Hashing

\# Theory

\# Matching (Pattern)

\# Palindromic Substring

\# Array hashing

$M = 20$ $M > \max(|elem|) + 1$

$$\prod_{i=0}^{n-1} (S_i + M)$$

Problem

S_1 S_2 unordered

$S_1 == S_2$?

$S_1 = \{ 5, 2, 6, 1, 7 \}$

$S_2 = \{ 1, 7, 5, 6, 2 \}$

Draft Idea 1:

$\text{sum}(S_1) == \text{sum}(S_2)$

$S_1 = \{ 1, 1, 4 \}$

$S_2 = \{ 1, 2, 3 \}$

Draft Idea 2:

$\text{mult}(S_i) == \text{mult}(S_2)$

$S_1 = \{ 1, 1, 8 \} =$

$S_2 = \{ 2, 2, 2 \}$

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Recursion

\# $\text{factorial}(5) = 5 \times \text{factorial}(4)$

$\boxed{\text{factorial}(0) = 1}$
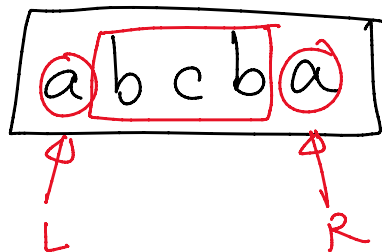
$\boxed{f(5)}$

$fact(5, 1)$

$= fact(4, 1 \times 5)$

$= fact(3, 1 \times 5 \times 4)$

$= fact(2, 1 \times 5 \times 4 \times 3)$

$= fact(1, \boxed{1 \times 5 \times 4 \times 3 \times 2})$

$= fact(0,$

$fact(n, res)$

$$isPal(S, L, R) = (S[L] == S[R])$$
AND
$$isPal(S, L+1, R-1)$$

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Problem

$K = 1 \rightarrow S_1 = 1$

$S_2 = 2$

$S_3 = 3$

$S_4 = 4$

$S_5 = 6$

$S_6 = 8$

$S_7 = 9$

$Special\ Number = 2^x \times 3^y$

$x, y \geq 0$

$1 \leq K^{th}\ special\ Number \leq 10^{15}$

$S_0 \times 2 \quad \begin{cases} S_0 \times 2^2 \\ S_0 \times 2 \times 3 \end{cases}$

$1 \quad \begin{cases} \nearrow S_0 \times 2 \\ \searrow S_0 \times 3 \end{cases}$

$S_0 \times 3 \quad \begin{cases} S_0 \times 3 \times 2 \\ S_0 \times 3 \times 3 \end{cases}$