

# NumPy exercises

## Array creation

1. Create a numpy array of size 10, filled with zeros.
2. Create a numpy array with values ranging from 10 to 49
3. Create a numpy matrix of 2\*2 integers, filled with ones.
4. Create a numpy matrix of 3\*2 float numbers, filled with ones.
5. Given the X numpy array, create a new numpy array with the same shape and type as X, filled with ones.
6. Given the X numpy matrix, create a new numpy matrix with the same shape and type as X, filled with zeros.
7. Create a numpy matrix of 4\*4 integers, filled with fives.
8. Given the X numpy matrix, create a new numpy matrix with the same shape and type as X, filled with sevens.

9. Create a 3\*3 identity numpy matrix with ones on the diagonal and zeros elsewhere.

10. Create a numpy array, filled with 3 random integer values between 1 and 10.

11. Create a 3\*3\*3 numpy matrix, filled with random float values.

12. Create a numpy array with numbers from 1 to 10

13. Create a numpy array with the odd numbers between 1 to 10

14. Create a numpy array with numbers from 1 to 10, in descending order.

15. Create a 3\*3 numpy matrix, filled with values ranging from 0 to 8

## **Array indexation**

1. Given the X numpy array, show it's first element

2. Given the X numpy array, show it's last element
3. Given the X numpy array, show it's first three elements
4. Given the X numpy array, show all middle elements
5. Given the X numpy array, show the elements in reverse position.
6. Given the X numpy array, show the elements in an odd position.
7. Given the X numpy matrix, show the first row elements.
8. Given the X numpy matrix, show the last row elements.
9. Given the X numpy matrix, show the first element on first row
10. Given the X numpy matrix, show the last element on last row.
11. Given the X numpy matrix, show the first two elements on the first two rows.

12. Given the X numpy matrix, show the last two elements on the last two rows

### **Array manipulation**

1. Convert the given integer numpy array to float
2. Reverse the given numpy array (first element becomes last)
3. Given the X numpy array, set the fifth element equal to 1
4. Given the X numpy matrix, change the last row with all 1
5. Given the X numpy matrix, add 5 to every element