SUMANTH S
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PYTHON LAB: NUMPY STATISTICAL FUNCTION

QUESTIONS:

How to find the mean of every NumPy array in the given list?
Input: list = [np.array([3, 2, 8, 9]), np.array([4, 12, 34, 25, 78]), np.array([23, 12, 67])]

```python
import numpy as np
# Initialize List values
list = [ np.array([3, 2, 8, 9]), np.array([4, 12, 34, 25, 78]), np.array([23, 12, 67])]
# creating an empty mean list
mean_of_every_numpy_array = []
# Traversing the list
for array in list:
    mean_of_every_numpy_array.append(np.mean(array)) # finding mean for each list.
    # print the mean
print("The mean of every array is:", mean_of_every_numpy_array)
```

Output:
The mean of every array is: [5.5, 30.6, 34.0]

Compute the median of the flattened NumPy array
Input: x_odd = np. array([1, 2, 3, 4, 5, 6, 7])

```python
import numpy as np
x_odd = np.array([1, 2, 3, 4, 5, 6, 7]) # Input array
x_flat = x_odd.flatten() # Flatten the array
median = np.median(x_flat) # Compute the median using median() function.
# print median
print("Median of the flattened NumPy array:", median)
```

Output:
Median of the flattened NumPy array: 4.0

Compute the standard deviation of the NumPy array
Input: arr = [20, 2, 7, 1, 34]

```python
# Import the necessary library
import numpy as np
# Define the input array
arr = [20, 2, 7, 1, 34]
# Compute the standard deviation using the std() function
standard_deviation = np.std(arr)
# Print the standard deviation
print("Standard deviation of the numpy array =",standard_deviation)
```

Output:
Standard deviation of the numpy array = 12.576167937809991

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4. Suppose you have a CSV file named 'house_prices.csv' with price information, and you want to perform the following operations:
1. Read the data from the CSV file into a NumPy array.
2.Calculate the average of house prices.
3.Identify house price above the average
4.Save the list of high prices to a new CSV file

i)
```python
import numpy as np
# Define the filename
filename = 'house_prices.csv'
# Read the data from the CSV file into a NumPy array
data = np.genfromtxt(filename, delimiter=',',)
# Print the data
print(data)
```

Output:
```
[[     nan       nan]
 [0.00000e+00 6.00000e+03]
 [1.00000e+00 1.37990e+04]
 ...
 [1.87528e+05 4.34300e+03]
 [1.87529e+05 4.23100e+03]
 [1.87530e+05 6.16200e+03]]
```

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ii)

```python
import numpy as np
# Define the filename
filename = 'house_prices.csv'
# Read the data from the CSV file into a NumPy array
data = np.genfromtxt(filename, delimiter=',')
# Calculate the average of house prices
average_price = np.mean(data[10])
# Print the average price
print("The average house price is:", average_price)
```

Output:

The average house price is: 6092.0

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iii)

```python
import numpy as np
# Define the filename
filename = 'house_prices.csv'
# Read the data from the CSV file into a NumPy array
data = np.genfromtxt(filename, delimiter=',')
# Calculate the average of house prices
average_price = np.mean(data[10])
# Identify house price above the average
house_prices_above_average = data[10][data[10] > average_price]
# Print the house prices above the average
print("House prices above the average:")
print(house_prices_above_average)
```

Output:

House prices above the average:
[12174.]

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iv)

```python
import csv
# Open a new CSV file for writing
with open('high_prices.csv', 'w', newline='') as f:
    writer = csv.writer(f)
    # Write the header row
    writer.writerow(['House Price'])
    # Write the data rows
    for price in house_prices_above_average:
        writer.writerow([price])
```

Output:

1 entry [Filter] ⧉

House Price
12174.0

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