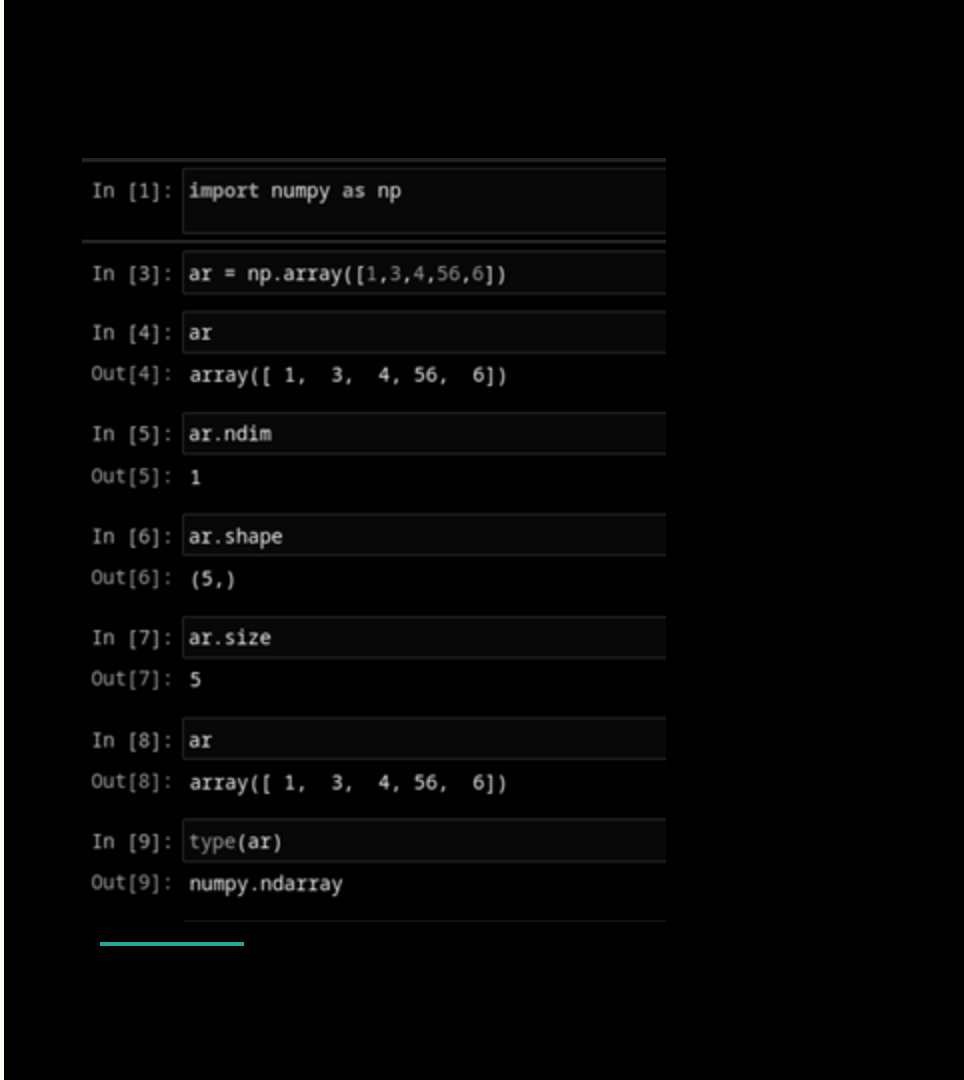
```
array(['QWe', 'rty'], dtype='<U3')
```

```
def rep(inp, find, replace):
    return np.char.replace(inp, find, replace)

print(rep(input("Enter text "), input("Find: "), input("Replace: ")))
```

```
Enter text 123 4 5 56 7
Find: 5
Replace: A
123 4 A A6 7
```

Week 1 - Introduction to NumPy Module

- Introduction to Modules in Python
- Array Data Structure
- Creating an Array from List
- Operations on Array
- Dimensions and Reshaping



Week 1 - Datetime and Colorama Module

- Introduction to Datetime
- Getting current Date and Time
- Printing Colored information with colorama
- Arithmetic Operations on Date Object

```
array([[ 10,  56, 100],
       [ 15,  56,  56],
       [ 18,  45,  20]])
```

```
print(Fore.BLUE + "Color plz work")
```

```
Color plz work
```

```
try:
    ar=np.array([[35,34,54],[35,65,23],[45,11,10]])
    print(Fore.RED + str(ar[ar>18]))
    print(Fore.GREEN+ str(ar[ar<18]))
except np.exceptions.UFuncTypeError as e:
    print("Error Occured: ", e)
```

```
[35 34 54 35 65 23 45]
[11 10]
```

