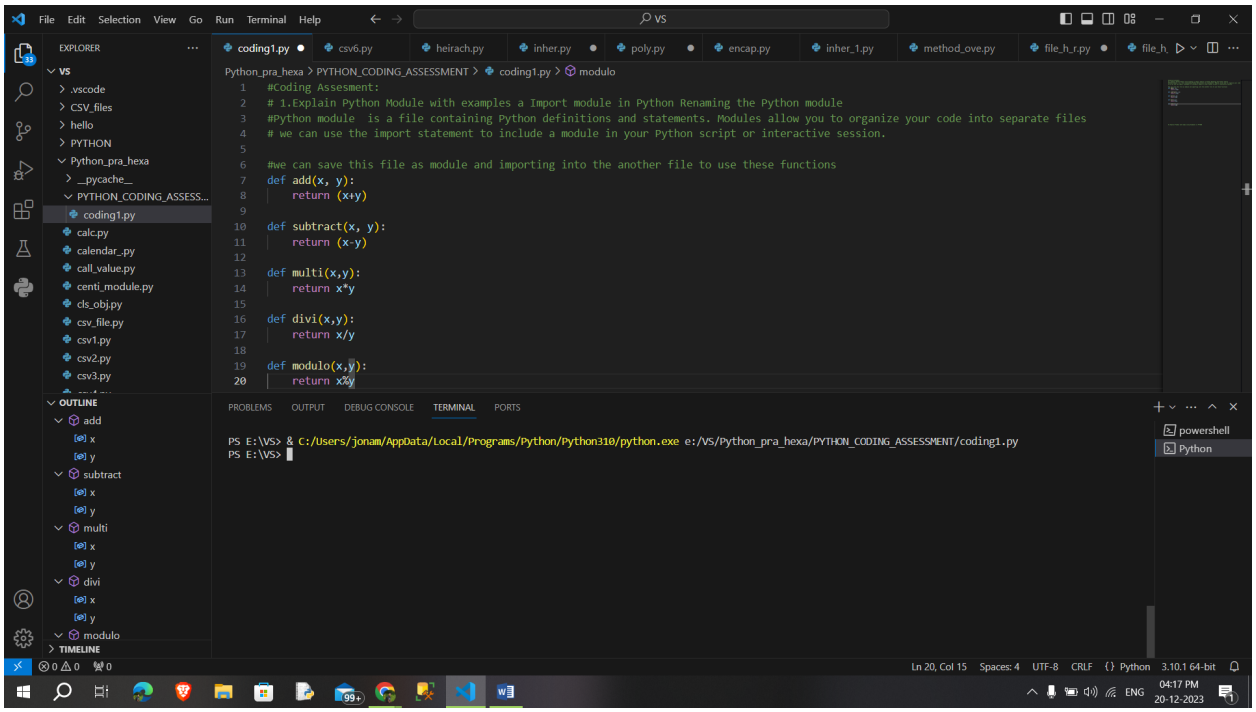
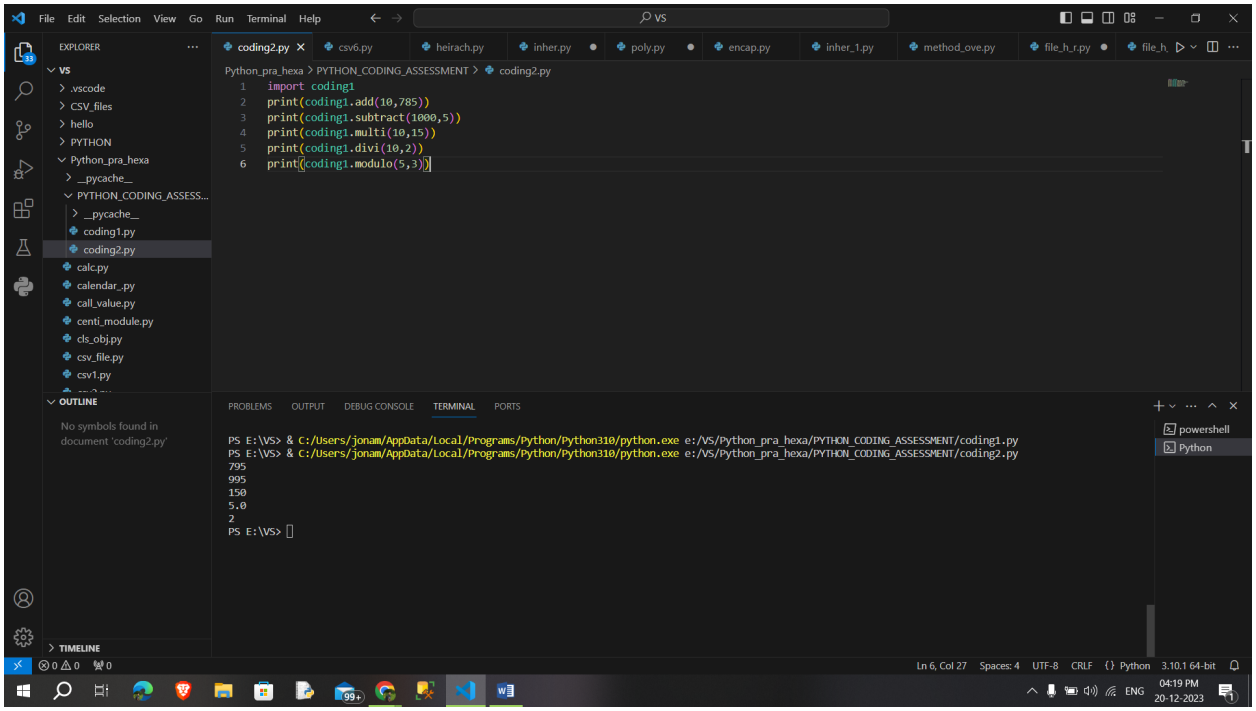
1.Explain Python Module with examples.Import module in Python.Renaming the Python module

