

$$\frac{L-2}{21.12.21}$$

* i অর্থাত্ element থাকলে unsuccessful search: $O(1 + \frac{i}{m})$

* এরপর α insert " successful " : $O(1 + \frac{i}{m})$

$$\frac{1}{n} \sum_{i=0}^{n-1} (1 + \frac{i}{m})$$

$$= \frac{1}{n} \times n + \frac{1}{n} \times \frac{n(n-1)}{2 \times m}$$

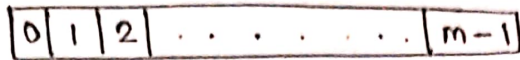
$$= 1 + \frac{n-1}{2m}$$

$$= 1 + \frac{n}{2m}$$

$$\boxed{= 1 + \frac{\alpha}{2}} \rightarrow \text{Successful search - avg. runtime.}$$

* Time complexity - $O(1 + \alpha)$ টাক্স গারান্টি

⑪ Open Addressing:



$$n \leq m$$

load factor : $\alpha \leq 1$

probes:

$h(k, i)$, ~~as (row, col)~~ \rightarrow ~~(row, col)~~ \dots
 \hookrightarrow no. of k computed

* যতদূর transverse বাঁকায় হয় ততদূর $\Rightarrow m!$

Strong uniform hashing

$$T(m, n) = \text{probes}$$

$$E(T(m, n)) = 1 + \frac{n}{m} \times E(T(m-1, n-1))$$

$$h(k, 0)$$



$$\left(\frac{n}{m}\right)$$

$$E(T(m, n)) = \frac{m}{m-n}$$

$$\therefore n \leq 0 \quad 2\sqrt{n} \quad E \leq 1$$

Base case: $E(T(m, 0)) = 1$

Hypothesis: $E(T(m-1, n-1)) = \frac{m-1}{m-1-(n-1)} = \frac{m-1}{m-n}$

$\therefore E(T(m, n)) = 1 + \frac{n}{m} * \frac{m-1}{m-n}$

$\leq 1 + \frac{n}{m-n} = \frac{m-n+n}{m-n} = \frac{m}{m-n}$

$\hookrightarrow (m-1)$ জন m স্ট্রিং ক্যাটাগরি বসাব।

$= \frac{1}{1-\frac{n}{m}} = \frac{1}{1-\alpha}$

$2345678 = (n, m) T$

$((1-\alpha, 1-\alpha) T) \times \frac{1}{m} + 1 = ((n, m) T) \exists$

$(0, 1) T$

$(\frac{n}{m})$

$n \frac{m}{m} = ((n, m) T) \exists$