Week 1 - Advance Python Concepts

- Classes and OOP
- Special Functions in Class
- Map, Filter and Reduce functions
- Exception Handling

```
import pandas as pd
```

```
data1 = input("Enter the name").split()
data2 = list(map(int,input("Enter age").split()))

if len(data1) == len(data2):
    df = pd.DataFrame({"Name":data1, "Age":data2})
    print(df)
else:
    print("Data sizes not same")
```

```
Enter the name2 3 '
Enter age2 3 4
  Name  Age
0    2    2
1    3    3
2    '    4
```

```
print(pd.DataFrame(list([data1,data2]), columns=["C1","C2
```

```
  C1 C2 C3
0  2  3  '
1  2  3  4
```

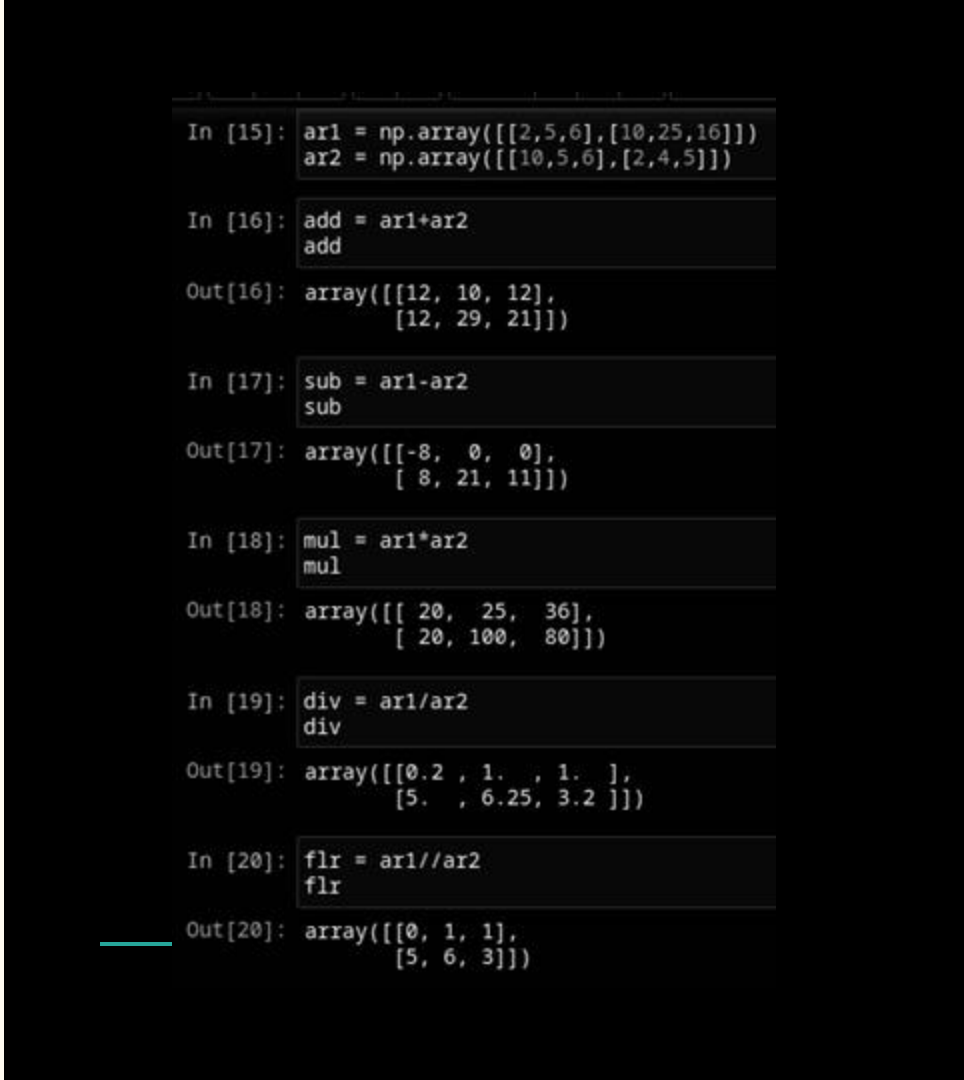
```
import numpy as np

ar = np.arange(10,101,10).reshape(5,2)
```