Python module-a module is a file containing Python definitions and statements. Modules allow you to organize your code into separate files, making it easier to manage and maintain.

Creating own module and importing it in the another file,



Importing the own module and printing the output,



Importing math functions are square root,pi value,degree,radians etc,

```python
#use math functions by importing math
import math
#from math import *  - same as import math

print("Square root :",math.sqrt(25))                                    # using square root(sqrt)

print("Pi value:",math.pi)                                             # using pi

print("Degree:",math.degrees(5))                                       # 5 radians

print("Radians:",math.radians(55))                                     # 55 degrees

print("Sin value:",math.sin(2))                                        # Sine of 2 radians

print("Cos value:",math.cos(0.5))                                      # cos of 0.5 radians

print("Tan value:",math.tan(0.25))                                     # tan of 0.25 radians

print("Factorial value:",math.factorial(5))                            #5-120
```

```
 0.9092974268256817
Cos value:
 0.8775825618903728
Tan value:
 0.25534192122103627
Factorial value:
 120
PS E:\VS> & C:/Users/jonam/AppData/Local/Programs/Python/Python310/python.exe e:/VS/Python_pra_hexa/PYTHON_CODING_ASSESSMENT/coding3.py
Square root : 5.0
Pi value: 3.141592653589793
Degree: 286.4788975654116
Radians: 0.9599310885968813
Sin value: 0.9092974268256817
Cos value: 0.8775825618903728
Tan value: 0.25534192122103627
Factorial value: 120
PS E:\VS>
```

