Daily Assignment 3

- Write down a Python program to…
- 1. Create a 1d array M with values ranging from 2 to 26 and print M (DO NOT use numpy.array()).
- 2. Reshape M as a 5x5 matrix and print M.
- 3. Set the value of "inner" elements of the matrix M to 0 and print M.
- 4. Assign M^2 to the M and print M.
- 5. Let's call the first row of the matrix M a vector v. Calculate the magnitude of the vector v and print it.
  - Hint: $\|\mathbf{x}\| = \sqrt{(x_1^2 + x_2^2 + \cdots + x_n^2)}$
  - Hint: import math and use math.sqrt()

Expected output:

```
[ 2  3  4  5  6  7  8  9 10
11 12 13 14 15 16 17 18 19
20 21 22 23 24 25 26]

[[ 2  3  4  5  6]
 [ 7  8  9 10 11]
 [12 13 14 15 16]
 [17 18 19 20 21]
 [22 23 24 25 26]]

[[ 2  3  4  5  6]
 [ 7  0  0  0 11]
 [12  0  0  0 16]
 [17  0  0  0 21]
 [22 23 24 25 26]]

[[ 290  144  152  160  370]
 [ 256  274  292  310  328]
 [ 376  404  432  460  488]
 [ 496  534  572  610  648]
 [1490  664  712  760 1970]]

538.924855615326
```

```python
import numpy as np
import math

M = np.arange(2, 27)
print(M)

M = M.reshape(5, 5)
print(M)

M[1:-1,1:-1] = 0
print(M)

M = M @ M
print(M)

v = M[0, :]
l = math.sqrt(v @ v)
# or
#l = math.sqrt(v[0]*v[0] + v[1]*v[1] + v[2]*v[2] + v[3]*v[3] + v[4]*v[4])
#l = math.sqrt(sum([v[i]*v[i] for i in range(5)]))
print(l)
```