Week 2

1. NumPy 3D Array
2. NumPy Arange Function
3. Slicing Arrays
4. Base conversion of Data in Arrays
5. Introduction to Pandas

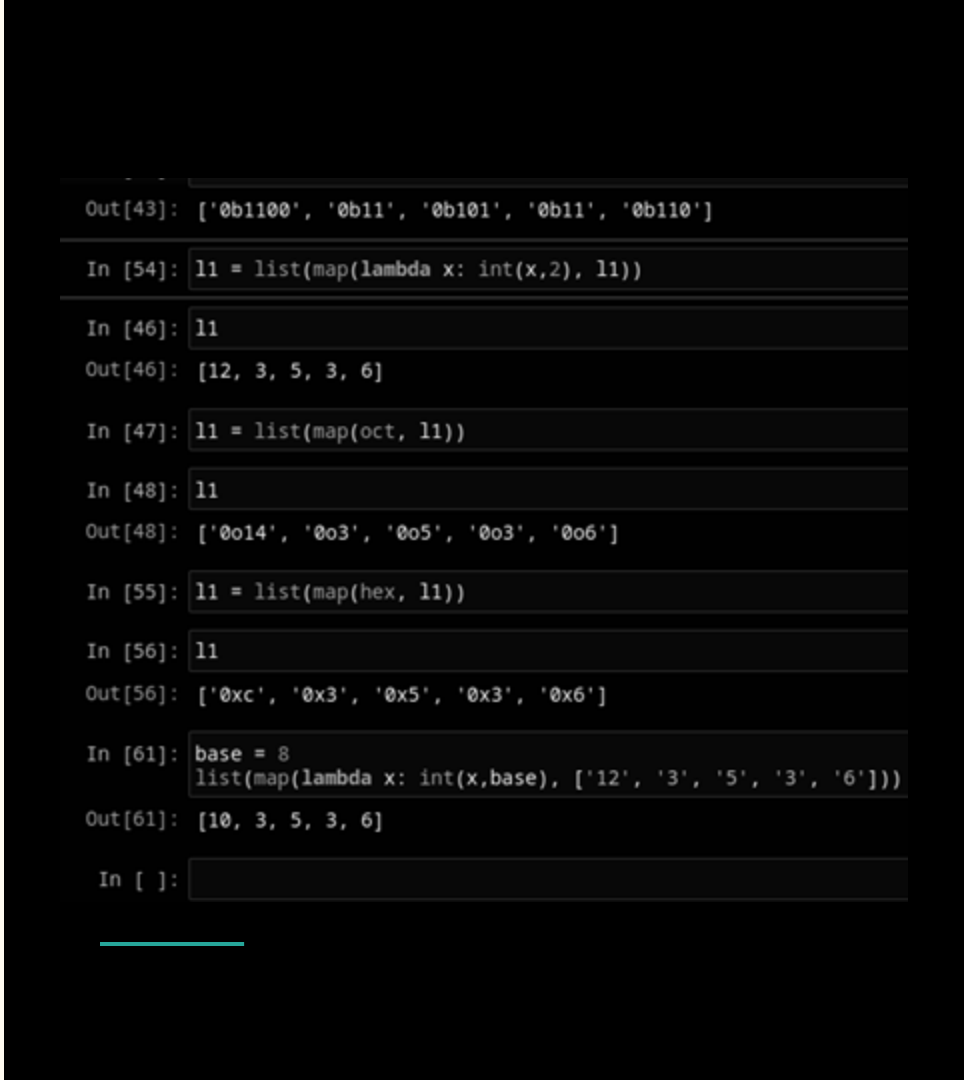
Week 2 - Arrays Functions in NumPy

- Arange Function
- Random Function
- Dimensionality of an Array
- Shape of Array
- Map function of Array



