EDS Assignment 3

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Code:-

```
import numpy as np
array = np.loadtxt('/content/markss.csv', delimiter=',' ,skiprows=1)
print(array)
math_marks =[]
science_marks=[]
german_marks=[]
for i in array:
  math_marks.append(int(i[3]))
  science_marks.append(int(i[2]))
  german_marks.append(int(i[1]))

#converting list into array

arr_mm=np.array(math_marks)
arr_sm=np.array(science_marks)
arr_gm=np.array(german_marks)

#displaying the array

print("GERMAN MARKS: ",arr_gm)
print("* SCIENCE SCORES: ",arr_sm)
print("* MATHS SCORES: ",arr_mm)

# Addition

total_marks = arr_mm + arr_sm + arr_gm
print("1.Addition :",total_marks)

# Subtraction

math_minus_german = arr_mm - arr_gm
print("2.Subtraction :",math_minus_german)
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# Multiplication

science_times_2 = arr_sm * 2
print("3.Multiplication :",science_times_2)

# Division

german_divided_by_math = arr_gm / arr_mm
print("4.Division :",german_divided_by_math)

# Transpose

german_transposed = np.transpose(arr_gm)
print("5.Transpose :",german_transposed)

# Horizontal stacking

horizontal_stack = np.hstack((arr_mm, arr_sm, arr_gm))
print("6.Horizontal stacking :",horizontal_stack)

# Vertical stacking

vertical_stack = np.vstack((arr_mm, arr_sm, arr_gm))
print("7.Vertical stacking :",vertical_stack)

# Generate sequence of science score indices 0 to 4 along with values

indices = np.arange(len(arr_sm))

# Access data using the generated indices

for i in indices:
  print("8.Science score at index", i, ":", arr_sm[i])

# Copying arrays

math_marks_copy = arr_mm.copy()
print("9.Copying arrays :",math_marks_copy)

