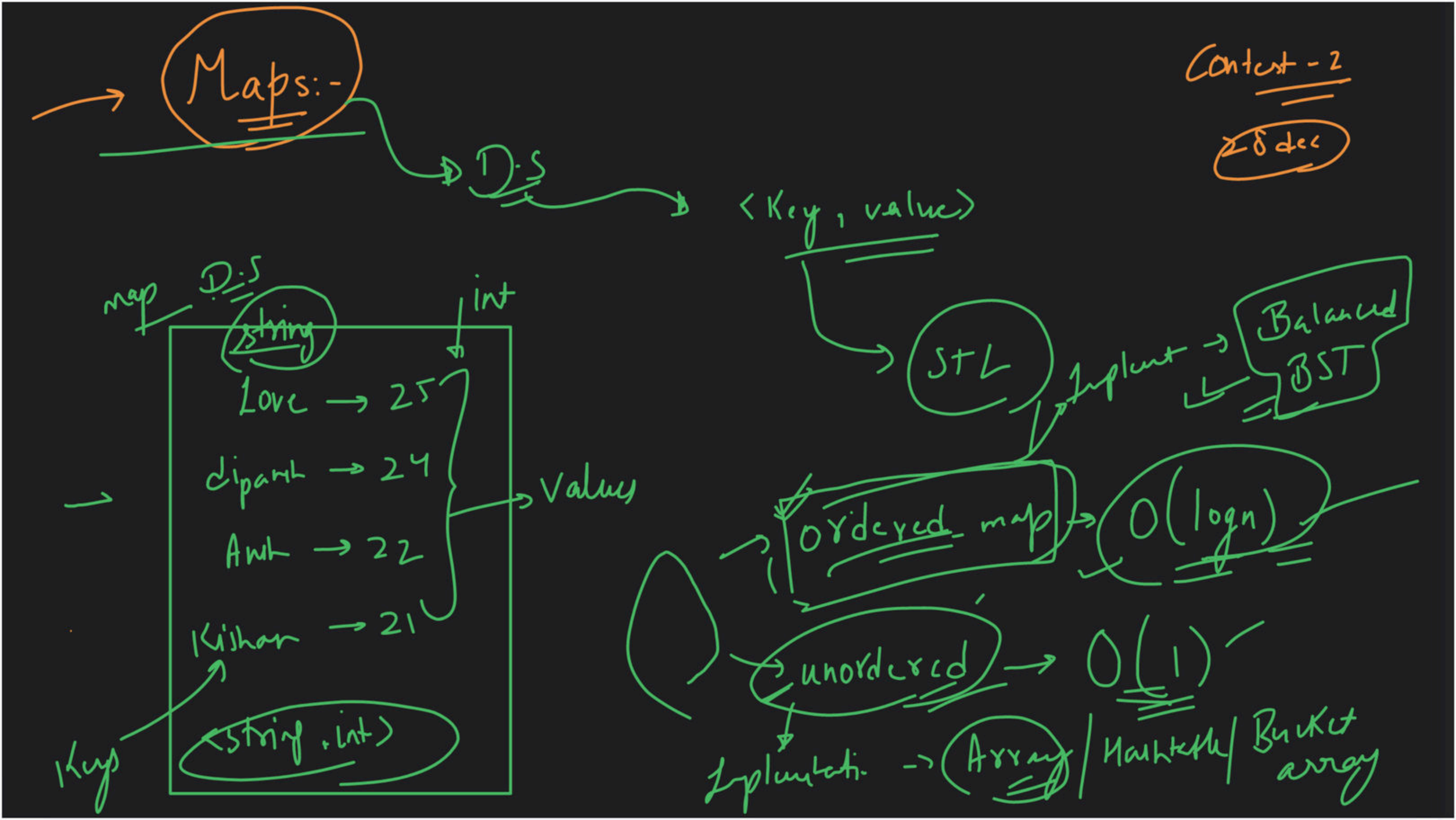
