Depoint chaining.

(Je) A

(k) 4 = (k) 4

(m) #

Mr Arabon 1-1

 $\frac{1}{hx} = -((y)A - (x)A)a) \quad \text{Ktx}$

linear search $\rightarrow O(n)$ binary search $\rightarrow O(\log n)$

Hashing | Hash table -> const. amount of time-4 stone & retrieve

 $h: k \rightarrow i \Rightarrow hash function$

Direct addressing: h(k)=k, h(k)=k:1.m

(bosd) fail and to manas

- Demony consuming
- i) same value waritarata stone 27 ATI multiple element same \$150 21701 -> collision

Collision depends on -> hash function, avorage size * length of a challelater will determine the numing time.

Hash function Assumption:

Simple Uniform Hashing

Table size -> m

 $h(x) = i = \frac{1}{m}$: Uniformity

 $C_{x,y} = \begin{cases} 0 & h(x) + h(y) \end{cases}$

he free servery

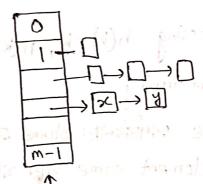
Universal: विवास element विनाथाम् यात्र, व्योगे पात्र प्रातात्र हेन्न्त्र dependent तीः

$$x \neq y$$
 $\ln(h(x) = h(y)) = \frac{1}{m}$

Collision Resolve Technique:

O Separate Chaining:

$$h(x) = h(y)$$



array of link list (head)

ptimodial: - = 1= (x)d

turns & . slowt dant princed

nothing food & le-411

* length of a chain &(a) will determine the running time.

$$Cx,y = \begin{cases} 1 & h(x) = h(y) \\ 0 & h(x) \neq h(y) \end{cases}$$
 in ideast months of solutions of solutions of the first solutions

$$l_{x} = \int_{0}^{\infty} c_{x,y} \sum_{y \in T} c_{x,y}$$

$$E(lx) = E\left(\frac{\sum_{i \in I} c_{xi}}{\sum_{i \in I} c_{xi}}\right)$$

$$= \frac{\sum_{i \in I} \left(E\left(c_{xi}\right)\right)}{\left(1 * \frac{1}{m} + 0\right)}$$

$$= \frac{\sum_{i \in I} \frac{1}{m}}{\left[n \text{ of elements}\right]}$$

$$= \alpha$$

= load factor

Runtime: 0(1+x)

for
unsuccessful

search