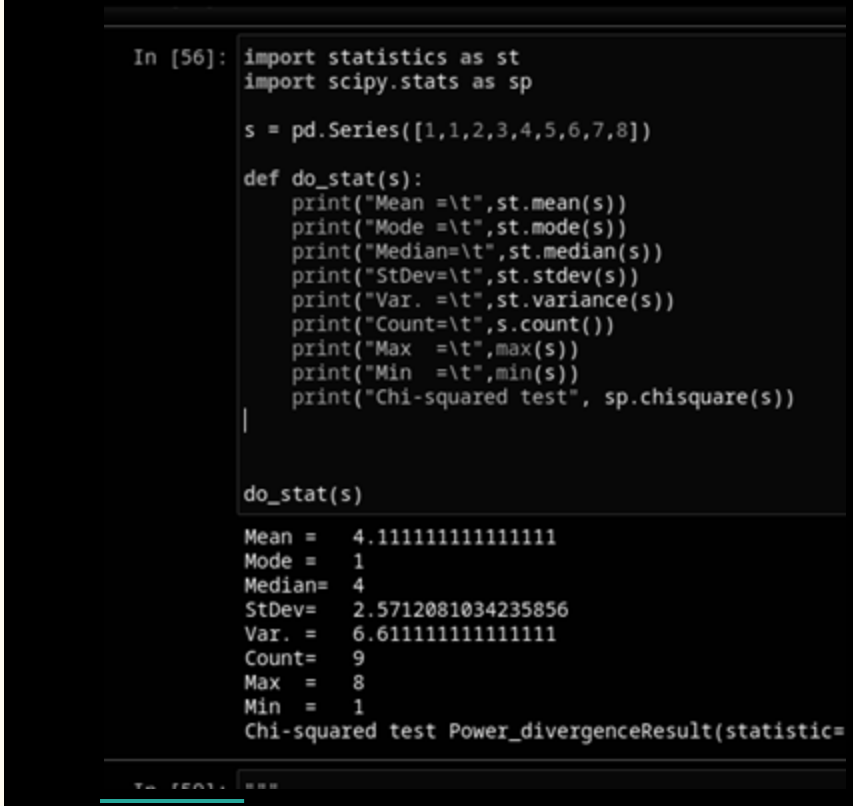
Week 2 - Operations Performed on Arrays

- Indexing and Slicing
- Arithmetic Operations on Array
- Filter and Map on Array
- Reshape function
- Changing Dimension of Arrays



