

## MULTI-DIMENSIONAL ARRAYS

- A matrix is a two-dimensional data structure where numbers are arranged into rows and columns.

### Python Matrix

- Python doesn't have a built-in-type for matrices.
- List of a list as a matrix.

#### Example:

```
A=[[1,4,5,12],  
   [-5,8,9,0],  
   [-6,7,11,19]]
```

```
print("A = ", A)  
print("A[1] = ",A[1]) #2nd row  
print("A[1][2] = ",A[1][2]) # 3rd element of 2nd row  
print("A[0][-1] = ",A[0][-1]) # Last element of 1st row
```

```
column=[]  
for row in A:  
    column.append(row[2])  
print("3rd coulumn =",column)
```

- **NumPy Package**
- Scientific computing
- N-Dimensional arrays
- NumPy provides multi-dimensional arrays of numbers. (which is actually an object).