ML_Assignment_3

#700742289

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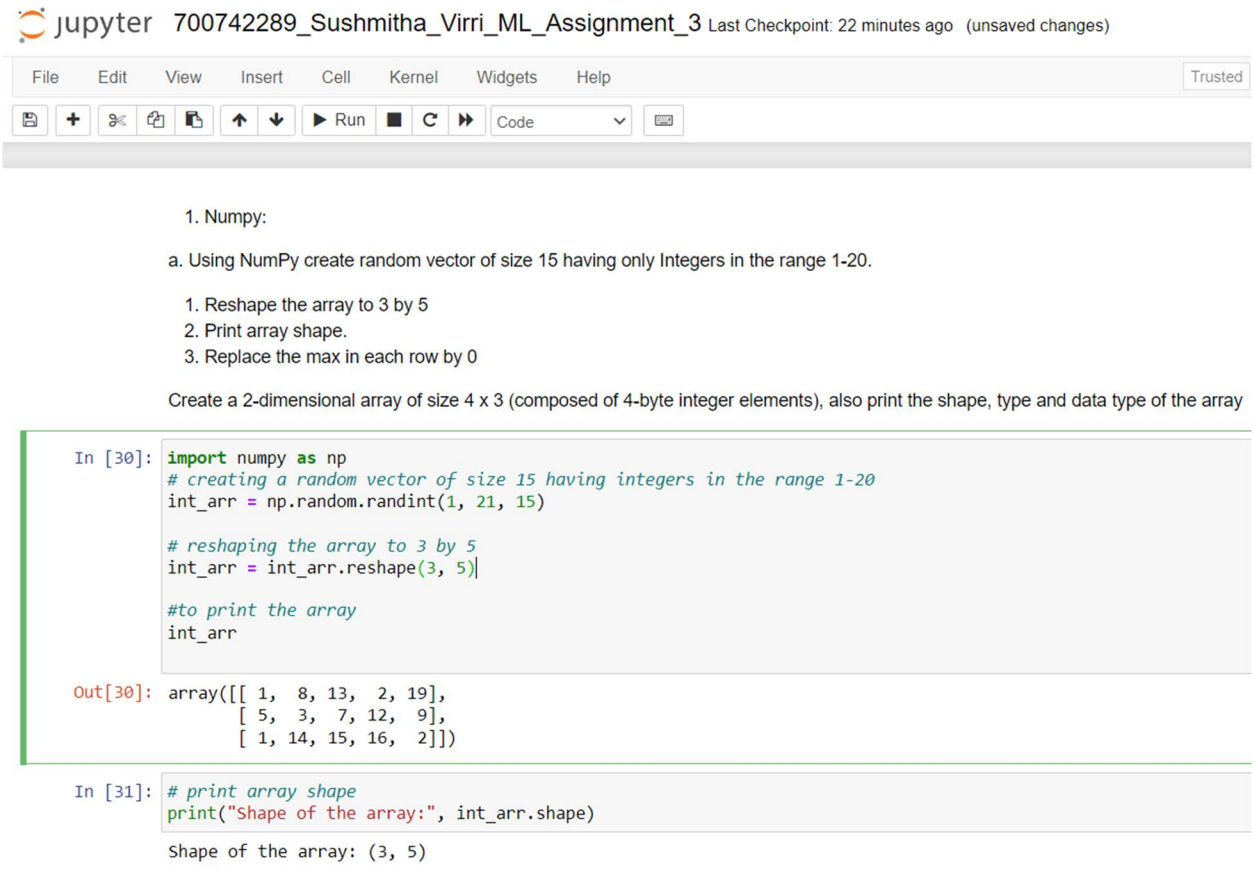
GitHub Link: https://github.com/Sushmitha-Virri/MLAssignments21627