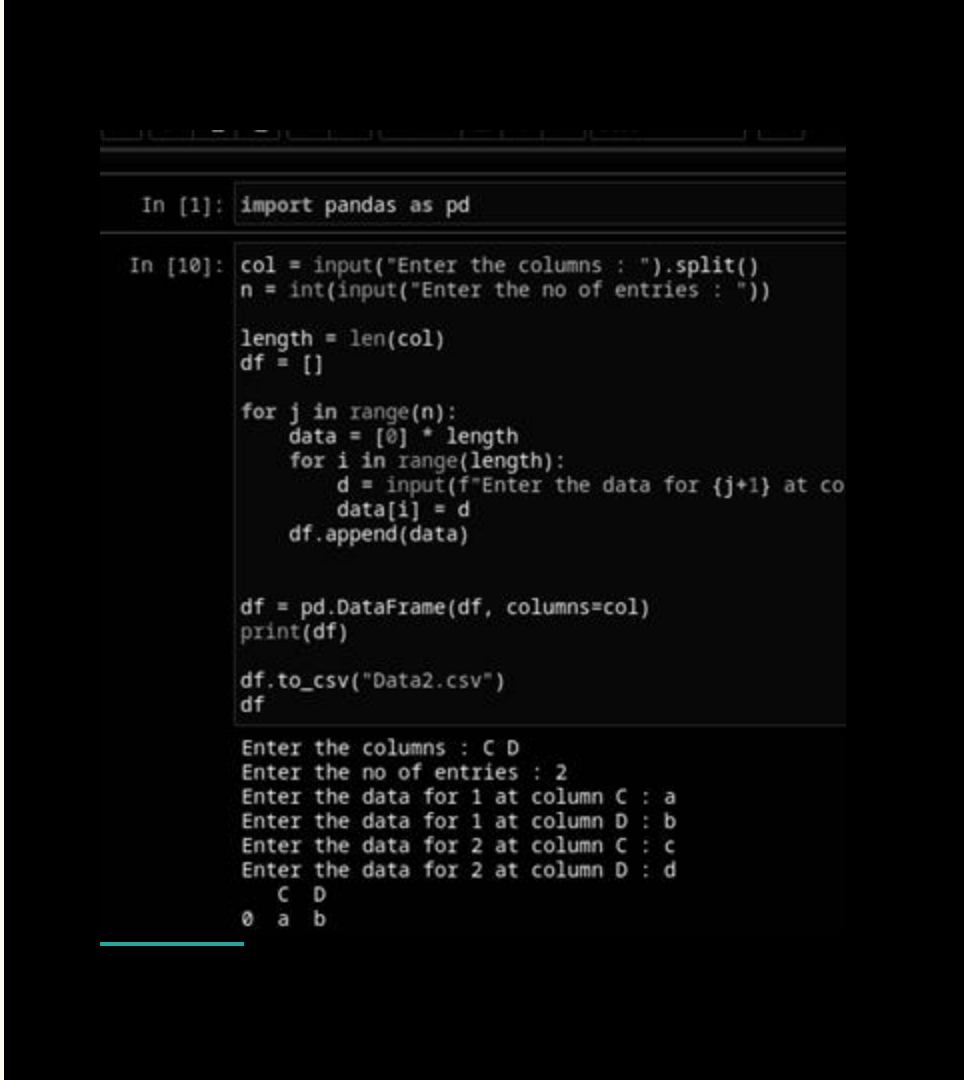
Week 2 - Linear Algebra

- Introduction to Statistics library
- Statistics Theory
- Introduction to SciPy Library
- Advanced Statistic functions with SciPy



Week 2 - Introduction to CSV Files

- CSV File Structure
- Manually creating CSV File
- Saving an Array to CSV File
- Loading data from CSV



```
In [1]: import pandas as pd

In [10]: col = input("Enter the columns : ").split()
         n = int(input("Enter the no of entries : "))

         length = len(col)
         df = []

         for j in range(n):
             data = [0] * length
             for i in range(length):
                 d = input(f"Enter the data for {j+1} at co
                 data[i] = d
             df.append(data)


         df = pd.DataFrame(df, columns=col)
         print(df)

         df.to_csv("Data2.csv")
         df

         Enter the columns : C D
         Enter the no of entries : 2
         Enter the data for 1 at column C : a
         Enter the data for 1 at column D : b
         Enter the data for 2 at column C : c
         Enter the data for 2 at column D : d
            C  D
         0  a  b
```

Week 3

1. Introduction to Pandas
2. Creating and Manipulating DataFrames
3. Websraping data to DataFrames
4. Saving and Loading DataFrames to CSV
5. Connecting Python to MySQL

Week 3 - Introduction to Pandas

- Introduction to the Pandas module
- Creating a DataFrame from Python Collections
- Converting NumPy Arrays to DataFrame

```
import pandas as pd
```

```
data1 = input("Enter the name").split()
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if len(data1) == len(data2):
    df = pd.DataFrame({"Name":data1, "Age":data2})
    print(df)
else:
    print("Data sizes not same")
```
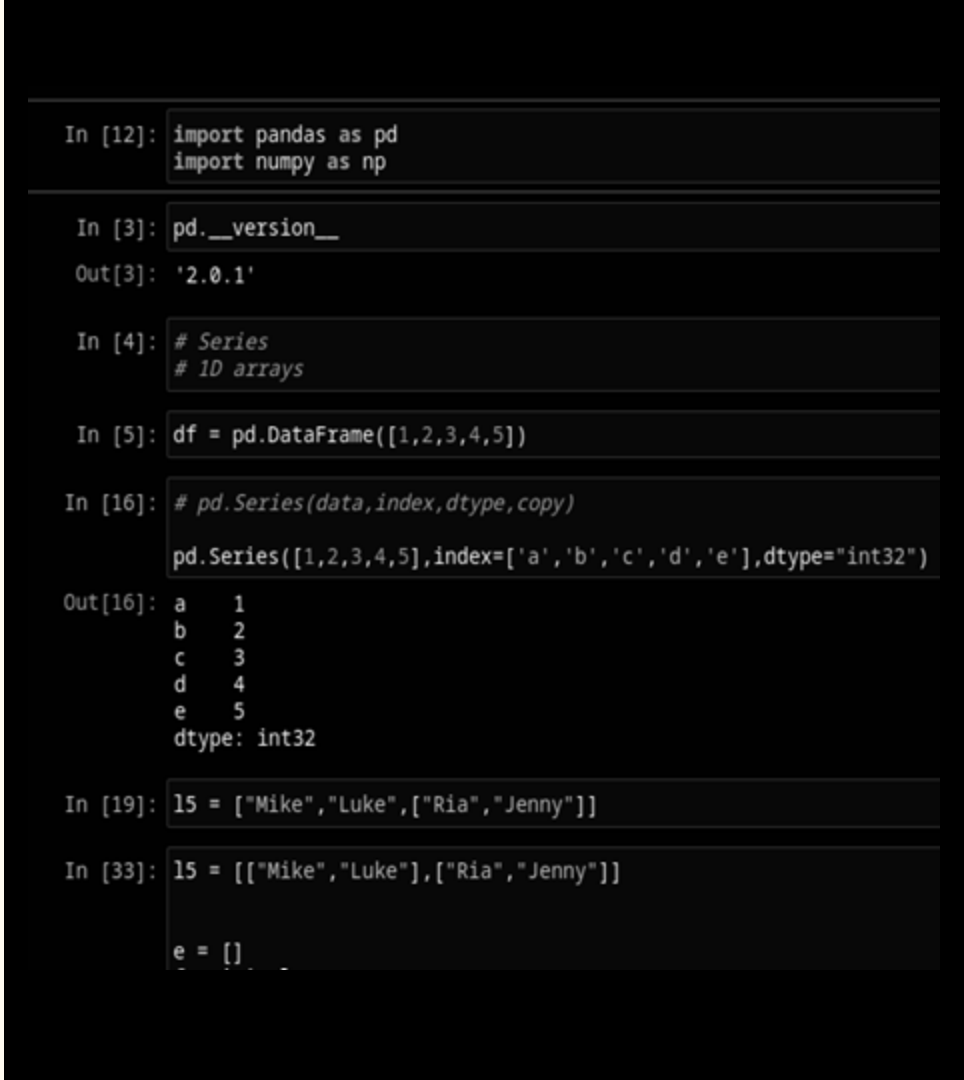

```
Enter the name2 3 '
Enter age2 3 4
  Name  Age
0    2    2
1    3    3
2    '    4
```

