**Choice of Area**

Consider a game, in which you have two types of powers, A and B and there are 3 types of Areas X, Y and Z. Every second you have to switch between these areas, each area has specific properties by which your power A and power B increase or decrease. We need to keep choosing areas in such a way that our survival time is maximized. Survival time ends when any of the powers, A or B reaches less than 0.

Example:

Initial value of Power A = 20 Initial value of Power B = 8Area X (3, 2) : If you step into Area X, A increases by 3, B increases by 2Area Y (-5, -10) : If you step into Area Y, A decreases by 5, B decreases by 10Area Z (-20, 5) : If you step into Area Z, A decreases by 20, B increases by 5It is possible to choose any area in our first step.We can survive at max 5 unit of time by following these choice of areas :X -> Z -> X -> Y -> X.

**Approach:**

This problem can be solved using recursion, after each time unit we can go to any of the area but we will choose that area which ultimately leads to maximum survival time. As recursion can lead to solving same subproblem many time, we will memorize the result on basis of power A and B, if we reach to same pair of power A and B, we won’t solve it again instead we will take the previously calculated result.