W5.

a) Using a 4D array of size $(m+1) \times (n+1) \times (m+1) \times (n+1)$ allows us to account for each of the dependencies. Such dependencies are l-1, k-1, j-1, and i-1.

b) Initialize the table by filling in all entries of the base case. Then increasing order by the fourth dimension; within entries of the same value in the fourth dimension, by increasing values of the third dimension; within entries of the same value in the third and fourth dimension, by increasing values of the second dimension; within entries of the same value in second, third, and fourth dimension, by increasing order of the first dimension.

c) The answer can be extracted from the m^{th} entry in the first and third dimension, and the n^{th} entry in the second and fourth dimension of the 4D array.

d) Given that the dimensions of the 4D table is $m+1) \times (n+1) \times (m+1) \times (n+1)$, the running time of the iterations through this table is in $\theta\big((m+1) \times (n+1) \times (m+1) \times (n+1)\big) = \theta((n+1)^2 \times (m+1)^2)$. From this running time, we can see that the dominant terms are n^2 and m^2, thus further simplifying this function would give us a running time of $\theta(n^2m^2)$.