1257 D → Yet Another Monster Killing Problem

M → q_1 q_2 q_3 q_4 q_5 q_6

H → p_1 p_2 ...
s_1 s_2

P_i kills till $i \leq s_i$
&
$\max(q_1, q_2, \ldots q_i) \leq p_i$

Approach

- Suppose we have p_k, s_k such that
$p_k \geq p_j$ & $s_k \geq s_j$ → remove p_j, s_j → why?

proof →

Let $\max(q_1, q_2, \ldots q_j) \leq p_k$

Since $p_k > p_j$ it's obvious that

$\max(q_1, q_2, \ldots q_j) \leq p_j \leq p_k$

Now $j \leq s_j$ where $s_j \leq s_k$

so $j \leq s_k$ → it's obvious that we always pick (p_k, s_k) over (p_j, s_j) {greedy}

① Delete all the entries such that $(p_j, s_j) < (p_k, s_k)$ where $p_j \leq p_k$ & $s_j \leq s_k$

We will be left with entries →

(P_1, S_1)
(P_2, S_2)
(P_3, S_3)
⋮
(P_n, S_n)

such that if $P_2 > P_1$ then $S_1 > S_2$

Ex - 1, 6
3, 4
8, 2
10, 1

→ valid list of heros

(2) Pick a hero that can kill maximum monsters in one go

m → 6 2 3 8 4 11 2 1 5

h → 6 2 12
11 1
5 4
2 6

6 2 3 8 4 11 2 1 5
↑ ↑
i j

do we have a guy whose $p \geq \max(6,2) = 6$ & $s \geq 2$?

↳ if yes, we are able to kill till j, increment it

6 2 3 8 4 11 2 1 5
↑ ↑
i j

$p \geq \max(6,2,3) = 6$

& $s \geq 3$ → no!

→ delete till j-1 &

i → j j → i+1

sum+ = 1

3 8 4 11 2 1 5 → del by p = 5

ans = 6 Similarly

i j