Importing random and creating alias name as ra,

```python
import random as ra                                   # alias name as ra

print("printing random integer between 0 and 10",ra.randint(0, 10))

print("random floating point number between 0 and 1",ra.random())

print("Print random number between 0 and 100",ra.random() * 100)

L = [1, 45, False, 700, "Hey there", "Java", "back","Python"]
print(ra.choice(L))                                   # using choice function in random module for choosing  a random element from
```

```
Factorial value:
 120
PS E:\VS> & C:/Users/jonam/AppData/Local/Programs/Python/Python310/python.exe e:/VS/Python_pra_hexa/PYTHON_CODING_ASSESSMENT/coding3.py
Square root : 5.0
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Radians: 0.9599310885968813
Sin value: 0.9092974268256817
Cos value: 0.8775825618903728
Tan value: 0.25534192122103627
Factorial value: 120
PS E:\VS> & C:/Users/jonam/AppData/Local/Programs/Python/Python310/python.exe e:/VS/Python_pra_hexa/PYTHON_CODING_ASSESSMENT/coding4.py
printing random integer between 0 and 10 4
random floating point number between 0 and 1 0.14477022461232392
Print random number between 0 and 100 91.96717726446961
45
PS E:\VS>
```
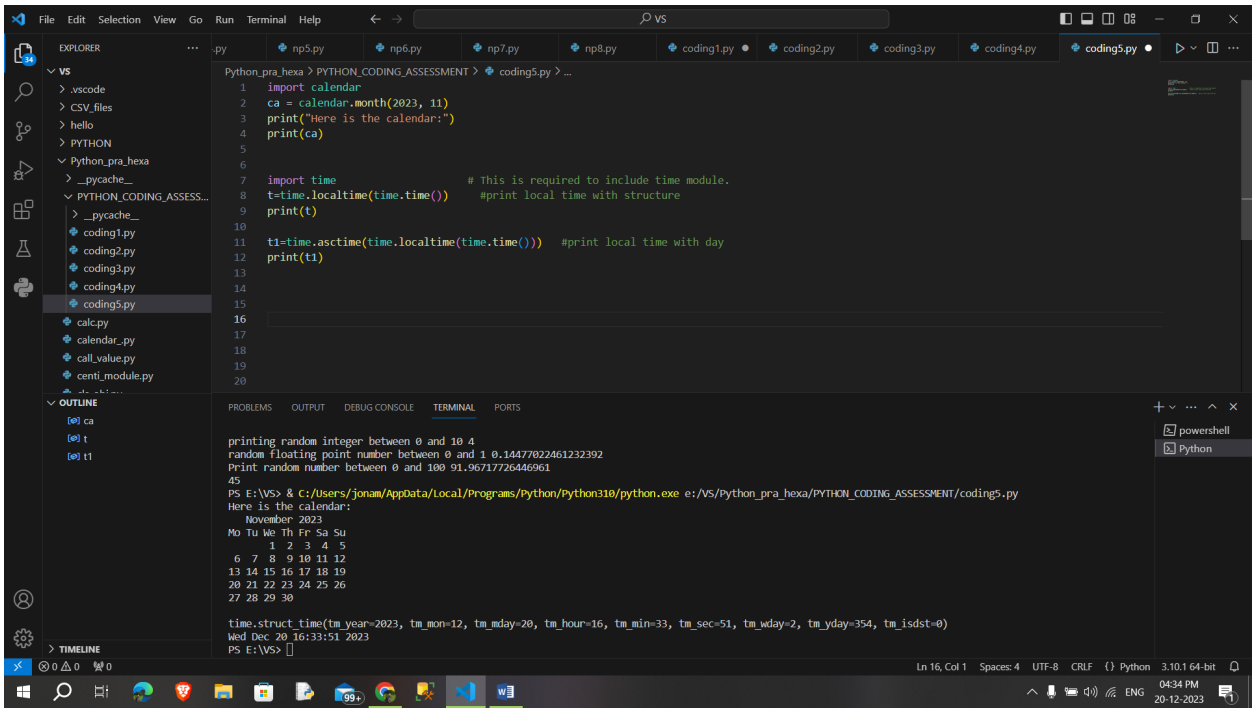
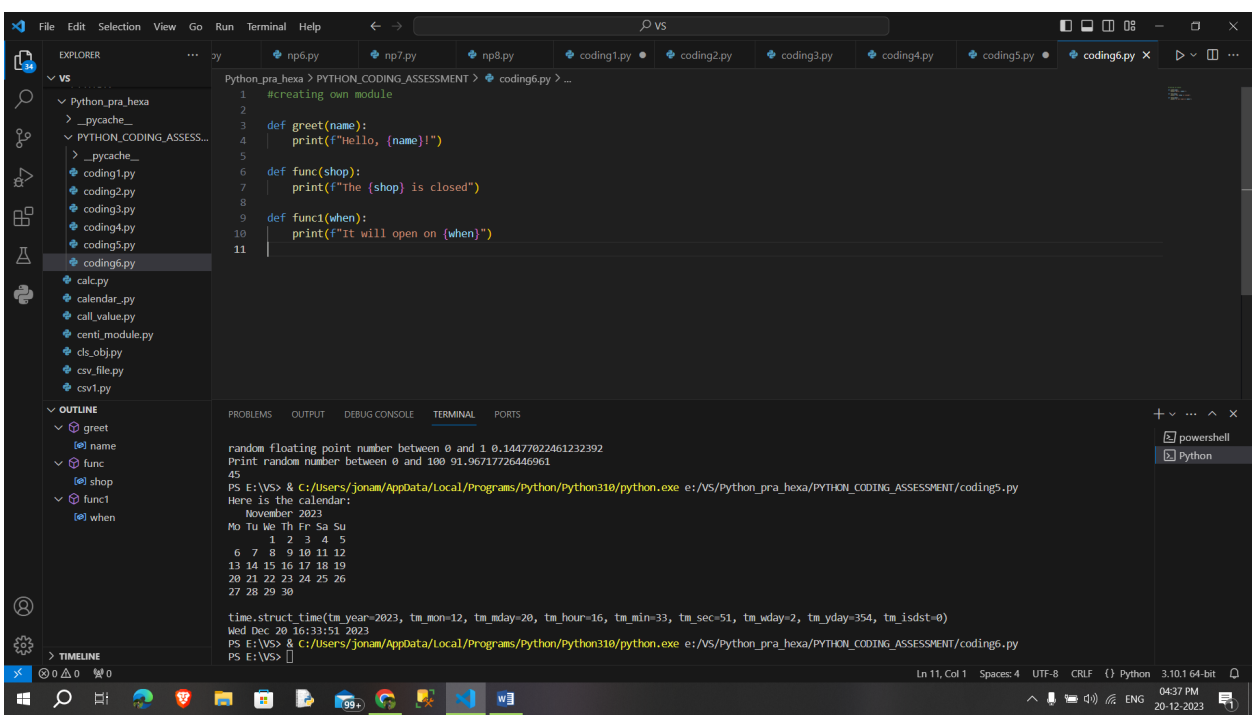
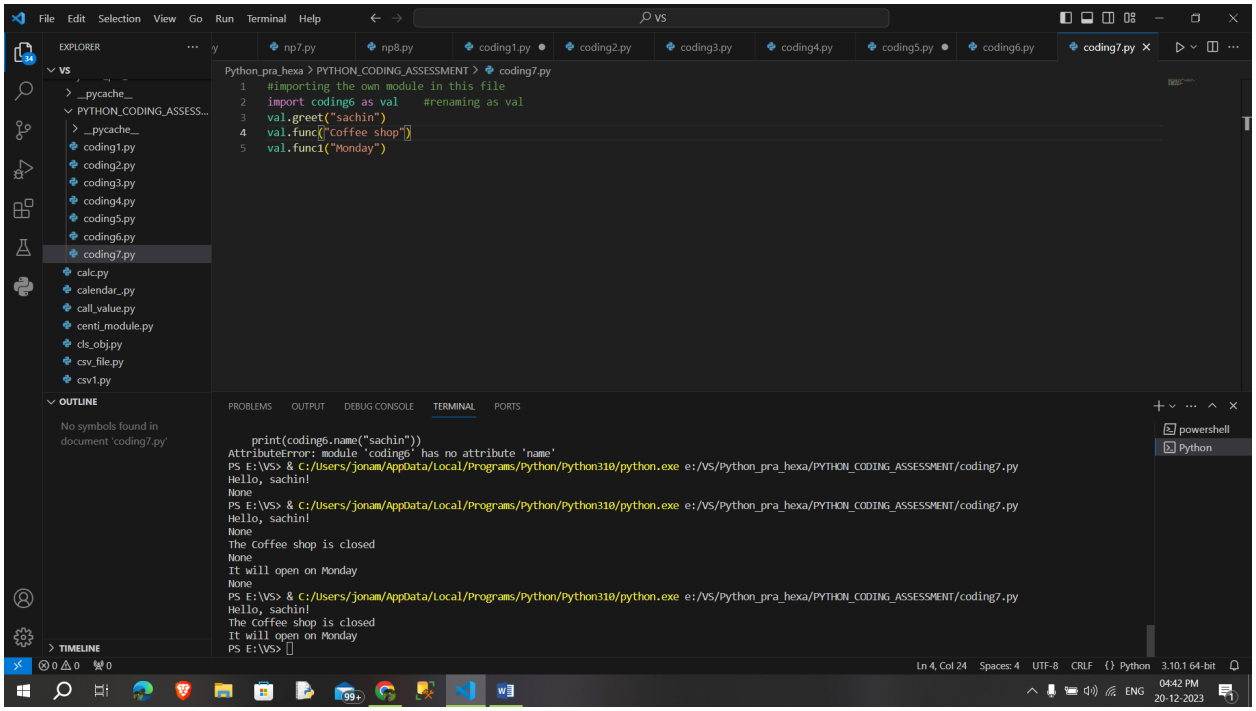

