Class 08

Friday, July 29, 2022 10:01 PM

2^n

$N \rightarrow 2^x$

$2^0 = 1$
$2^1 = 10$
$2^2 = 100$
$2^3 = 1000$
$2^4 = 10000$

1 ✓
2 ✓
3 ×
4 ✓
8 ✓
16 ✓
32 ✓

n-1 → 01111
n → 10000
& 00000

n&(n-1)==0

— o —

O(N) → N = string len

String hashing

S1 = "abcde"
S2 = "abcdf"

if(S1 == S2)

n1 = 12
n2 = 1325

O(1) if(n1 == n2)

Hash value

String —f(str)→ Number

S1 —f(S1)→ n1
S2 —f(S2)→ n2
S3 —f(S3)→ n3
sakib bbbbb

- Fast
- One-one

19752

19752

f("abc") →

$abc \rightarrow 1 \times 26^2 + 2 \times 26^1 + 3 \times 26^0$ S = 97 + 98 + 99

= 676 + 52 + 3
= 731 → "abc"

731 % 26 → 3 → c
28 % 26 → 2 → b
1 % 26 → 1 → a

S1 = aabcxabbxyzccbabc

S2 = abc

S2 = ccd → 334

S1 = abccda → 123341

h0 → 1
h1 → 1×10¹ + 2×1 = 12
h2 → 123
h3 → 1233
h4 → 12334
h5 → 123341

12334
(-) 12 × 10^(4-2+1)
334

12334
(-) 12000
334

12×10 → 120 → 123

12×10^3

L . . . . R

S → [L, R]

h[R] − (h[L−1] × BASE^(R−L+1))