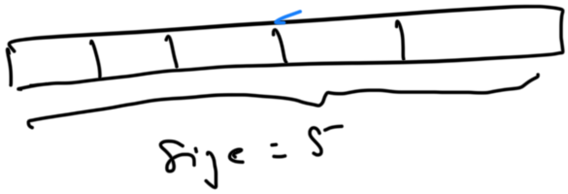
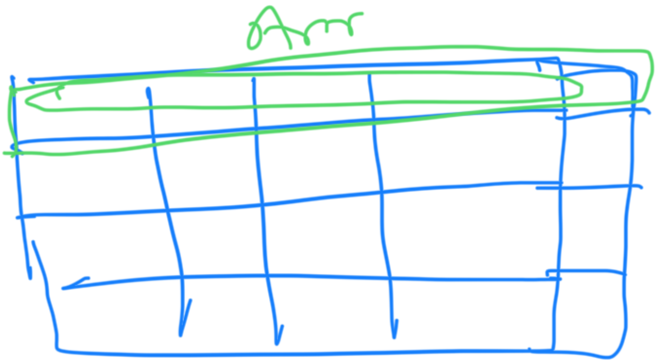
Vector STL

arr[5] =



vector.

#include <vector>



→ initializing vector.

→ vector<int> name → Name

int ↓ Data type {Any can be used}

Definition.

vector is a dynamic data structure which allocates dynamic blocks in memory. {volatile (memory size)}.

Definition of STL;

The STL provides a collection of template classes & functions that offers common DSA to make ... effective.

programming

↳ vector allows user to push elements without any upstream.

To add element: v.push()

To check capacity: v.capacity() → int

To check size: v.size() → int.

To initialize: vector<int> v;

To remove: v.pop_back();

To clear: v.clear();

To initialize a vector with size & input:

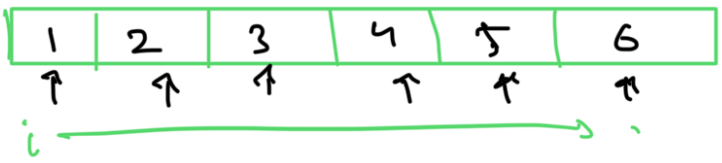
vector<int> arr(5, -1);
↳ size → input.

To Copy a vector: vector<int> a(b)
↳ it will be copied.
↳ copy in this.

To run for loop using auto datatype:

for(auto i : v)
↳ belongs to.
↳ vector.

auto check of data type.



2 - Dimensional Array.

An array having rows & cols are known as 2 - D array.

→ int array [i] [j] → col size

Row size

Representation of 2-D array in Memory:

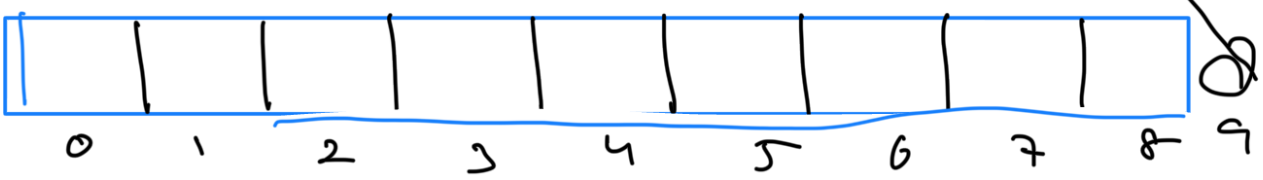
	0	1	2	3
0	1	2	3	4
1	5	6	7	8
2	9	10	11	12
3	13	14	15	16

mem → matrix.

Col * i + j

4 * 2 + 1

→ (9).



↳ To initialize a 2-D array atleast col size should be defined.

↳ Because; second

↑ (Col) r i + j

Q Transpose of Matrix.

Arr =

	0	1	2	3
0	2	3	1	2
1	1	1	1	1
2	8	9	7	10
3	5	4	6	4

→ output Arr^T

(m × n)

Code:- Basic for loops.

```
{
  {
    swap [arr[i][j], arr[j][i]]
  }
}
return 0;
```

arr [ ][4] → size of

Dry Run -

	0	1	2	3
0	2	1 ~~3~~	8 ~~1~~	5 ~~2~~
1	3 ~~1~~	1	1	1
2	1 ~~8~~	9	7	10
3	2 ~~5~~	4	6	4

arr [i][0]
col[i]

i = 0; → 1   j 1

i = 1

j = 2

2	3	1	2
0	1	2	3

[0][1] → [1][0]   j = i + 1

i + 1   i = 0

j = i + 1

i = 1

// For these type of [Reverse/Transpose Qs]
we have to initialize i from 0 &
j = i+1;

To be contd.