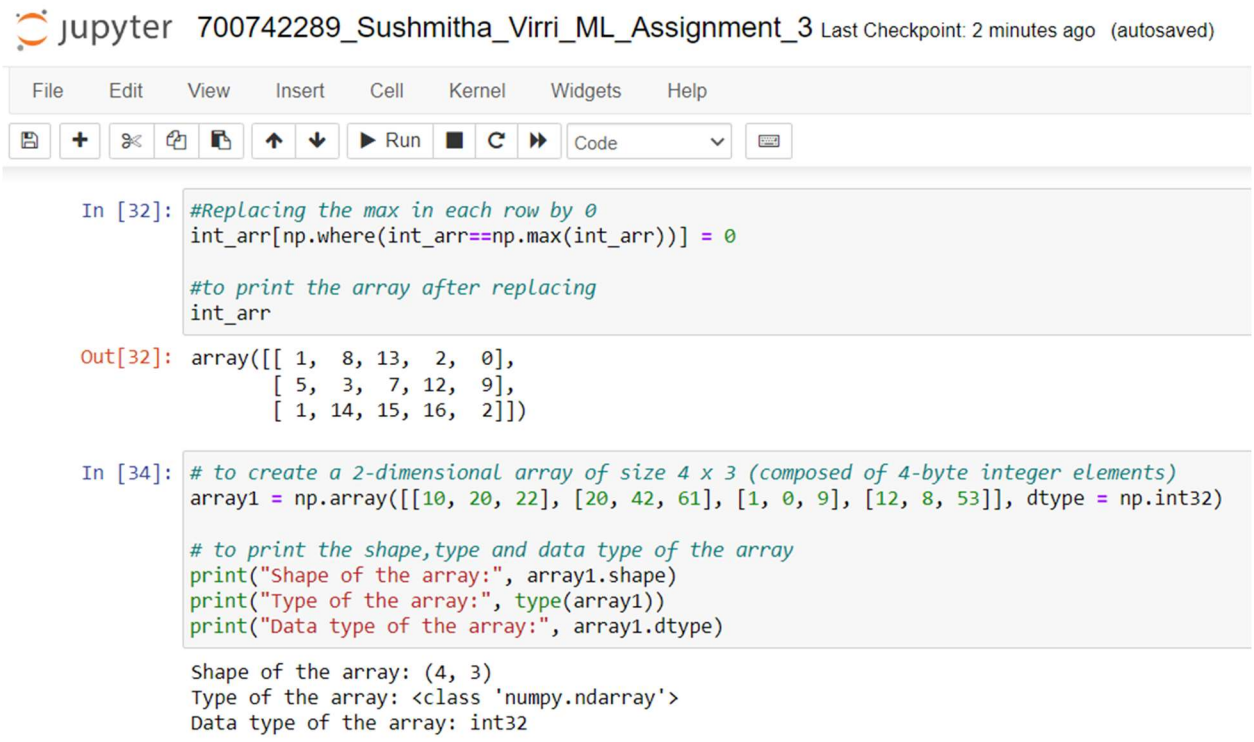
Video Link: https://drive.google.com/file/d/1Z3GyD6d-eRTt86gKA7Uqe48vgqOH59vf/view?usp=share_link

1.Numpy



In this code I have imported NumPy library from python. With the help of random.randint() function I have created a One-Dimensional array with random integers in the range of 1-20

reshape() is the function to reshape the one-dimensional array into a two-dimensional array of size 3 by 5



With the help of NumPy's where() function I have found the positions of the maximum values in the array using max() function in python, replaced them with '0'. Printed the modified array.

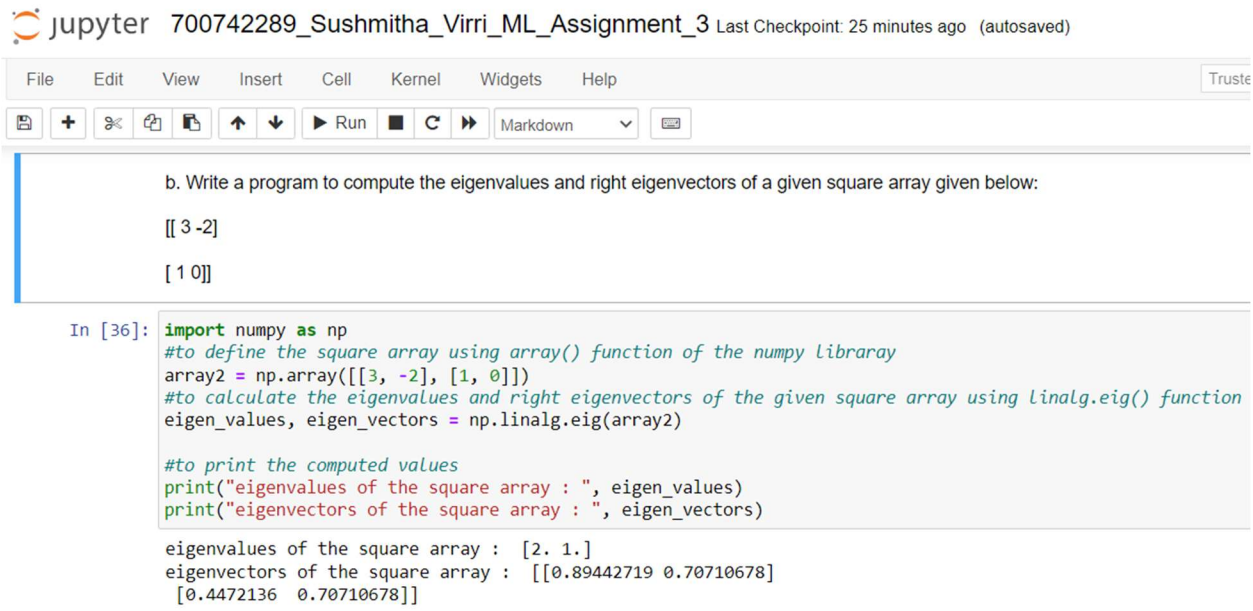
I have created the 2-dimensional array using the array() function and have set the datatype of the array to be 32-bit integer.

