//Recursive approach

#include <iostream>

#include<string.h>

using namespace std;

int lcs(string X,string Y,int m,int n){

if(n==0 || m==0){

return 0;

}

if(X[m-1]==Y[n-1]){

return 1+lcs(X, Y, m-1, n-1);

}

else{

return max(lcs(X, Y, m-1, n), lcs(X, Y, m ,n-1));

}

}

int main() {

char X[] = "AGGTAB";

char Y[] = "GXTXAYB";

int m = strlen(X);

int n = strlen(Y);

cout<<"Length of LCS is "<< lcs( X, Y, m, n ) ;

return 0;

}

Output-

Length of LCS is 4

//Dynamic Programming

#include <iostream>

#include<string.h>

using namespace std;

int lcs(string X,string Y,int m,int n){

int dp[m+1][n+1];

for(int i=0;i<=m;i++){

for(int j=0;j<=n;j++){

if(i==0 || j==0){

dp[i][j]=0;

}

else if(X[i-1]==Y[j-1]){

dp[i][j]= 1+dp[i-1][j-1];

}

else{

dp[i][j]= max(dp[i-1][j], dp[i][j-1]);

}

}

}

return dp[m][n];

}

int main() {

char X[] = "AGGTAB";

char Y[] = "GXTXAYB";

int m = strlen(X);

int n = strlen(Y);

cout<<"Length of LCS is "<< lcs( X, Y, m, n ) ;

return 0;

}