## Question 3

Assume we have three activities and days-vacation. represent the enjoyment value of activity at day and represent the enjoyment value of activity at the day before day . Obviously, .

For each day, find the optimal solution of each activities which is the maximum number of enjoyment gain. Thus, for the first day of vacation

1. where is first day of value

For the rest days, the optimal solution of each activities depends on the activity from yesterday which is not the activity same as itself. For example, the can be represented by following equation.

In such way, we recursively calculate the optimal solution for each activity at each day. The maximum total enjoyment can be represented by such equation

which is the maximum number of the optimal solution of each activity.