**EXPLANATION for R CODE1**

I wrote a code to figure out what the given dynamic programming algorithm does on two given input strings. I do implement the algorithm and test in on the test sequences that are provided below and describe what the algorithm is doing in a couple of sentences.

Here is the DP algorithm:

Input:

* Two strings A[1..n] and B[1..m] of length n and length m respectively.
* F(i , 0) = 0 for 0 ≤ i ≤ n F(0 , j) = 0 for 0 ≤ j ≤ m

F(i , j) = F(i-1 , j-1)+1 if A[i] is equal to B[j]

F(i , j) = 0 if A[i] is not equal to B[j]

Example inputs:

* A: abcgddegajsdcbfsghgghdfg  
  B: vsfhfsdgdecgbddegafkffbbjkkl
* A: edsfghdsfkgjghfksfjhgkskfjsdfgkjhkjh

B: ababfbabdbvbfdgfjsdfgerwhhvkjsdhfhfsd

* A: aaabbababaaabcccdddbddaabbcac

B: aaabccdababcabcbaadbacb

* A: aaaaaaaaaaaaaaaaaaaaaaaaaa

B: aaaaaaaaaaaa

* A: asdbfbfbsdsffjsjfhfsbsbsffhfsbsbfb  
  B: sfbsdfbsfsfbsdfbfbsfsbaabacbavbasdfbsbfasdfasdfhjbjjahb
* A: aaaaaaaaaaaaaaaaaaaaaaaaaaaa

B: bbbbbbbbbbbbbbbbbbbbb

**CODE**

#This code provides a different an easy way to explore the mechanism behind the dynamic algorithm and totally.

#I prefer to write the code by taking a base of first example input then visualising will be eaiser:

A=c("a","b","c","g","d","d","e","g","a","j","s","d","c","b","f","s","g","h","g","g","h","d","f","g","0","0", "0","0") # creating an array

B=c("v","s","f","h","f","s","d","g","d","e","c","g","b","d","d","e","g","a","f","k","f","f","b","b","j","k"," k","l")

m=length(A) # gives the length of the aminoacid sequence

n=length(B) # same issue

mapply(function(x,y) sum(x!=y),strsplit(A,""),strsplit(B,"")) # I have created a function that signifies the matches and point them as "0".

#The next step should be the turning this result into a matrix's diagonal and make it as an iterative process.

#It qualifies the F(i,j) function as it is expected.

matrix1=matrix(0, nrow = m, ncol = n) # creates an empty matri

matrix2=c( 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1)

matrix2=as.matrix(matrix)

A=as.matrix(A) for (i in 0:m ) { A[i,0] = 0  
}

B=as.matrix(B) for (j in 0:n ) { B[j,0] = 0  
}

#from this point, it was written what F(i,j) function does.

if  
{ A[i] == B[j] matrix[i][j]=matrix[i-1][j-1]+1

} A=as.matrix(A)

for (i in 0:m ) { A[i,0] = 0 }

B=as.matrix(B) for (j in 0:n ) { B[0,j] = 0

}