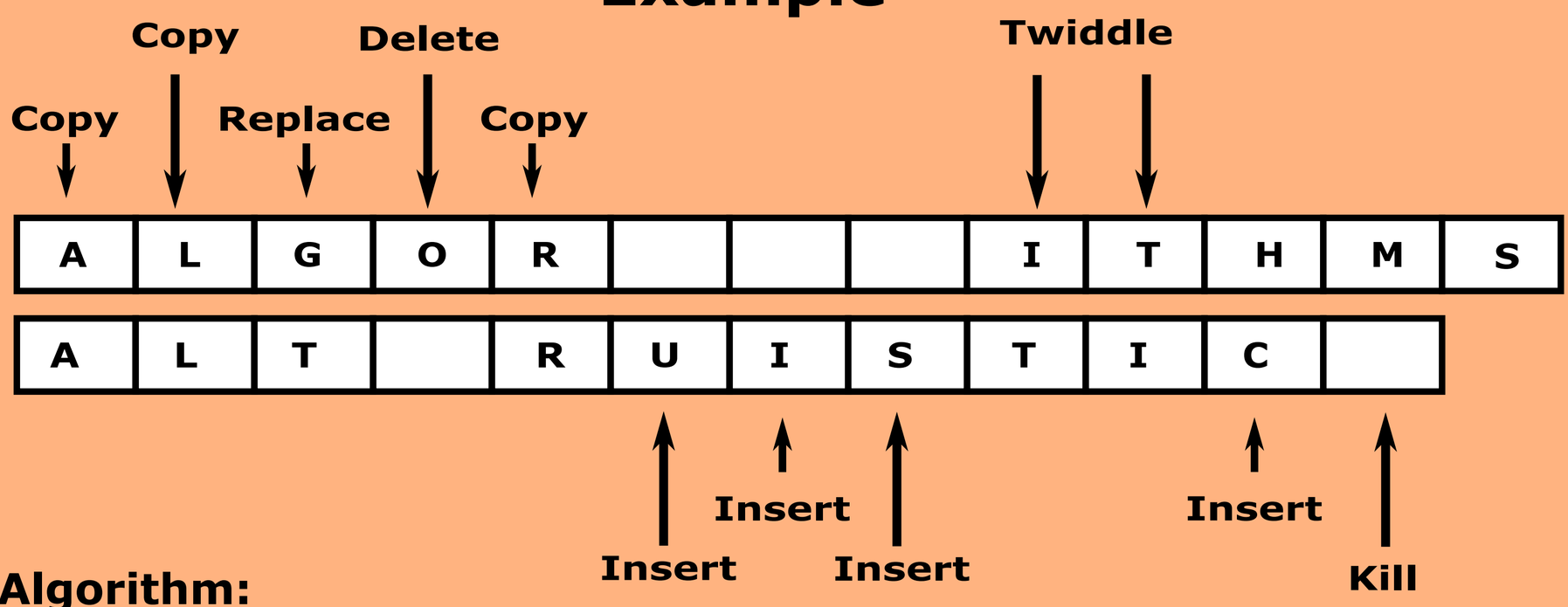
Edit Distance

Problem:

The edit Distance problem is to compute the edit distance between two given strings, along with an optimal edit transcript that describes the transformation.

Example



Algorithm:

Algorithm edit_distance
Input: two strings $A = a_1 .... a_m$ and $B = b_1 ... b_n$
Output: the matrix $D = (D_{ij})$

```
1 D[0,0] := 0
2 for i := 1 to m do D[i,0] = i
3 for j := 1 to n do D[0,j] = j
4 for i := 1 to m do
5    for j := 1 to n do
6          D[i,j] := min( D[i - 1,j] + 1,
7                         D[i,j - 1] + 1,
8                         D[i –1, j – 1] + c(a_i,b_j))
```

Running Time: O(mxn)

```
Cost:
Insertion: 4
Deletion: 1
Copying: 3
Twiddling 1
Replacing: 1
Killing: 1
Total Cost:  11
```

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