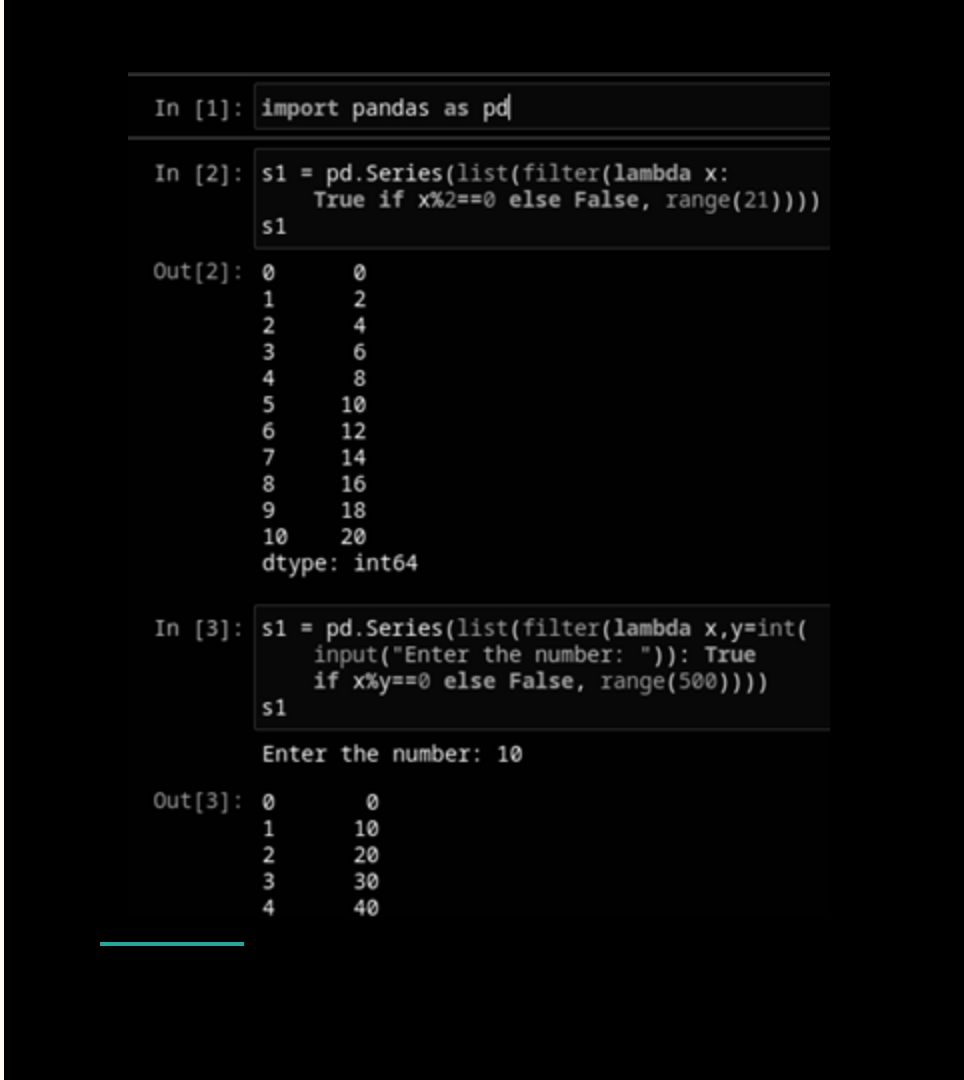
Week 3 - DataFrame Creation and Manipulation

