

DP Concepts

video
27

&

Questions



हाथ
(Motivation)

“ If you want to see
a change, start
working for it...”

”

cswithMIK → Twitter

Facebook

Instagram

→ code story with MIK

whatsapp → code story with MIK

Done

• 1-D based DP

• 2-D based DP

Progress

• String based DP

• Grid based DP

• Game Strategy

We'll do:-

(i) RECURSION
+
MEMOIZATION
(Top Down)

(ii) Bottom UP

(iii) Time & Space

DP on Strings :-

→ Longest Common Subsequence (LCS)

→ Print LCS

→ Edit Distance

→ Shortest common Supersequence (SCS)

→ Print SCS

⇒ Palindrome related DP problems :-

→ Palindromic Substrings + Blueprint 

→ Longest Palindromic Substring

Longest Palindromic Subsequence

Palindrome Partitioning - I

(1) Recursion + Memoization

(2) Bottom UP → Blue Print

131. Palindrome Partitioning

Medium

Topics

Companies

Given a string `s`, partition `s` such that every substring of the partition is a **palindrome**. Return all possible palindrome partitioning of `s`.

Backtracking.


Solve
"a b a c d d"
{ "aba", "c", "dd" } ←

Example :- $s = "aab"$

Output :- { { "a", "a", "b" }, { "aa", "b" } }

"All possible" → BACKTRACKING...

BACKTRACKING



KHANDANI
TEMPLATE
LEETCODE-131

PALINDROME
PARTITIONING

25:25

Palindrome Partitioning | Backtracking | Khaandani Template | Leetcode 131 | codestorywithMIK

codestorywithMIK

← Please do watch...
Link in the Description

$S = \overset{0}{a} \overset{1}{a} \overset{2}{b}$ $n=3$

$t[i][j] = \text{True if } S[i..j] \text{ is a palindrome}$
 $\text{False if } S[i..j] \text{ is not a palindrome}$

$f[0][1] \rightarrow \text{True}$

$L=1$ (*) $f[i][i] = \text{True}$ // Diagonal elements
"Substr. of 1 char"

	0	1	2
0	T		
1		T	
2			T

for ($L=2$; $L \leq n$; $L++$) {

for (int $i=0$; $i < n-L+1$; $i++$) {

$j = i + L - 1$;

if ($s[i] == s[j]$) { $\begin{smallmatrix} i & j \\ a & a \end{smallmatrix}$

if ($L == 2$)

$f[i][j] = \text{True}$;

else

$f[i][j] = f[i+1][j-1]$;

