Input: "BBA BCB CAB"

	B	B	A	B	C	B	C	A	B
	0	1	2	3	4	5	6	7	8

	0	1	2	3	4	5	6	7	8
0	1	2	2	3	3	5	5	5	7
1		1	1	3	3	3	3	5	7
2			1	1	1	3	3	5	5
3				1	1	3	3	3	5
4					1	3	3	3	3
5						1	1	1	3
6							1	1	1
7								1	1
8									1

CASE 1:

length = 1

(0,0)	(1,1)	(2,2)	(3,3)	(4,4)	(5,5)	(6,6)	(7,7)	(8,8)
b,b	b,b	a,a	b,b	c,c	b,b	c,c	a,a	b,b

Formula: [If there are more than 2 characters]

If $i == j$

$2 + [i+1][j-1]$

$i \neq j$

$\max[(i,(j-1)],[(i+1),j]$

Case 3:
only 2 characters, both are same then 2

CASE 2:

length = 2

(0,1) b,b — b == b (only 2 char, both are same, then ②]

$= 2 + [1][0] = 2$ ②

(1,2) b,a — $b \neq a$

$\max[(1),(2-1)],[(1+1),2] = \max((1,1)(2,2))$

$= \max(1,1)$

$= ①$

(2,3) a,b ⇒ $a \neq b$

$\max[(i)(j-1),(i+1),j] = \max[(2,2)(3,3)] = \max(1,1) = ①$

(3,4) b,c ⇒ $b \neq c$

$\max[(3,3),(4,4)] = \max[1,1] = ①$

(4,5) c,b ⇒ $c \neq b$

$\max[(4,4),(5,5)] = \max[1,1] = ①$

(5,6) b,c ⇒ $b \neq c$

$\max((5,5),(6,6)] = \max[1,1] = ①$

(6,7) c,a ⇒ $c \neq a$

$\max((6,6)(7,7)] = \max[1,1] = ①$

(7,8) a,b ⇒ $a \neq b$

$\max((7,7)(8,8)] = \max[1,1] = ①$

CASE 3: length = 3

(0,2) b,b,a ⇒ $b \neq a$

$\max[(i)(j-1),(i+1),j] = \max[(0,1)(1,2)] = \max(2,1) = ②$

(1,3) bab ⇒ b=b

$2 + [i+1][j-1] = 2 + [2][2] = 2+1 = ③$

(2,4) a,bc ⇒ $a \neq c$

$= \max((2,3),(3,4)) = \max(1,1) = ①$

(3,5) bcb ⇒ b=b

$= 2 + [4][4] = 2+1 = ③$

(4,6) cbc ⇒ c=c

$= 2 + [5][5] = 2+1 = ③$

(5,7) bca ⇒ $b \neq a$

$\max[(5,6),(6,7)] = \max(1,1) = ①$

(6,8) cab ⇒ $c \neq b$

$\max[(6,7)(7,8)] = \max(1,1) = ①$

CASE 4 : length = 4

(0,3) b=b
bbab 2 + [1+1][3-1] = 2 + [2][2] = 2+1 = ③

(1,4) b≠c
babc max(i,j-1), (i+1)(j)) = max((1,3)(1+1)(4)) = max(1,3)(2,4))
= max(3,1) = ③

(2,5) a≠b
abcb max((2,4),(3,5)) = max(1,3) = ③

(3,6) b≠c
bcbc max((3,5)(4,6)) = max(3,3) = ③

(4,7) c≠a
cbca max((4,6)(5,7)) = max(3,1) = ③

(5,8) b=b
bcab 2 + [1+1][3-1] = 2 + (6)(7) = 2 + 1 = ③

CASE 5: length = 5

(0,4) b≠c
bbabc max((0,3),(1,4)) = max(3,3) = ③

(1,5) b=b
babcb 2 + [2][4] = 2 + 1 = ③

(2,6) a≠c
abcbc max((2,5)(3,6)) = max(3,3) = ③

(3,7) b≠a
bcbca max((3,6)(4,7)) = max(3,3) = ③

(4,8) c≠b
cbcab max((4,7)(5,8)) = max(3,3) = ③

CASE 6: length = 6

(0,5) b=b
bbabcb 2 + [0+1][5-1] = 2 + [1][4] = 2 + 3 = ⑤

b≠c
(1,6)
babcbc max((1,5)(2,6)) = max(3,3) = ③

(2,7) a=a
abcbca 2 + [2+1][7-1] = 2 + [3][6] = 2 + 3 = ⑤

(3,8) b=b
bcbcab 2 + [3+1][8-1] = 2 + [4][7] = 2 + 3 = ⑤

CASE : 7
length = 7

(0,6) b≠c
bbabcbc max((0,5)(1,6)) = max(5,3) = ⑤

(1,7) b≠a
babcbca max(1,6)(2,7)) = max(3,5) = ⑤

(2,8) a≠b
abcbcab max((2,7)(3,8)) = max(5,5) = ⑤

CASE : 8 length = 8

(0,7) b≠a
bbabcbca max((0,6)(1,7)) = max(5,5) = ⑤

(1,8) b=b
babcbcab 2 + [2][7] = 2 + 5 = ⑦

CASE : 9 length = 9: b

(0,8)
bbabcbcab b=b
2 + [1][7] = 2 + 5 = ⑦

By Table : The LPS is 7