Mini Homework 4

1.

	A	**B**	**C**	**A**	**D**	**B**
C	0	0	1	1	1	1
A	1	1	1	2	2	2
B	1	2	2	2	2	3
D	1	2	2	2	3	3
A	1	2	2	3	3	3
B	1	2	2	3	3	4

2. Given two string X and Y, the recursion is expressed as

$$M_{i,j} = \begin{cases} 1 + M_{i-1,j-1} \text{ if } X_i = Y_j \\ \max\{M_{i-1,j-1}, M_{i-1,j}, M_{i,j-1}\} \text{ if } X_i \neq Y_j \end{cases}$$

   On finishing filling in the table, backtracking is performed from the bottom-right corner until hitting the left margin or top margin. The procedure is as follows (The resulting subsequence is CADB):

   - If $X_i = Y_j$: go upper left and print the character.
   - Otherwise:
     - If $M_{i,j} = M_{i-1,j}$: go upper left.
     - Else if $M_{i,j} = M_{i-1,j}$: go up.
     - Else if $M_{i,j} = M_{i,j-1}$: go left.

	A	**B**	**C**	**A**	**D**	**B**
C			↖			
A				↖		
B				↑		
D					↖	
A					↑	
B						↖