**DYNAMMIC PROGRAMMING**

**PROBLEM 3:**

LONGEST COMMON SUBSEQUENCE

AIM:  
Given two strings find the length of the common longest subsequence(need not be contiguous) between the two.

CODE:  
#include <stdio.h>

#include <string.h>

#define MAX 1000

int longestCommonSubsequence(char \*s1, char \*s2) {

int len1 = strlen(s1), len2 = strlen(s2);

int dp[MAX + 1][MAX + 1];

for (int i = 0; i <= len1; i++) {

for (int j = 0; j <= len2; j++) {

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

dp[i][j] = 0;

else if (s1[i - 1] == s2[j - 1])

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

else

dp[i][j] = (dp[i - 1][j] > dp[i][j - 1]) ? dp[i - 1][j] : dp[i][j - 1];

}

}

return dp[len1][len2];

}

int main() {

char s1[MAX], s2[MAX];

scanf("%s %s", s1, s2);

printf("%d\n", longestCommonSubsequence(s1, s2));

return 0;

}

INPUT AND OUTPUT:  