# Viewing arrays

science_marks_view = arr_sm.view()
print("10.Viewing arrays :",science_marks_view)

# Data Stacking

data_stack = np.stack((arr_mm, arr_sm, arr_gm), axis=1)
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print("11.Data Stacking :",data_stack)

# Searching

index_of_88 = np.where(arr_mm == 88)
print("12.Searching :",index_of_88)

# Sorting
sorted_math_marks = np.sort(arr_mm)
print("13.Sorting :",sorted_math_marks)
# Counting
count_67 = np.count_nonzero(arr_gm == 67)
print("14.Counting :",count_67)
# Broadcasting
broadcasted_sum = arr_mm + 10
print("15.Broadcasting :",broadcasted_sum)
```
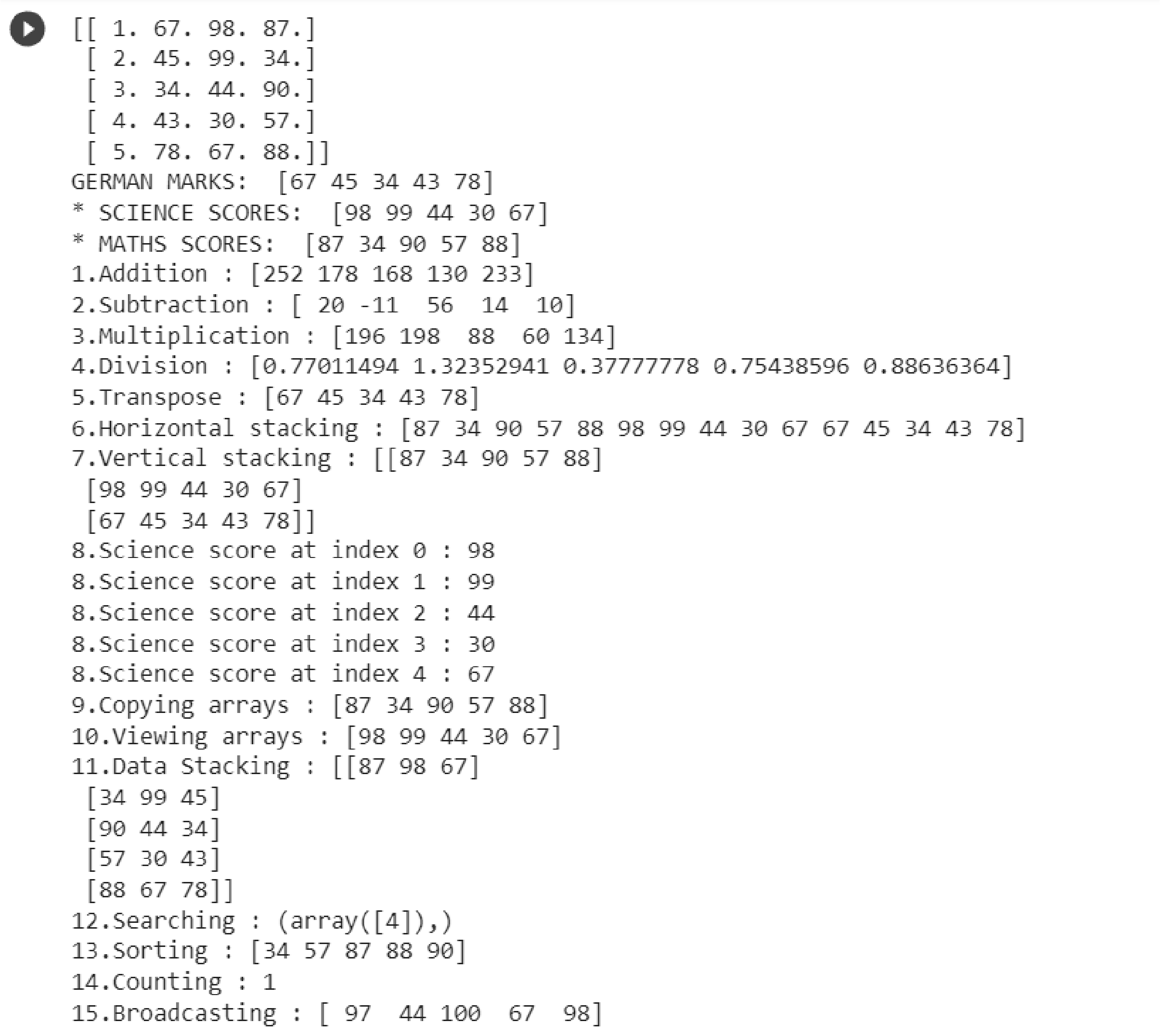

Output:-



```
[[ 1. 67. 98. 87.]
 [ 2. 45. 99. 34.]
 [ 3. 34. 44. 90.]
 [ 4. 43. 30. 57.]
 [ 5. 78. 67. 88.]]
GERMAN MARKS:  [67 45 34 43 78]
* SCIENCE SCORES:  [98 99 44 30 67]
* MATHS SCORES:  [87 34 90 57 88]
1.Addition : [252 178 168 130 233]
2.Subtraction : [ 20 -11  56  14  10]
3.Multiplication : [196 198  88  60 134]
4.Division : [0.77011494 1.32352941 0.37777778 0.75438596 0.88636364]
5.Transpose : [67 45 34 43 78]
6.Horizontal stacking : [87 34 90 57 88 98 99 44 30 67 67 45 34 43 78]
7.Vertical stacking : [[87 34 90 57 88]
 [98 99 44 30 67]
 [67 45 34 43 78]]
8.Science score at index 0 : 98
8.Science score at index 1 : 99
8.Science score at index 2 : 44
8.Science score at index 3 : 30
8.Science score at index 4 : 67
9.Copying arrays : [87 34 90 57 88]
10.Viewing arrays : [98 99 44 30 67]
11.Data Stacking : [[87 98 67]
 [34 99 45]
 [90 44 34]
 [57 30 43]
 [88 67 78]]
12.Searching : (array([4]),)
13.Sorting : [34 57 87 88 90]
14.Counting : 1
15.Broadcasting : [ 97  44 100  67  98]
```