Then print() function

to print shape of the array using shape property,

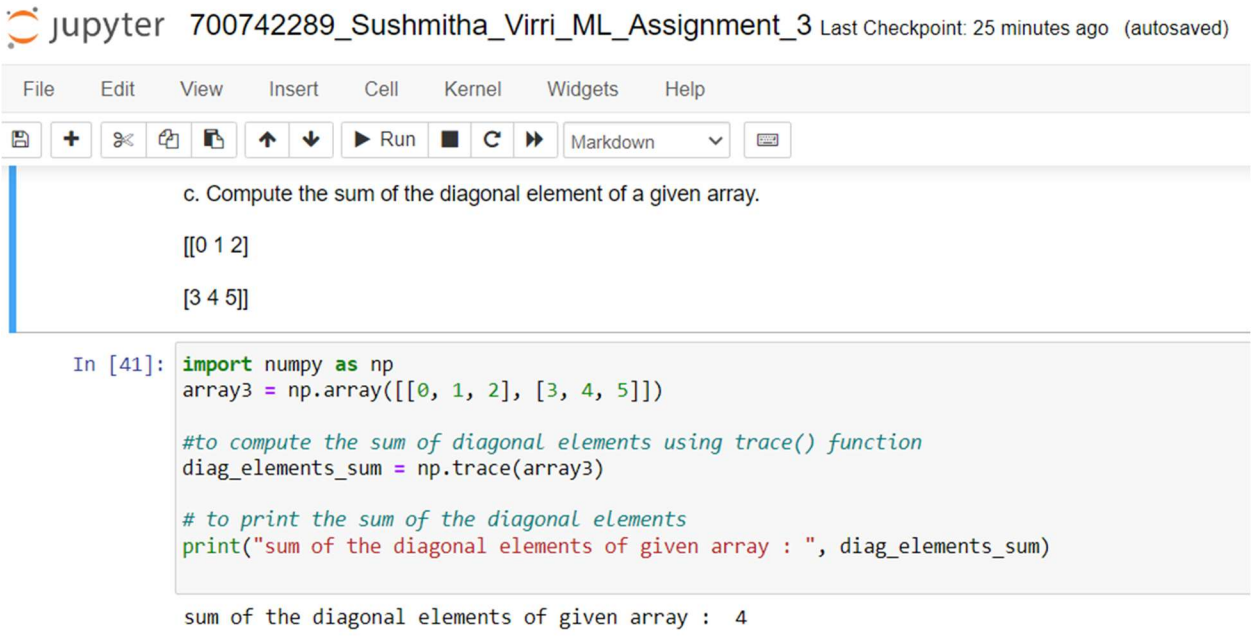
to print the type of the array using type() function,

to print the data type of the array using dtype attribute of the array.



For this question I have created an array called ‘array2’ with the given values.

Linalg.eig() function of NumPy is used to calulate the eigenvalues and eigenvectors of the array. The print() function is used to print the labels along with the eigen_values and eigen_vectors.



In this code I have imported NumPy library from python. Then created an array called ‘array3’ using the NumPy’s array() function.

The trace() function is used to calculate the sum of the diagonal elements and then print the sum of the diagonal elements using the print function.

2. Matplotlib

(1). Write a Python programming to create a below chart of the popularity of programming Languages.

(2). Sample data: Programming languages: Java, Python, PHP, JavaScript, C#, C++

Popularity: 22.2, 17.6, 8.8, 8, 7.7, 6.7

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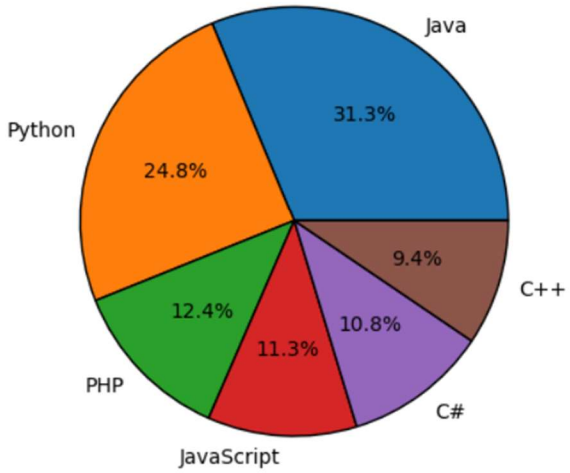
In [46]:
```
import matplotlib.pyplot as plt
# defining the programming languages as a list
prg_lang = ['Java', 'Python', 'PHP', 'JavaScript', 'C#', 'C++']

#defining their popularity
popularity = [22.2, 17.6, 8.8, 8, 7.7, 6.7]

#using plt.pie() function to create a pie chart
#input data is the popularity list and labels is the prog_lang list
plt.pie(popularity, labels=prg_lang, autopct = '%1.1f%%', wedgeprops = {'edgecolor' : "black"})

#to show the plot
plt.show()
```



For this Matplotlib question I have imported Matplotlib library from python and pyplot module from Matplotlib to create pie chart.

Next, I have defined the list of programming languages and their popularity percentages.

Then with the help of pie() function of the Matplotlib created a pie chart with

Input data: ‘popularity’ list

Labels foe each slice of pie chart is the programming language list.

autopct to calculate percentages and display on each slice with the specified format.

wedgeprops: To specify the appearance of wedges in the pie chart with edge color set to black.