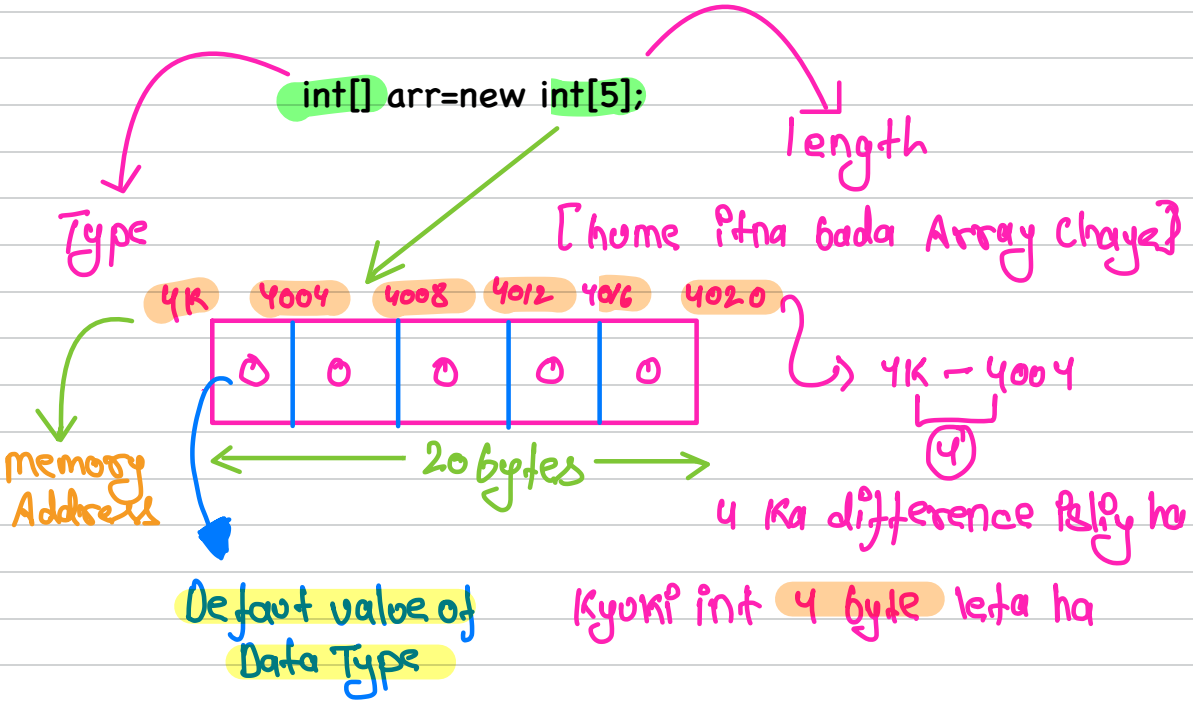
Array

Collection of fixed sized homogeneous data type

Why we need array we have variables?

In array we can create and store at runtime we are not able to in variable

If we want to create 10 int then it will be painful process but with array we can create easily



Note:This memory from 4K to 4020 will be contiguous

L.H.S R.H.S

When we execute this `int[] arr = new int[5];`

R.H.S will execute and create contiguous memory in heap Area And return base Address 4K

Update: `arr[0]=10;`

4K + (0x4) = 4K

Index — Size of DataType

arr[1] = 20 → 4K + (1x4) = 4004 ✓

Get: `Sop(arr[1])` → 4K + (1x4) = 4004 ✓

Note: update and get both are having time complexity O(1)

Question: Two Sum - Leetcode

I/p :

o/p : 9

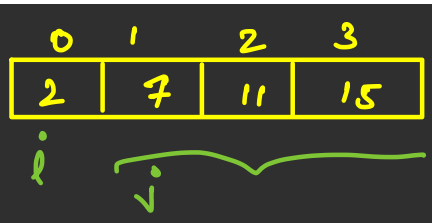
Understanding: Hume 2 elements find Karne ha Jo target k barabar ho or u kya index return krna ha

eg: 2 + 7 = 9

0 (index) 1 (index)

Approach:

2 loop laga lete ha i jo element ko pakad k rakhega or dushra j jo baki element k pass jaa k dekhega ki element of i + j = target agar mil gaya to return.

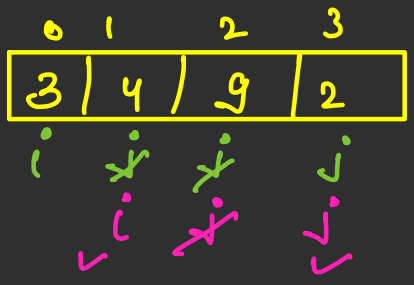


target = 9

Step 1

2 + 7 = 9 ✓

Eg:



target = 6

Step 1

3 + 4 = 7 ✗

3 + 9 = 12 ✗

3 + 2 = 8 ✗

{i, j} = {1, 3}

Step 2

4 + 9 = 12 ✗

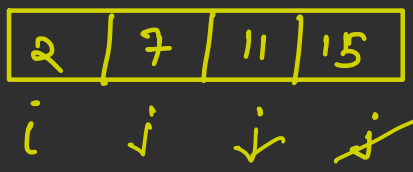
4 + 2 = 6 ✓

T.C = O(n²) ✓

Tow Sum - II

- 1-based
- Sorted (increasing)

Approch - 1



target = 9

2 + 15 => 17

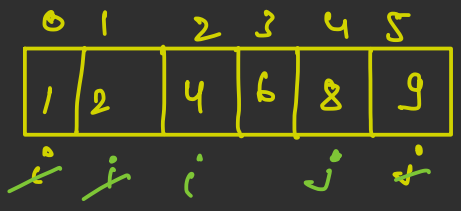
17 > 9

2 + 11 => 13

13 > 9

2 + 7 = 9 ✓

this will work if Array is sorted



target = 12

i + j = smaller then target => i++

i + j = greater then target => j--

1 + 9 = 10

10 < 12 so ina i

2 + 9 = 11

11 < 12

4 + 9 = 13

13 > 12 so j--

4 + 8 = 12 ✓

T.C = O(n)