$arr = [\overset{0\ \cancel{i}}{18}, \overset{1\ \cancel{i}}{12}, \overset{2\ \cancel{i}}{9}, \overset{3\ i}{14}, \overset{4}{77}, \overset{5}{50}]$ size =

Unsort

Q: Find whether 14 exists in array or not.

<u>If no value found</u>, return -1.

Time Complexity:

Best: $O(1)$ // Constant

Worst Case: $O(N)$

$N \Rightarrow$ size of array

How many checks will the loop make in best case i.e. element found at 0th index?

$$arr = [\overset{0, i}{8}, 9, 12, 18, \ldots \ldots \underline{200\ elem}$$

target = 8

$\Rightarrow$ 1 comparison in best case

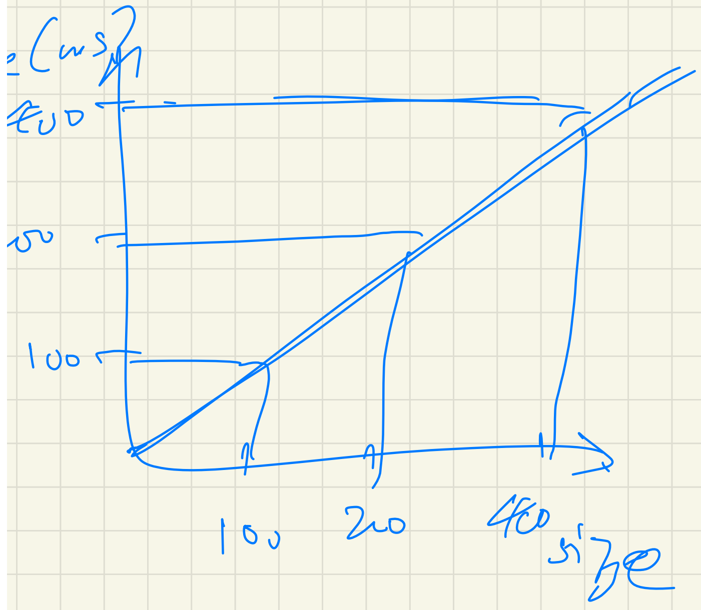
arr is now of size 1 lakh.

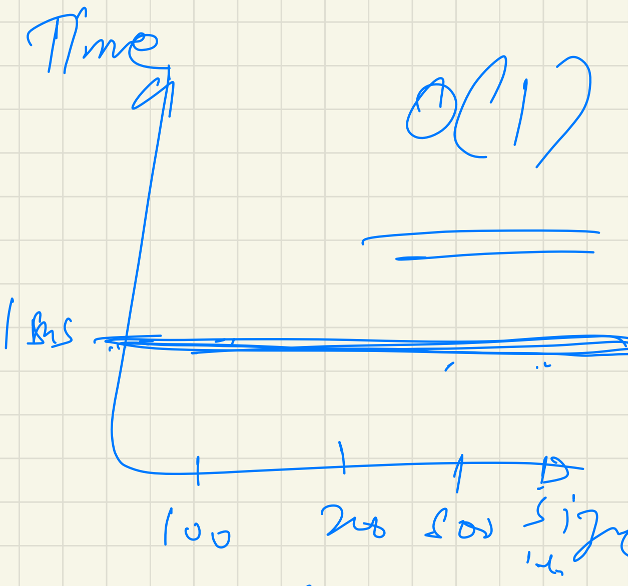
$$arr = [\overset{0, i}{\boxed{18}}, 12, 9, 7, \ldots \ldots \underline{1\ lakh\ it}$$

target = 18 . answer $\Rightarrow$ only 1 comparison n
in best case.

Worst case: You donot find the target it
iterate / go through every item and then in the
it says I did not find it.

sizes of array = 100 $\Longrightarrow$ 100 comparisions =
200 $\Longrightarrow$ 200 comparision =
1 lakh $\Longrightarrow$ 1 lakhs = 100
n





O(1)

Worst Case

Best case

500 items ≅ 500 ms

$$arr = [\overset{0}{18}, \boxed{\overset{1}{12}, \overset{2}{-7}, \overset{3}{3}, \overset{4}{14}} \overset{5}{28}]$$

Q: Search for 3 in the range of index [1, 4

Q. Find min element in the array.

$$arr = [18, \overset{\swarrow}{12}, -7, 3, 14, 28]$$

min

~~18~~ ~~12~~

$\boxed{-7}$

$$arr = \begin{bmatrix} [\,1, & 2, & 3\,] \\ [\,9, & 18, & 5\,] \\ [\,6, & 7, & 14\,] \end{bmatrix}$$

max

~~-2147483648~~

~~1~~ ~~2~~ ~~3~~ ~~9~~ 18

```
for( row=0; row<len(
        row++) {
    for(c=0; c<len(
            c++) {
        if (arr[r][c] ==
            target)
            //found an
    }
}
```

$$\mathrm{arr} = \begin{array}{cccc} 0 & 1 & 2 & 3 \\ \lbrack 1, & 2, & 3, & 4 \rbrack \end{array}$$

$$\mathrm{ans} = [\,2*3*4,\; 1*3*4,\; 1*2*4,\; 1*2*3\,]$$

$$\mathrm{total} = 1*2*3*4 = 24$$

$$\mathrm{ans} = \left[\frac{24}{1},\; \frac{24}{2},\; \frac{24}{3},\; \frac{24}{4}\right]$$

$$= [\,24, \textcircled{12}\; 8, \textcircled{6}\,]$$

$$arr = \left[\begin{array}{cccc} 0 & 1 & 2 & 3 \\ 1, & 2, & 3, & 4 \end{array}\right]$$

$$ans = \left[\frac{1 \times 2 \times 3 \times 4}{\cancel{1}}, \quad \frac{1 \times \cancel{2} \times 3 \times 4}{\cancel{2}}, \quad \frac{1 \times 2 \times \cancel{3} \times 4}{\cancel{3}}, \quad \frac{1 \times 2 \times 3 \times \cancel{4}}{\cancel{4}} \right]$$

Q Find no. of nos. that have even no. of digits.

nums = [18, 124, 9, 1764, 98, 1]

Ans = 3

1) Count the no. of digits
2) Convert 1764 => "1764"
   take the length

count = ~~0~~ ~~1~~ ~~2~~ ~~3~~ 4

~~1764~~

~~176~~

~~17~~

~~1~~

0

```
while (n > 0
    count++
    n = n/10
}
```

cols

$$arr = \begin{array}{c|ccc} & 0 & 1 & 2 \\ 0 & [1, & 2, & 3] \\ 1 & [4, & 1, & 6] \\ 2 & [3, & 3, & 7] \end{array}$$

rows

max sum	rowsum
~~0~~ ~~6~~	~~6~~
16	0
	~~16~~
	~~0~~
	13

```
for (r=0; r < len(arr), r
    rowsum = 0
    for(c=0, c< len(r),
        // every col of,
        the each row
        rowsum += 
                arr[r][c
    }
    // check with main
    if(rowSum > max){
        max = rowSum
    }
}
```