Blue Print

}

}

$f =$

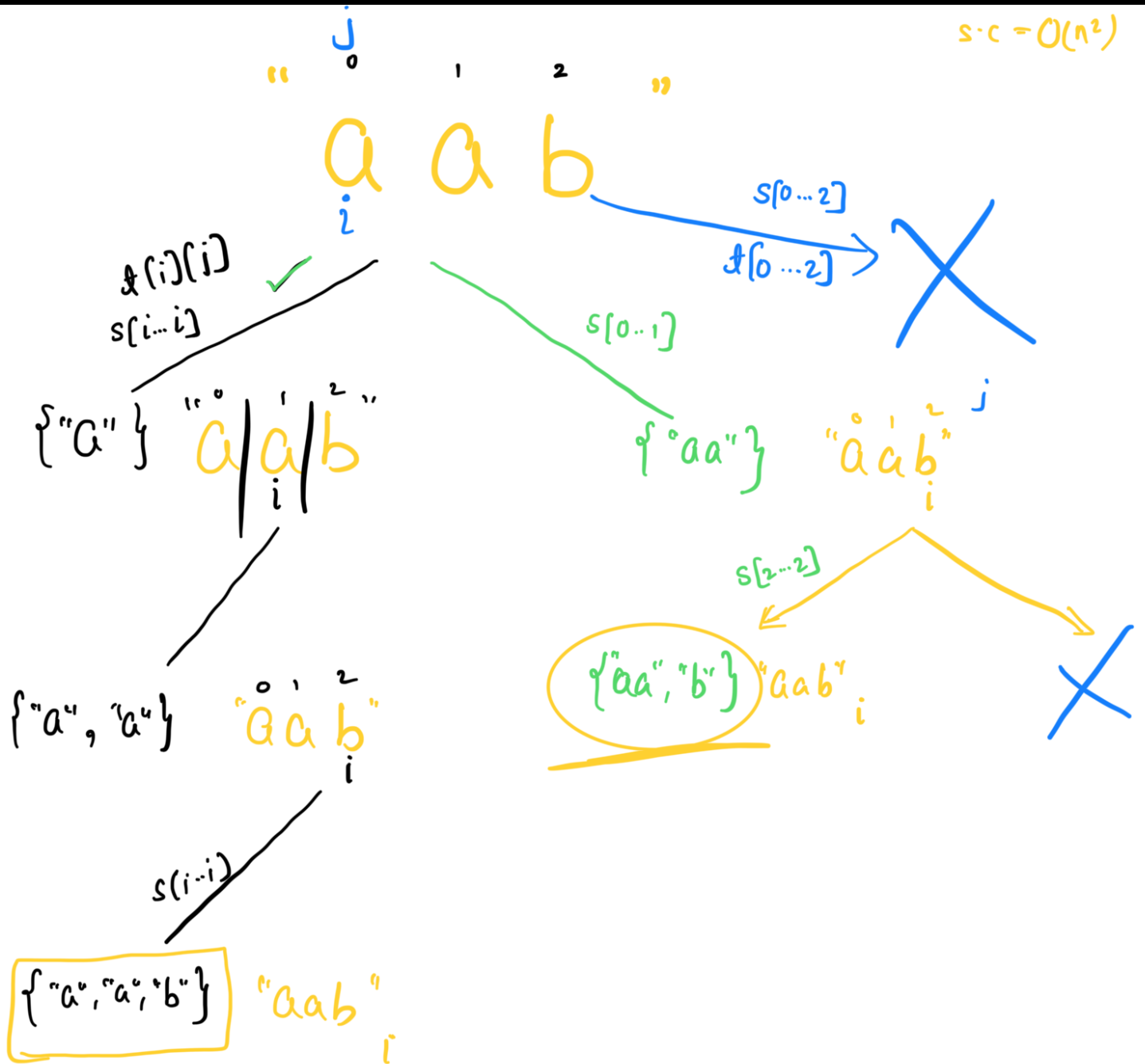
	0	1	2
0	T	T	F
1	F	T	F
2	F	F	T

3x3

$s = \begin{smallmatrix} i & j \\ a & a & b \end{smallmatrix}$
 $n=3$

T.C = $O(n^2)$

$$s.c = O(n^2)$$



$$\text{result} = \{ \underline{\{ "a", "a", "b" \}}, \underline{\{ "aa", "b" \}} \}$$

Story to Code:-

(i) Blue print $\rightarrow t[i][j]$ ✓

Solve(S, 0);

Solve(String S, int i, Part){

if (i == s.length()) {

result.push-back (Part);

}

for (j = i; j < s.length; j++) {

if (t[i][j] == True) { // O(1)

com: \Rightarrow Part.push-back (s.substr(i, j-i+1));
exp: \Rightarrow Solve(S, j+1, Part); // ans: ✓
undo: \Rightarrow Part.pop-back();

→ part-pop-back();

y

}

}

the 1990s, the number of people in the UK who are employed in the public sector has increased by 1.5 million (1990–1999) and the number of people in the private sector has increased by 1.2 million (1990–1999).

There is a growing emphasis on the need to improve the quality of care and services provided by the public sector. This has led to a number of initiatives, including the introduction of the Health Care Act 1999, the introduction of the NHS Constitution, and the introduction of the NHS Performance Framework.

The Health Care Act 1999 introduced a number of reforms, including the introduction of the NHS Constitution, the introduction of the NHS Performance Framework, and the introduction of the NHS Complaints Procedure.

The NHS Constitution is a document that sets out the values and principles that guide the NHS. It is a key document for the NHS and is used to inform the development of policies and procedures.

The NHS Performance Framework is a framework that is used to measure the performance of the NHS. It is a key document for the NHS and is used to inform the development of policies and procedures.

The NHS Complaints Procedure is a procedure that is used to deal with complaints about the NHS. It is a key document for the NHS and is used to inform the development of policies and procedures.

The NHS is a large and complex organization. It is made up of a number of different parts, including the NHS Foundation Trusts, the NHS Commissioning Board, and the NHS Clinical Commissioning Groups.

The NHS Foundation Trusts are organizations that are owned and controlled by the public. They are responsible for providing a range of health services, including primary care, secondary care, and tertiary care.

The NHS Commissioning Board is responsible for commissioning and paying for the services provided by the NHS. It is a key body in the NHS and is used to inform the development of policies and procedures.

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