

## Why Use Affine Gap Penalties?

```
def possible(i):
    if i == 0:
        return True
    for j in range(1, i + 1):
        if possible(i - j) and (s1[i] == s2[j]):
            return True
    return False

s1 = "ACCCCTC"
s2 = "ATCCTA"
print(possible(len(s1)))
```

A-CCCCCCC-A  
 ATC-----CTA  
 score: 3

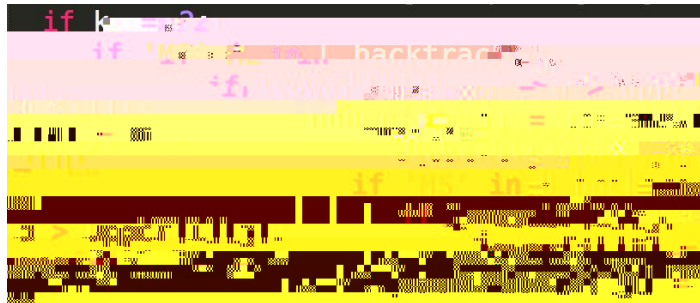
```
def example(s1, s2):
    n1 = len(s1)
    n2 = len(s2)
    dp = [[0] * (n2 + 1) for _ in range(n1 + 1)]
    for i in range(1, n1 + 1):
        for j in range(1, n2 + 1):
            if s1[i - 1] == s2[j - 1]:
                dp[i][j] = dp[i - 1][j - 1] + 1
            else:
                dp[i][j] = max(dp[i - 1][j], dp[i][j - 1])
    return dp[n1][n2]
```





*i, j*

*i, j*



**dynamicProgram**

*i j maxi, maxj*

**Align backtrack** *s1, s2,* **dynamicProgram.**

**chooseBest** *parkingStructure*

*backtrack.backtrack maxi maxj alignment\_score*

*i j*

*align1 align2*

*i s1 align1*

*j s2 align2*

*i j*



