In [4]:
```python
#Create 3 diamentional array and do the slicing
import numpy as np

# Creating a 3D NumPy array (3x3x3)
arr = np.arange(27).reshape(3, 3, 3)
print("Original 3D Array:\n", arr)

# Slicing examples
print("\nFirst 2D slice (arr[0]):\n", arr[0])  # First 2D matrix
print("\nSecond column from all 2D arrays:\n", arr[:, :, 1])  # Second column from
print("\nFirst row from all 2D arrays:\n", arr[:, 0, :])  # First row from all matr
print("\nElements from (1st matrix, 2nd row, all columns):\n", arr[0, 1, :])  # Sec
```

```
Original 3D Array:
 [[[ 0  1  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]]]

First 2D slice (arr[0]):
 [[0 1 2]
 [3 4 5]
 [6 7 8]]

Second column from all 2D arrays:
 [[ 1  4  7]
 [10 13 16]
 [19 22 25]]

First row from all 2D arrays:
 [[ 0  1  2]
 [ 9 10 11]
 [18 19 20]]

Elements from (1st matrix, 2nd row, all columns):
 [3 4 5]
```

In [5]:
```python
#create 2 D array and do the slicing from end (use negative index)
import numpy as np

# Creating a 3D NumPy array (3x3x3)
arr = np.arange(27).reshape(3, 3, 3)
print("Original 3D Array:\n", arr)

# Slicing operations
print("\n1️⃣ First 2D Matrix (arr[0]):\n", arr[0])

print("\n2️⃣ Last 2D Matrix (arr[-1]):\n", arr[-1])
```

```
print("\n3️⃣ First Column of all Matrices:\n", arr[:, :, 0])

print("\n4️⃣ Last Row from all Matrices:\n", arr[:, -1, :])

print("\n5️⃣ Specific Element (Middle Matrix, Row 2, Column 3):", arr[1, 1, 2])
```

```
Original 3D Array:
 [[[ 0  1  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]]]

1️⃣ First 2D Matrix (arr[0]):
 [[0 1 2]
 [3 4 5]
 [6 7 8]]

2️⃣ Last 2D Matrix (arr[-1]):
 [[18 19 20]
 [21 22 23]
 [24 25 26]]

3️⃣ First Column of all Matrices:
 [[ 0  3  6]
 [ 9 12 15]
 [18 21 24]]

4️⃣ Last Row from all Matrices:
 [[ 6  7  8]
 [15 16 17]
 [24 25 26]]

5️⃣ Specific Element (Middle Matrix, Row 2, Column 3): 14
```

In [6]:

```
#Create 2D array and make a copy
import numpy as np

# Creating a 2D NumPy array (3x3)
arr = np.array([[1, 2, 3],
                [4, 5, 6],
                [7, 8, 9]])

# Making a copy of the array
arr_copy = arr.copy()

# Modifying the copy (to check if the original remains unchanged)
arr_copy[0, 0] = 99
```

```
print("Original 2D Array:\n", arr)
print("\nCopied 2D Array (Modified):\n", arr_copy)
```

```
Original 2D Array:
 [[1 2 3]
 [4 5 6]
 [7 8 9]]

Copied 2D Array (Modified):
 [[99  2  3]
 [ 4  5  6]
 [ 7  8  9]]
```