# Longest Repeating Subsequence

Example: A A B B — we need to find longest repeating subsequence, such that, that subsequence must repeat more than once and those subsequences must not be at same indexes in parent string

String

Parent String ⇒ A A B B

n.of. Subsequences = 2

1st subsequence = A A B B

2nd subsequence = A A B B

occur more than once but not at same indexes

Longest Consequtive Subsequence [Excluding char at same indexes] ⇒ LRS

Algorithm

```
for(i=0, i<n, i++)
    for(j=0; j<n; j++)
        if(i==0 or j==0)
            dp[i][j] = 0
        else if(s1[i]==s2[j] and i!=j)
            dp[i][j] = 1+dp[i-1][j-1]
        else
            dp[i][j] = max(dp[i-1][j], dp[i][j-1])
```

| | 0 | 1 A | 2 A | 3 B | 4 B |
|---|---|---|---|---|---|
| | | A | A | B | B |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 1 A | 0 | 0 | 1 | 1 | 1 |
| 2 A | 0 | 1 | 1 | 1 | 1 |
| 3 B | 0 | 1 | 1 | 1 | 2 |
| 4 B | 0 | 1 | 1 | 2 | 2 |

return [n-1][n-1] ⇒ 2