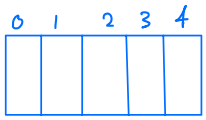
Scalar variable → `int x = 10;`

vector variable → `int A[5];`

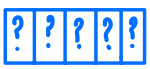
contiguous in memory



initially Array values are garbage { if you initialize single value in Array the remaining values will be zero

---

`int A[5];`



`int A[5]= {4,1};`

`int A[ ] = { ///// }` ⟶ based on the number inside the braces the size will be

Array in heap

by default all variables in stack

`int A[5];` ⟶ stack

`int *p = new int[5];` ⟶ heap

if we finish from it ⟶ `delete [] p;`

we released memory

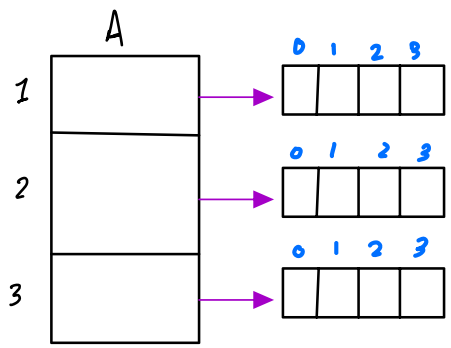
Increase or decrease size

```
int *q = new int[3]; // decreasing from 5 -> 3
for(i=0; i<3; i++)
  q[i]= p[i];
delete []p;
p=q;
q=null;
```

2D Array Heap

metod 1

```
int *A[3];
A[0] = new int[4];
A[1] = new int[4];
A[2] = new int[4];
```



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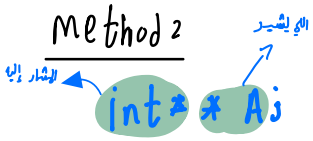
method 2




```
A = new int*[3];
A[0] = new int[4];
A[1] = new int[4];
A[2] = new int[4];
```