TITLE : Spell checking and correction: Apply minimum edit distance between two strings for spelling correction.

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BATCH : B.

In [4]:
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str1 = str(input("Enter First String : "))
str2 = str(input("Enter Second String : "))

rows = len(str1)
cols = len(str2)

T = [[0 for j in range(cols+1)] for i in range(rows+1)]

for i in range(rows + 1):
    T[i][0] = i
for j in range(cols + 1):
    T[0][j] = j

for i in range(1, rows+1):
    for j in range(1, cols+1):
        if str1[i - 1] == str2[j - 1]:
            T[i][j] = T[i - 1][j - 1]
        else:
            T[i][j] = min(
                T[i - 1][j] + 1,
                T[i][j - 1] + 1,
                T[i - 1][j - 1] + 1
            )


i = rows
j = cols

op_count = {"Insert": 0, "Delete": 0, "Replace": 0}

while i > 0 or j > 0:
    if i > 0 and j > 0 and str1[i - 1] == str2[j - 1]:
        i -= 1
        j -= 1
    elif i > 0 and j > 0 and T[i][j] == T[i - 1][j - 1] + 1:
        op_count["Replace"] += 1
        i -= 1
        j -= 1
    elif i > 0 and T[i][j] == T[i - 1][j] + 1:
        op_count["Delete"] += 1
        i -= 1
    else:
        op_count["Insert"] += 1
        j -= 1


print("\nEdit Distance Matrix : ")
for row in T:
    print(row)

print("\nMinimum Edit Distance : ", T[rows][cols])

print("\nOperation Counts:")
for op, count in op_count.items():
    print(f"{op}: {count}")
```

```
Edit Distance Matrix :
[0, 1, 2, 3, 4, 5]
[1, 0, 1, 2, 3, 4]
[2, 1, 1, 2, 3, 4]
[3, 2, 2, 1, 2, 3]
[4, 3, 3, 2, 2, 3]
[5, 4, 4, 3, 3, 2]

Minimum Edit Distance :  2

Operation Counts:
Insert: 0
Delete: 0
Replace: 2
```

In [ ]: