

We are going to search for the minimum number of days with a binary search.

We assume that  $P < Q$ . Let's say we have  $X$  days to kill all bugs. For every room, we will try to minimize the number of uses of the spray with power  $Q$ . If the total number of uses of the spray with power  $Q$  is lower or equal than  $X * (N - K)$ , we have a solution for  $X$  days.