**Program for Longest Common Subsequence**

**// The longest common subsequence in C**

**#include <stdio.h>**

**#include <string.h>**

**int i,**

**j,**

**m,**

**n,**

**LCS\_table[20][20];**

**char S1[20] = "ACADB", S2[20] = "CBDA", b[20][20];**

**void lcsAlgo()**

**{**

**m = strlen(S1);**

**n = strlen(S2);**

**// Filling 0's in the matrix**

**for (i = 0; i <= m; i++)**

**LCS\_table[i][0] = 0;**

**for (i = 0; i <= n; i++)**

**LCS\_table[0][i] = 0;**

**// Building the mtrix in bottom-up way**

**for (i = 1; i <= m; i++)**

**for (j = 1; j <= n; j++)**

**{**

**if (S1[i - 1] == S2[j - 1])**

**{**

**LCS\_table[i][j] = LCS\_table[i - 1][j - 1] + 1;**

**}**

**else if (LCS\_table[i - 1][j] >= LCS\_table[i][j - 1])**

**{**

**LCS\_table[i][j] = LCS\_table[i - 1][j];**

**}**

**else**

**{**

**LCS\_table[i][j] = LCS\_table[i][j - 1];**

**}**

**}**

**int index = LCS\_table[m][n];**

**char lcsAlgo[index + 1];**

**lcsAlgo[index] = '\0';**

**int i = m, j = n;**

**while (i > 0 && j > 0)**

**{**

**if (S1[i - 1] == S2[j - 1])**

**{**

**lcsAlgo[index - 1] = S1[i - 1];**

**i--;**

**j--;**

**index--;**

**}**

**else if (LCS\_table[i - 1][j] > LCS\_table[i][j - 1])**

**i--;**

**else j--;**

**}**

**// Printing the sub sequences**

**printf("S1 : %s \nS2 : %s \n", S1, S2);**

**printf("LCS: %s", lcsAlgo);**

**}**

**int main()**

**{**

**lcsAlgo();**

**printf("\n");**

**}**

**Output:**

