file handling

1. Read
2. Closing & understand the content inside the file
3. how to write the data in a given file
4. create a new file
5. delete a file

readlines ()

All lines: ['This is a sample text used to demonstrate the concepts of file handling.\n', "I hope you will enjoy the today's demonstration.\n", 'And find the overall discussion very helpful and insightful for your upcoming career.\n']

read vs readline vs readlines

Use of Libraries (In built modules)
(Python Programming)

↳ **Efficiency** ⟶ Ready -to -use methods that helps us to do the task in a more easier & faster manner.

↳ **Reusability** ⟶ same modules in different projects in a very seamless way.

↳ **Toolbox** ⟶ Python Library
↳ collection of various tools
↓
Modules

↳ **Specialisation**

Numpy $\longrightarrow$ Mathematical Complex
                                      talks

Pandas $\longrightarrow$ Data manipulation

Matplotlib $\longrightarrow$ Visualization

Seaborn $\longrightarrow$ Visualization

— — — — — — — — x x — — — — — — — —

Numpy $\longrightarrow$ Numerical Python
   |
   ↓
Deep Learning   all about arrays
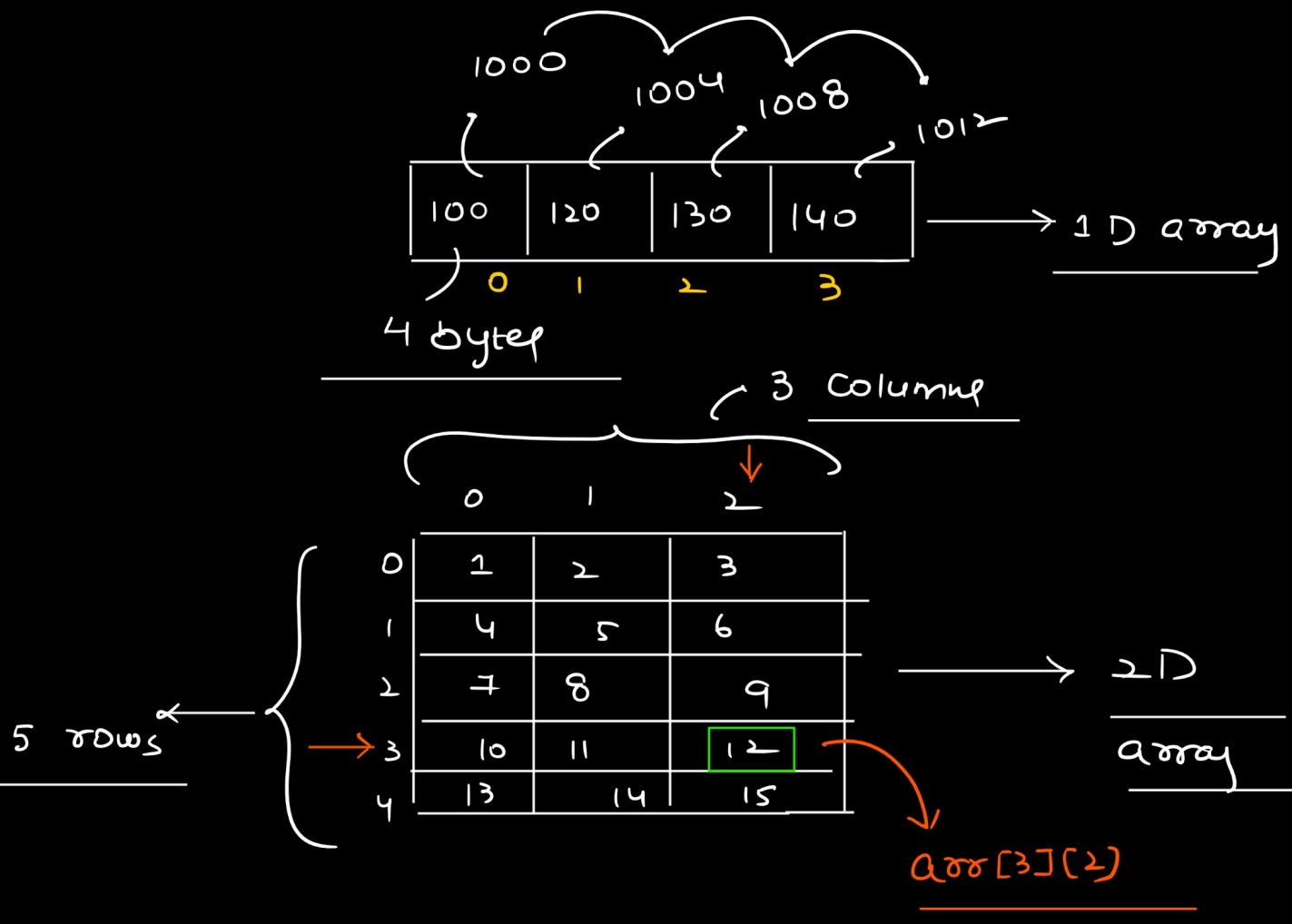
Image
data $\longrightarrow$ Matrices $\longrightarrow$ Pixel values
                                        ↳ 0 to 255