Importing calendar and time module to get the local time and the particular month,



Creating own module called coding6 and importing in the next file,



Importing coding6 module to another file and renaming as val and executing it,



2.Explain Pandas and numpy using Examples in PYTHON

Pandas-Pandas is a data manipulation and analysis library. It provides data structures like Series and DataFrame, which are particularly useful for working with structured data such as CSV files or SQL tables.

Numpy-NumPy is a powerful numerical computing library in Python. It provides support for large, multi-dimensional arrays and matrices, along with mathematical functions to operate on these arrays.

By using pandas we can access the csv files,reading the file

```python
#2.Explain Pandas and numpy using Examples in PYTHON
#pandas It is a data manipulation and analysis library. by using pandas we can access csv files read and write

import pandas as pd       #importing pandas
data=pd.read_csv('E:\VS\Python_pra_hexa\Salary_Data.csv')     #reading the csv file by using read_csv
print(data)
print(data.columns)
print(data.Salary)
```

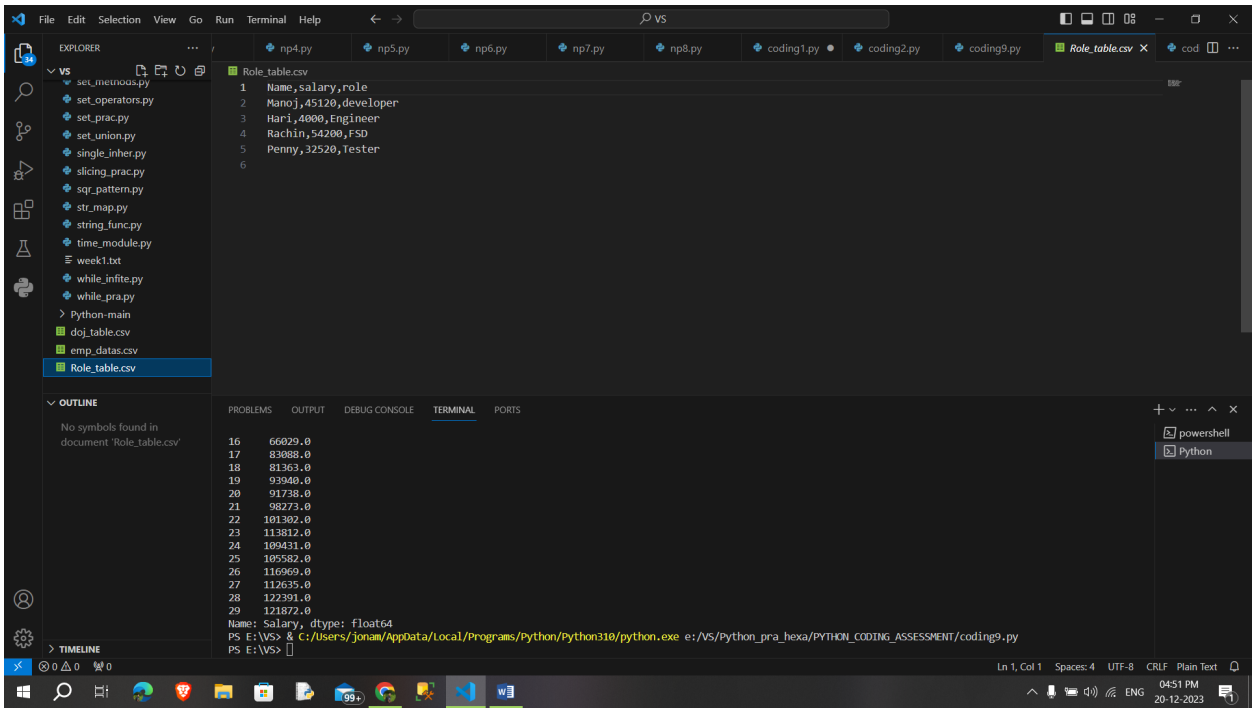
```
PS E:\VS> & C:/Users/jonam/AppData/Local/Programs/Python/Python310/python.exe e:/VS/Python_pra_hexa/PYTHON_CODING_ASSESSMENT/coding8.py
    YearsExperience    Salary
0               1.1   39343.0
1               1.3   46205.0
2               1.5   37731.0
3               2.0   43525.0
4               2.2   39891.0
5               2.9   56642.0
6               3.0   60150.0
7               3.2   54445.0
8               3.2   64445.0
9               3.7   57189.0
10              3.9   63218.0
11              4.0   55794.0
12              4.0   56957.0
13              4.1   57081.0
14              4.5   61111.0
15              4.9   67938.0
16              5.1   66029.0
17              5.3   83088.0
18              5.9   81363.0
19              6.0   93940.0
20              6.8   91738.0
21              7.1   98273.0
22              7.9  101302.0
23              8.2  113812.0
24              8.7  109431.0
25              9.0  105582.0
26              9.5  116969.0
27              9.6  112635.0
28             10.3  122391.0
```

