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KMP Algo - 3

* Make a string palindrome:

⇒ Conditions

Add min char at start to make it palindrome.

Ex: abc | ROORSP

⇒ cbabc | PS ROORSP

⇒ In our first approach, everytime we will check the string is palindrome or not.

ROORSP
↳ This is palin. → X
↳ Add P in the starting

PS ROORSP
↳ palin. → X → Add S

PS ROORSP
↳ palin. → ✓

2 → ans

⇒ T.C → $O(N^2)$

⇒ For solving this question in O(N) time, we have to check the longest prefix palindrome then the length of LPP & subtract from total length gives us the correct answer.

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Ex: Ra moomst

LPP → 7 → ans

Ex: aaace caga@ → 1 → ans

palindrome

To find the LPP, we will first reverse the string. → Longest prefix

ROORSP

PSROOR

Longest suffix

Also, we can do this —

ROORSP$PS ROOR → 4 → 6-4 = (2) ans

This is LPS.

we have to add a '$' sign when we add our strings.

pattern

* Circular ~~string~~ Matching:

We have given a circular string & an another string.

we have to check the another string is present in the circular string or not.

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Ex: cde ab no ab
abcde

=1 Just add the string again in the end.
=1 cde ab no ab cde ab no ab
=1 abcde
=1 Pattern matches → return 1.
=1 Use LPS and then match the pattern.

* Repeated String Match:

a = abc
b = bcabc

=1 We have to repeat 'a' to make 'b' as a substring of 'a'.

=1 abc abc Rep = 2 → ans
bcabc

=1 Our first task is to make our string a equal to b or greater than b in length by doing repeatition.
=1 After that we will check if the string is present or not.
=1 If yes, then give the answer.
=1 If not, then we will repeat one more time and check, if yes then give answer otherwise return no.