



$s_1 = \text{"abcde"}$
 \downarrow
 abcde

$$h_1[0] = 1$$

$$h_1[1] = 12$$

$$h_1[2] = h_1[1] \times 10 = 120 + 3 = 123$$

$$h_1[3] = 1234$$

$$h_1[4] = 12345$$

$$\text{hash}(L, R) = h_1[R] - (h_1[L-1] \times 10^{R-L+1})$$

$$h_1[R] = 1234$$

$$h_1[L-1] \times 10^{R-L+1} = 1 \times 10^1$$

$$\text{hash}(1, 3) = 234$$

$$a = 1$$

$$b = 2$$

$$c = 3$$

$$z = 26$$

$$('b') - ('a') + 1$$

$$1 + 1 = 2$$

$$h[i] = (h[i-1] \times 26 + (c - 'a' + 1))$$

$s_1 = \text{"abcdefabcdefzzzzzz"}$

$ns_1 = 123456 | 234562626262626$
 $\% (10^9 + 7)$

22 Len

$$a = 1$$

$$b = 2$$

$$c = 3$$

$$z = 26$$

$$\text{abcde} \rightarrow (1 \times 26^4) + (2 \times 26^3) + (3 \times 26^2) + (4 \times 26^1) + (5 \times 26^0)$$

$$\text{bf} \rightarrow (2 \times 29^1) + (6 \times 29^0)$$

$$(1011)_2 \rightarrow (1 \times 2^3) + (0 \times 2^2) + (1 \times 2^1) + (1 \times 2^0)$$

n-ary

(11111111)

$$(110101)_2 \rightarrow$$

$$(x - y) \% M = 902 \% M$$

$$\Rightarrow x \% M - y \% M = 902 \% M$$

$$(a - b) \% M$$

$$= a \% M - b \% M$$