- Creating DataFrame from CSV files
- Adding and Dropping Columns
- Pandas Map function
- Plotting DataFrame
- Introduction to Matplotlib



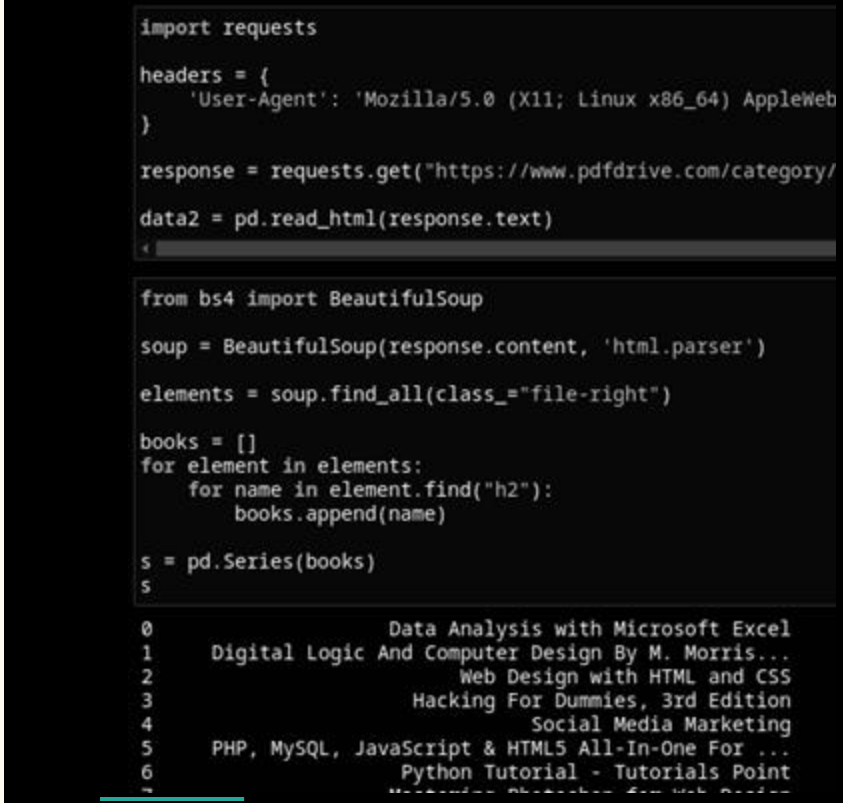
Week 3 - Introduction to Series

- Creating Pandas Series from Python Collections
- Series Operations
- Joining Series to make DataFrame
- Map function on Series



Week 3 - Introduction to Web Scraping

- Web scraping with Pandas
- Requests module introduction
- Converting web data to DataFrames
- Visualizing DataFrames
- Introduction to Beautiful Soup



Conclusion

In conclusion, my internship so far has been a valuable learning experience where I got the opportunity to work on real-world projects and apply my knowledge of data science. During these 3 weeks, I revised fundamental Python concepts and got introduced to various modules such as NumPy, Datetime and Colorama. I also learned about advanced Python concepts such as map, filter, and reduce functions. In Week 2, I worked with arrays using NumPy and learned about various array functions, operations on arrays, linear algebra and statistical analysis. In Week 3, I got introduced to Pandas and learned about data frame creation and manipulation, series and web scraping. Overall, this internship has helped me to deepen my understanding of data science and has prepared me for future challenges in these fields.

Thank you.

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SEM IV (IInd YEAR)