**Numpy initialization**

1. Np.empty(shape=(2, 2)) – create a new memory block for and array of specified size
2. Np.eye(N, M, k) – return a 2D array with ones on the diagonal and zeros elsewhere
   1. N – number of rows
   2. M – Number of column
   3. K – index of diagonal (positive value refer to an upper diagonal and negative to a lower)
3. Np.one(shape=(2,2))- create an array with one of specified shape
4. Np.zeros(shape=()) - create an array with zero of specified shape
5. Np.full(shape=(), fill\_value=) – creates a new array and fill it with value given in fill\_value
6. Np.range(start\_point, end\_point, step\_size) – returns an array of values between start, end with given step size
7. Np.linspace(start\_point, end\_point, num) – return num evenly spaced values within interval [start, end]
8. Np.logspace(start, end, num, base=10) – returns a num evenly spaced values within intervals [10^start, 10^end]
   1. You could change base from 10
9. Np.random
   1. .rand(10) - return random samples from uniform distribution over [0,1)
   2. .randint(low, high, size=()) create an array of specified shape and values are initialized to a random values between [low, high)
   3. Np.shaffle(array) – modify a sequence in-place by shuffling its content