Get the Containers

① Brute-Force $[1 - N]$

$[1, 2, 3, 4, \ldots -N]$

$O(N^2)$

② Binary Search (2day)

③ Hint: BS on answer (3day)

④ Idea: → C.A

⑤ Code

CF

① Weekly 2 contest (cf editorial) $\boxed{A, B}$, $\boxed{C, D}$ → $\overset{BS}{\underline{Topic}}$ Graph

② 5 contest → CF Rating $[x-200, x+200]$

③ Up solve → $\boxed{A, B}$ $\boxed{C}$

Problem: Trailing Zeroes III

$1! = 1$

$2! = 2$ $N \Rightarrow Q$ zeroes

$3! = 6$ $\min(N)$

$4! = 24$

$\boxed{5! = 120}$ ← $\boxed{Q = 1}$ ←

$6! = 720$ $Q = 2$

$7! = 5040$ $Q = 3$

$8! = 40,320$

$9! = 362880$

$\boxed{10! = 3628800}$

$11! = 39916800$

get Trailing Zero (x)
$\quad \hookrightarrow x! \rightarrow TZ$

Sorted

Binary property

T.Z

$0 \quad N \quad \cdot MAX$

get Trailing Zero (9) = 1

$(11) = 2$

T.Z
$7 \; 8 \; 10 \; 10 \; 10 \; 10 \quad 12 \; 14 \; 16$

$N!$ ↑   mid ↓   ①

✓ ②

$\boxed{Q = 9}$
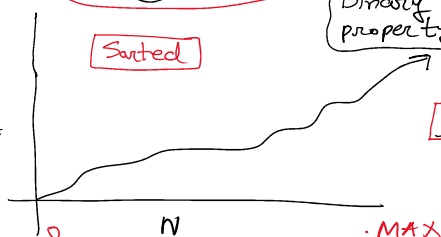
$\boxed{ans = N}$ ←

$GTZ(mid) \rightarrow x$

$7 \quad \underline{10}$
$\longrightarrow mid \rightarrow$

$1 \qquad\qquad MAX$

$\boxed{lo} \qquad\qquad \boxed{hi}$

$mid = \frac{lo + hi}{2}$

$\boxed{x = Q}$

$\boxed{GTZ(mid) = x}$

if $(x < Q)$ { ✗✗
$\qquad lo = mid + 1$
}
else {
$\qquad hi = mid - 1$
$\qquad \boxed{ans = mid}$ ←
}
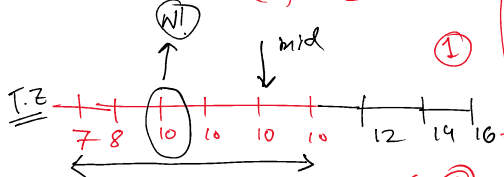
$GTZ(ans) \rightarrow Q$ ← OK!
$\qquad\qquad$ Impossible

GetTrailing Zero(N) = Trailing Zeroes of N!

$20 \to 2^2 \cdot 5$

$35 \to 5 \times 7$

$\boxed{2, 4, 8} = 2^1, 2^2, \underline{2^3}, 2^4, 2^5, \frac{2^6}{16}, 2^{0,2}$

$651 2\boxed{000} \to 10^3 \qquad (5 \times 2)^3$

$Cnt_2 = 10 \, \textcircled{5} \to \textcircled{10^5}$
$Cnt_5 = \textcircled{5}$

$15! = 1 \cdot 2 \cdot 3 \cdot \underline{4} \cdot 5 \cdot 6 \cdot 7 \cdot \underline{8} \cdot 9 \cdot 10 \cdot 11 \cdot 12 \cdot 13 \cdot 14 \cdot 15 \qquad \text{⊗}$

$\frac{15}{2} = 7 \quad 2 \qquad 2 \qquad 2 \qquad 2 \qquad 2 \qquad 2 \qquad 2$
$\frac{15}{2^2} = 3 \qquad\qquad 2 \qquad\qquad 2 \qquad\qquad 2$
$\frac{15}{2^3} = 1 \qquad\qquad\qquad\qquad 2 \qquad\qquad 2$
$\frac{15}{2^4} = 0 \;]\to last \qquad \textcircled{3} \to$
$\frac{15}{2^5} = 0 \qquad\qquad 2 +$
$\vdots$

$\boxed{Cnt_2 = 11}$ $2^2 = 4$
$\boxed{Cnt_5 = \frac{15}{5} \textcircled{3}}$ $2^3 = 8$

$Cnt_2 = \textcircled{10} = 6 + 4$
$Cnt_5 = \textcircled{4}$

$\boxed{10, 10\ 10}$

$2 \times 5 = 10$
$2 \times 5 = 10$
$\qquad = 10$
$\qquad = 10$

$0 \quad 1 \quad \underline{2} \quad 3 \quad \underline{4} \quad 5 \quad \underline{6}$. $Jump = \dfrac{N}{Jump\ length}$
$\qquad \dfrac{number}{}$

$\frac{6}{2} = \textcircled{3}$

Problem: Counting Triangles

$\boxed{A + B > C} \quad [A \le B \le C] \qquad ans = 0$
$\qquad\qquad\qquad\qquad\qquad\qquad for(a = 0 \to N)\{$
$N = 2000$
$\qquad\qquad\qquad\qquad\qquad\qquad\quad for(b = a+1 \to N)\{$
$1 \quad 2 \quad 3 \quad 4 \quad \boxed{5} \quad 6 \quad 7 \quad 10$
$0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7$
$\qquad\qquad\qquad\qquad\quad \overbrace{\qquad}^{c}$

$\boxed{for (c = b+1 \to N)\{}$
$\boxed{if \boxed{condition} = true}$
$\qquad ans ++;$

$\uparrow a \qquad \uparrow b$

$O(N^3)$

$O(N^2 \log N)$

$2 + 4 > 7 \to F$
$2 + 4 > 5 \to T$
$2 + 4 > 6 \to F$

$\textcircled{a} \quad \textcircled{b} \quad \textcircled{c}$

$value \to 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 5 \quad 5 \quad 6 \quad 7 \quad 10$
$index \to 0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \quad 8 \quad 9$

$Max_c - b$

$\cancel{6 - 4} \quad 6 - 3 = \textcircled{3}$

$12 - 4 = \textcircled{8}$

$index$
$\qquad\qquad 3, 4$
$value \to 1 \; 2 \; 3 \; 4 \; 4 \quad \overbrace{5 \; 5 \; 5 \quad 6 \; 6 \; 6 \quad 7 \; 7}^{12} \quad 0 \quad 10$
$\qquad\qquad\quad \uparrow \uparrow \qquad\qquad\qquad\qquad\qquad \uparrow$
$\qquad\qquad\quad a \; b$

$3, 4, 5 \;\big|\; 3, 4, 5 \;\big|\; 3, 4, 7$
$3, 4, 5 \;\big|\; \;''\; \;\big|\; \;''$
$3, 4, 5 \;\big|\; \;''\; \;\big|\;$

First 2 years Problem Solving

ß $\boxed{DSA, DataBase, OS \; OOP}$

10 | 10000

Topic + Problem Solve

BD SWE Jobs

No Prep.

No Contest

(OOP, Database)

Project Based

Hard

DSA

CP

Problem Solving

Software Engg.

Skilled

Creative

Repeated work

→ Jobs

DSA → Basic

C, C++

Code

1st year Complete