

# NUMPY

## PROBLEM 1:

The screenshot shows the Spyder Python IDE with a script named `div_by_3.py`. The script imports NumPy, generates a 10x10 array of random integers, calculates the mean, and normalizes the array. The Python console shows the output of the script, displaying the mean value and the normalized array.

```
import numpy as np
X = np.random.random(10,10)
S = X.std()
H = X.mean()
Z = (X - H)/S
print("The value of the normalized X:")
print(Z)
```

Python console output:

```
In [33]: runFile('C:/Users/Krystyn Sarzon/Desktop/NUMPY/X_normalized.py', nfile='C:/Users/Krystyn Sarzon/Desktop/NUMPY')
The value of the normalized X:
[[[-1.89827551  0.70545424 -0.59971435 -1.05799488  2.10988325]
 [ 0.36284311 -1.02578024  0.96811317  0.36361164  0.19897554]
 [ 0.90554543 -0.06958794  0.72152083  0.36889583 -0.96984414]
 [ 0.78681569 -0.46693039  1.04455456 -1.18218351  1.06188637]
 [-1.33368111  0.84521333 -1.93846022  0.6181657  -0.64592252]]

In [34]:
```

## PROBLEM 2:

The screenshot shows the Spyder Python IDE with a script named `div_by_3.py`. The script generates a 10x10 array of integers, filters out elements not divisible by 3, and prints the remaining elements. The Python console shows the output of the script, displaying the filtered array.

```
import numpy as np
A = np.arange(1,101).reshape(10,10)
B = A**2
Div3 = B % 3 == 0
print(B)
print("The elements that are divisible by 3:")
print(Div3)
```

Python console output:

```
In [36]:
```