PROBLEM OF THE MONTH

Term: January 2012

Find the maximal possible value of the expression $A = \sum_{i=1}^{2012} \sum_{j=1}^{2012} a_{i,j}$ if the following two conditions are held:

- $a_{i,j} = 0$ or 1

- if for some k and l $a_{k,l} = 1$ then at least one of the sums $\sum_{j=1}^{2012} a_{k,j}$ and $\sum_{i=1}^{2012} a_{i,l}$ does not exceed 2.