Using pandas writing and creating the csv file,

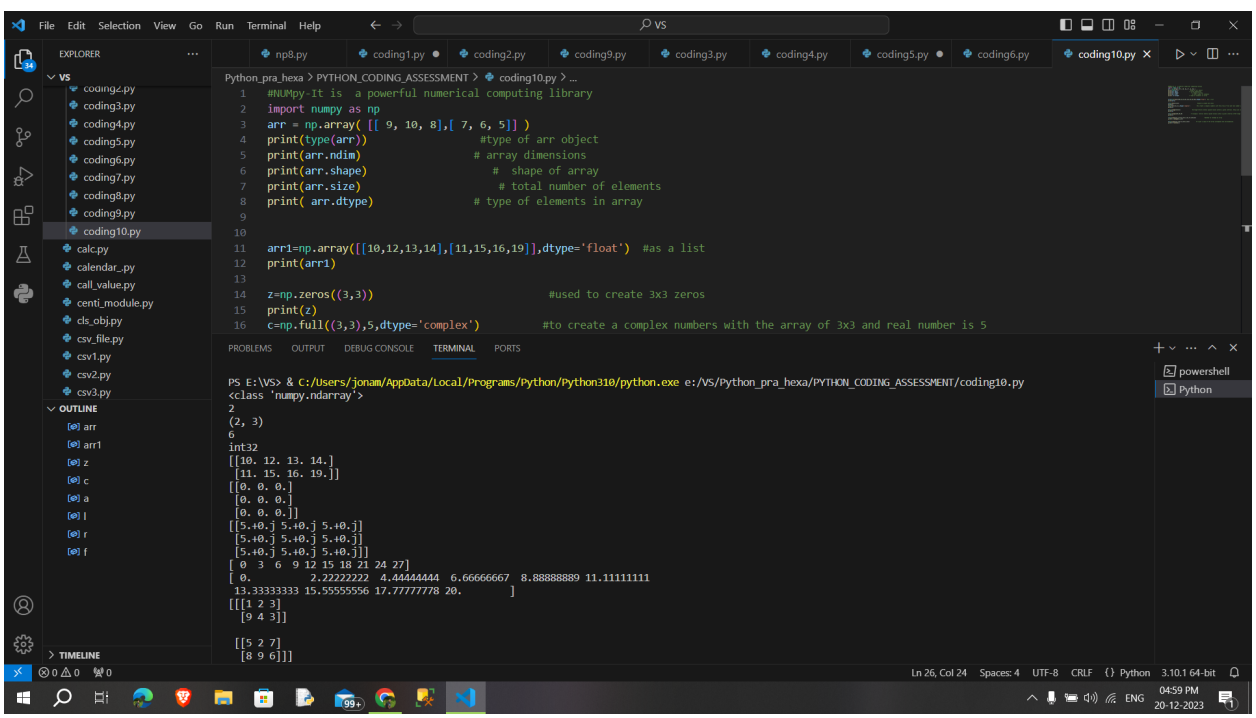
```python
#by using pandas we can write a csv files
import pandas as pd
header=['Name','salary','role']
rows=[["Manoj",45120,"developer"],["Hari",4000,"Engineer"],["Rachin",54200,"FSD"],["Penny",32520,"Tester"],]
data=pd.DataFrame(rows,columns=header)      #using dataframe
data.to_csv('Role_table.csv',index=False)   #to_csv used to convert this data into the csv files
```

```
16     66029.0
17     83088.0
18     81363.0
19     93940.0
20     91738.0
21     98273.0
22    101302.0
23    113812.0
24    109431.0
25    105582.0
26    116969.0
27    112635.0
28    122391.0
29    121872.0
Name: Salary, dtype: float64
PS E:\VS> & C:/Users/jonam/AppData/Local/Programs/Python/Python310/python.exe e:/VS/Python_pra_hexa/PYTHON_CODING_ASSESSMENT/coding9.py
```