Array ⟶ Store multiple values using a single identifier

The important characteristics of an array are:
1. Each element of the array is of same data type, though the values stored in them may be different.
2. The entire array is stored contiguously in memory. This makes operations on array fast.
3. Each element of the array is identified or referred using the name of the Array along with the index of that element, which is unique for each element. The index of an element is an integral value associated with the element, based on the element's position in the array.

```
         1000      1004   1008      1012
       ┌──────┬──────┬──────┬──────┐
       │ 100  │ 120  │ 130  │ 140  │  ⟶ 1D array
       └──────┴──────┴──────┴──────┘
          0      1      2      3
```
4 bytes

```
                              3 Columns
                  0     1     2
              ┌─────┬─────┬─────┐
           0  │  1  │  2  │  3  │
              ├─────┼─────┼─────┤
           1  │  4  │  5  │  6  │
              ├─────┼─────┼─────┤           ⟶ 2D
           2  │  7  │  8  │  9  │              array
              ├─────┼─────┼─────┤
5 rows     3  │ 10  │ 11  │ 12  │
              ├─────┼─────┼─────┤
           4  │ 13  │ 14  │ 15  │
              └─────┴─────┴─────┘
```
arr[3][2]
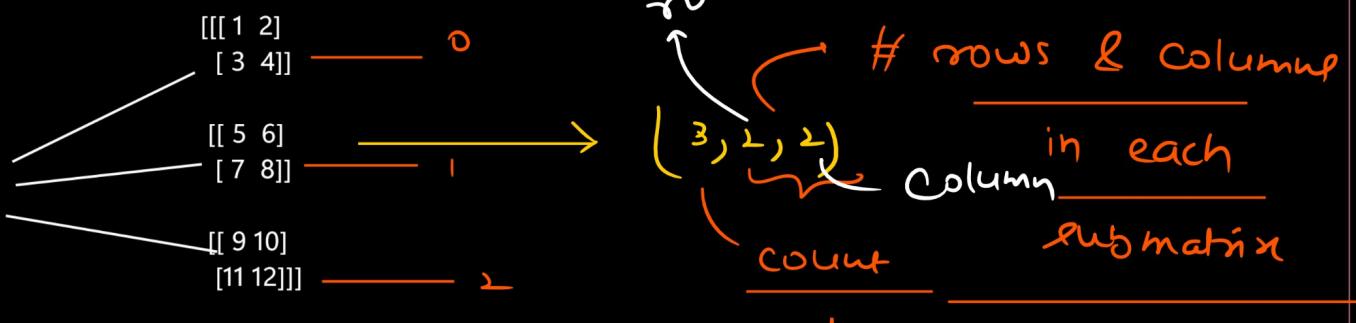
3D array ⟶ x, y, z

—————— ×× ——————

↳ Create

↳ access of elements using index

Attribute → Properties

[[[1 2]
  [3 4]] ——— 0

[[5 6]
  [7 8]] ——→ 1

[[9 10]
  [11 12]]] ——— 2

row

(3, 2, 2)

rows & columns

Column

in each submatrix

count of Submatrices