PYTHON LAB – 17

NUMPY STATISTICAL FUNCTION

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QUESTIONS

1. 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])]
2. Compute the median of the flattened NumPy array
   Input:
   x_odd = np. array([1, 2, 3, 4, 5, 6, 7])
3. Compute the standard deviation of the NumPy array
   Input: arr = [20, 2, 7, 1, 34]
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.

1. 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])]

```
#importing numpy
import numpy as np
list = [ np.array([3, 2, 8, 9]), np.array([4, 12, 34, 25,
78]), np.array([23, 12, 67]) ] #Given array

#printing statement
print("The mean of arrays are")

for array in list: #iterating each array
  mean = np.mean(array) #finding mean
  print(mean) #printing mean
```

OUTPUT:

The mean of arrays are

5.5

30.6

34.0

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

```
#importing numpy
import numpy as np
x_odd = np. array([1, 2, 3, 4, 5, 6, 7]) #Given
array

#finding median
median = np.median(x_odd)

#printing array and median
print("The given array is",x_odd)
print("The median of given array is",median)
```

OUTPUT:

The given array is [1 2 3 4 5 6 7]

The median of given array is 4.0

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

```
#importing numpy
import numpy as np
list = [20, 2, 7, 1, 34] #given list

#converting list to numpy array
arr = np.array(list)

#printing numpy array
print("The numpy array is",arr)

#calculating Standard deviation
Std_dev = np.std(arr)

#printing Standard deviation
print("The standard deviation is",Std_dev)
```

OUTPUT:

The numpy array is [20 2 7 1 34]

The standard deviation is 12.576167937809991

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.

```
#import numpy
import numpy as np
#file location file_name =
"C:/Users/HP/Downloads/house_prices.csv"
#read data from csv
data = np.genfromtxt(file_name, delimiter=',',
skip_header=1,dtype=int)

#splitting data to read house id and prices
house_ids = data[:,0]
prices = data[:,1]

#finding average of prices
average_price = np.mean(prices)
print("Average house price:", average_price)
#checking high prices houses
high_prices = prices[prices > average_price]
high_house_ids = house_ids[prices > average_price]

#saving high prices houses as high_prices.csv
high_prices_houses =
np.column_stack((high_house_ids, high_prices))
np.savetxt('C:/Users/HP/Desktop/DANLC/high_prices.c
sv', high_prices_houses,delimiter=',', fmt='%d')

#printing high prices houses
print("High prices with House IDs:\n",
high_prices_houses)
```

OUTPUT:

Average house price: 7584.263018456919

High prices with House IDs:

[[1 13799]

[2 17500]

[4 18824]

...

[187227 8436]

[187247 8976]

[187465 9646]]