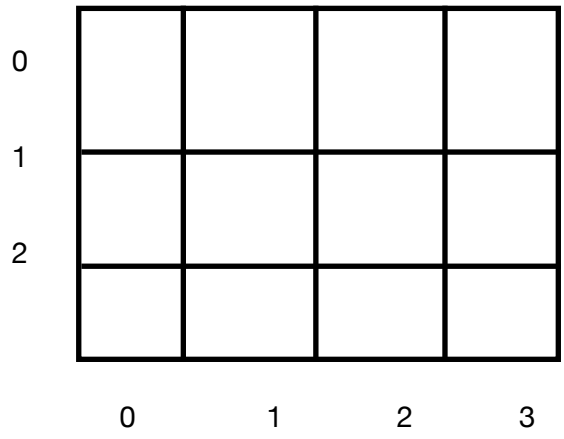
2D Array

- In programming language it is possible to create multi dimensions arrays
- One of the common multi dimensions array is 2D array this is used to implement matrices
- They are 3 methods of declaring 2D arrays
- We can access 2D array using 2indices (one for row and other for column)

1. Normal Declaration

Int A[3][4] ;

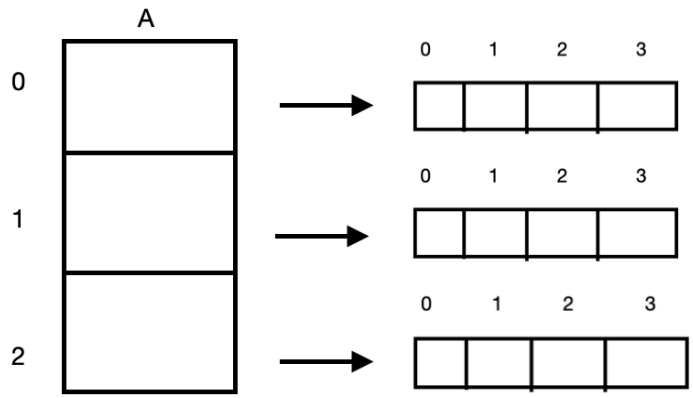


- Memory will be created like a single dimension array , but compiler will allow us to access that array as a 2D arrays with rows and columns
- We can directly mention the array list and initialise it
- Ex: int A[3][4] = { {1,2,3,4} , {2,4,6,8} , {3,5,7,9} }
- It is partial is stack

2. Array Of Pointers

```
int * A[ 3 ] ;

A[0] = new int [ 4 ];
A[1] = int[ 4 ] ;
A[2] = int[4];
```



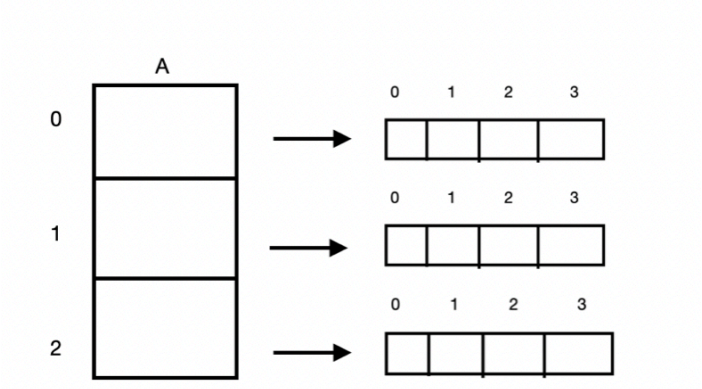
- The pointer will be created inside heap memory and through that we can access , initialise and declare all the elements inside the array
- This is array of integer pointer
- It is partial in Heap

3. Double Pointer

- Here almost everything is inside the heap pointer
- Here the pointer will be like a variable there is no new operator so it is created inside stack in the memory

```
int * *A;

A = new int * [3]
A[0] = int[ 4 ] ;
A[1] = int[ 4 ] ;
A[3] = int[ 4 ] ;
```



- Here everything is inside heap.
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