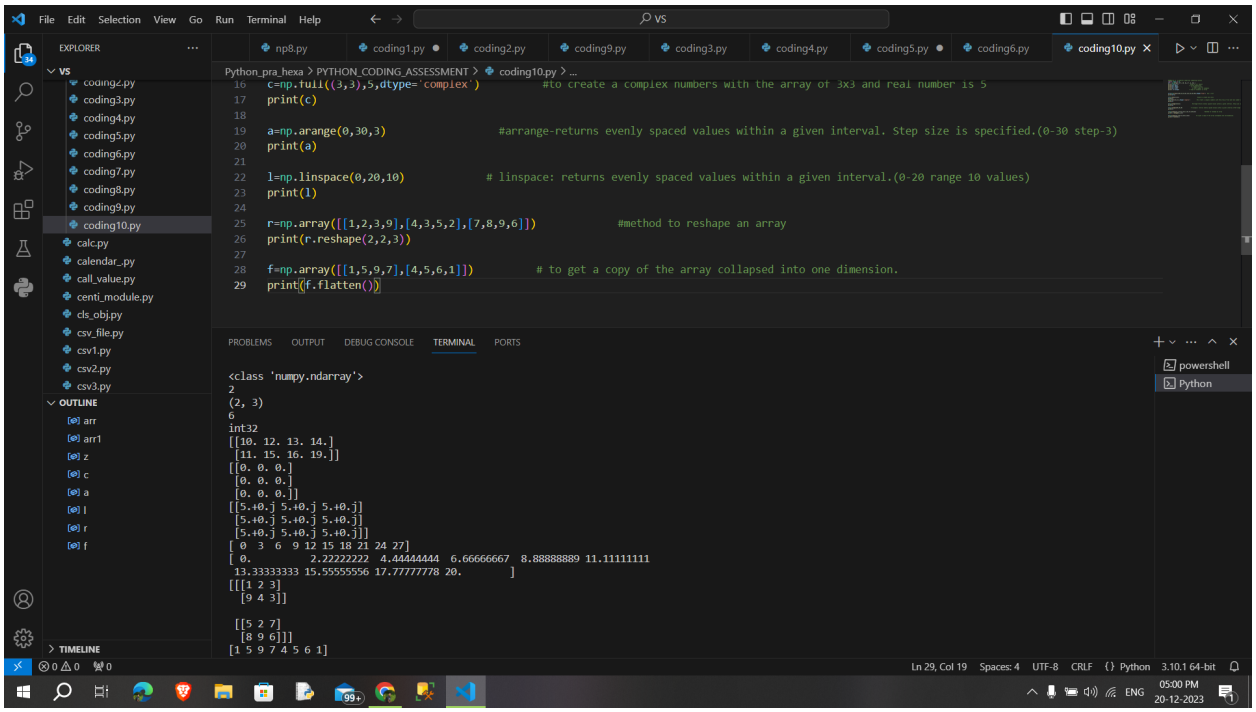
The created csv file,



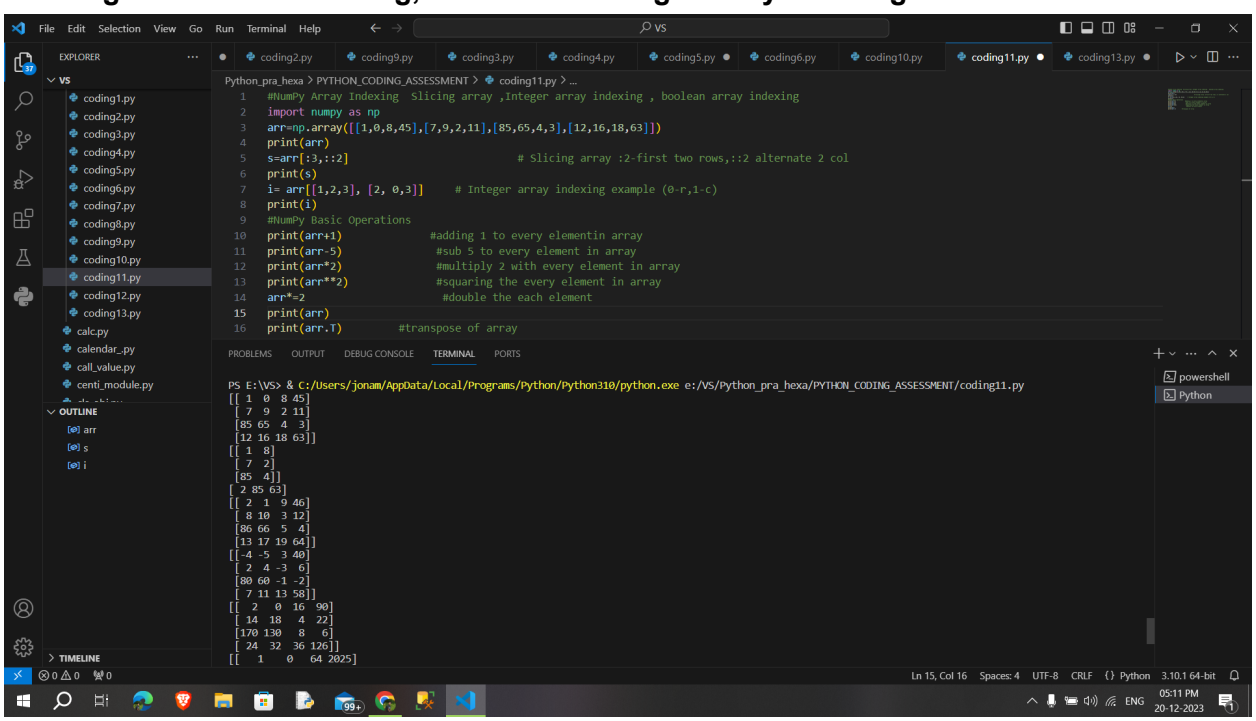
Using numpy



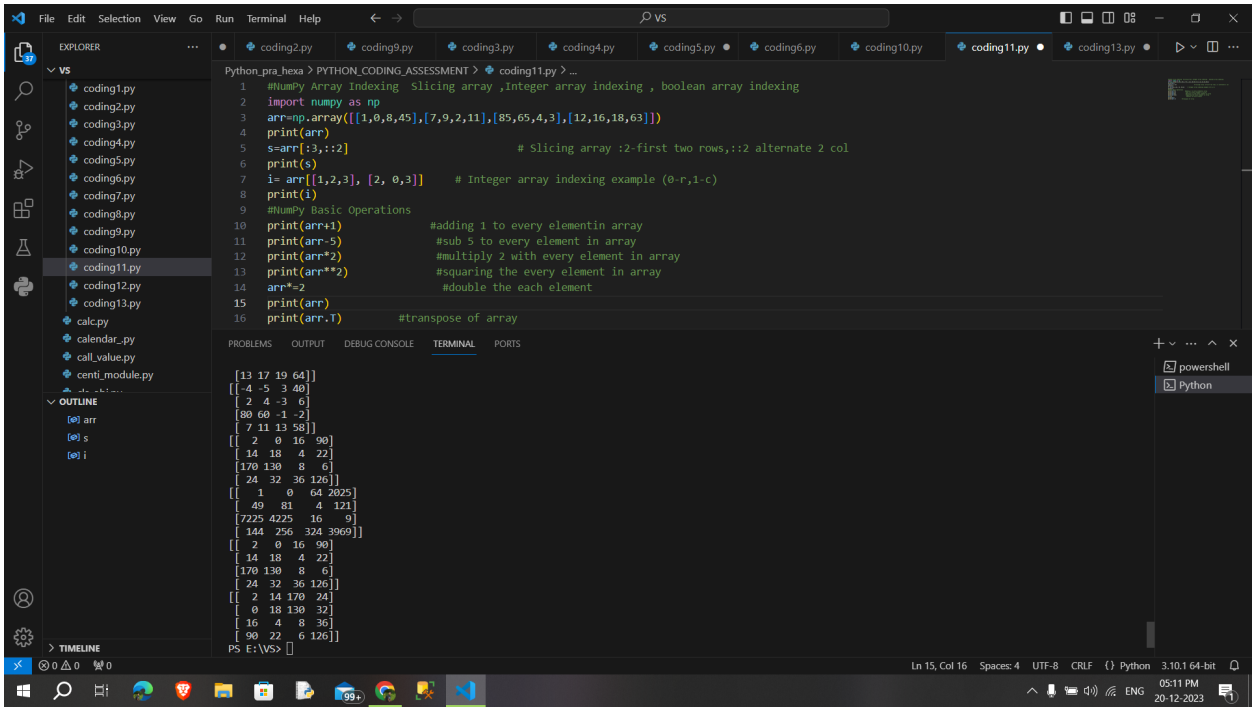
Continuation,



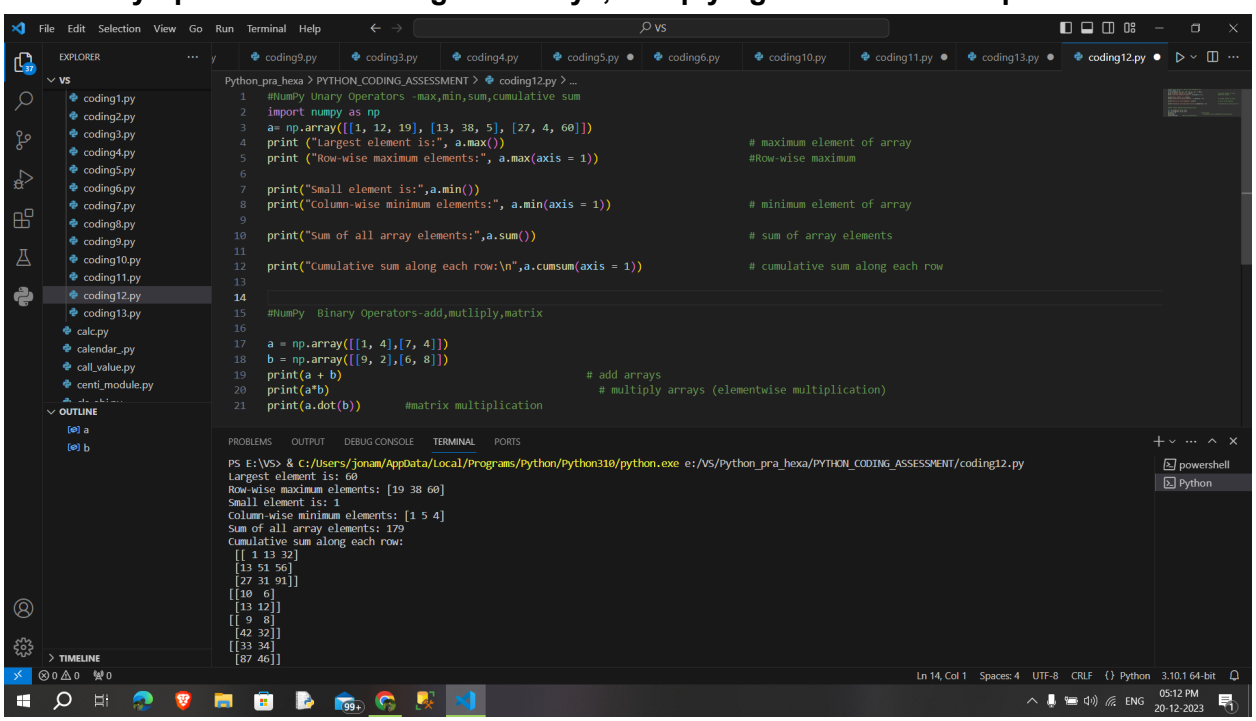
Numpy operations and indexing methods, operations are add,sub,mul,square,double and indexing methods are slicing,boolean and integer array indexing.



Continuation,



Numpy unary and binary operators,unary operators are max,min,sum,cumulative sum and binary operators are adding two arrays,multiplying and matrix multiplication.



Numpy sorting methods,