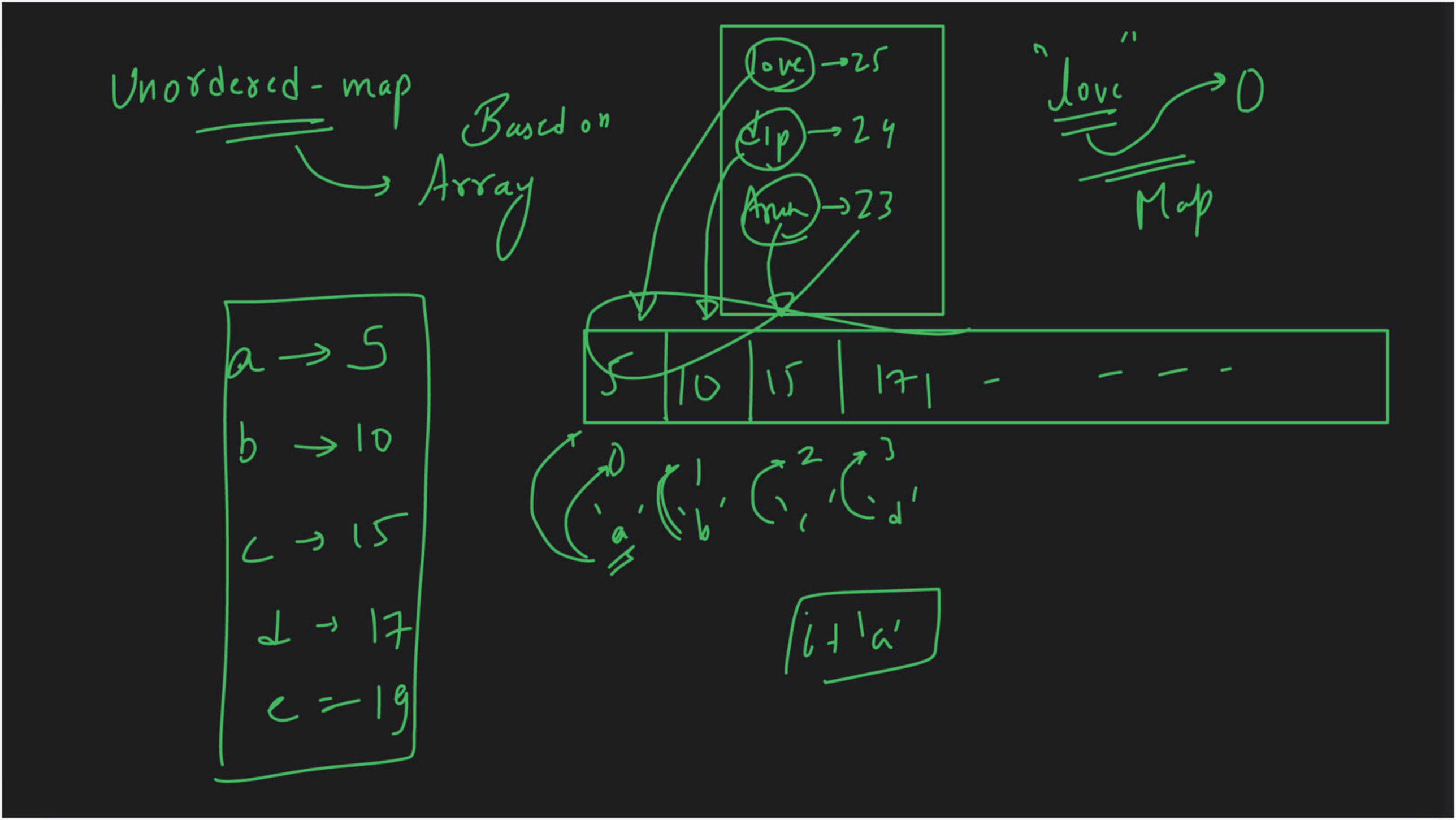
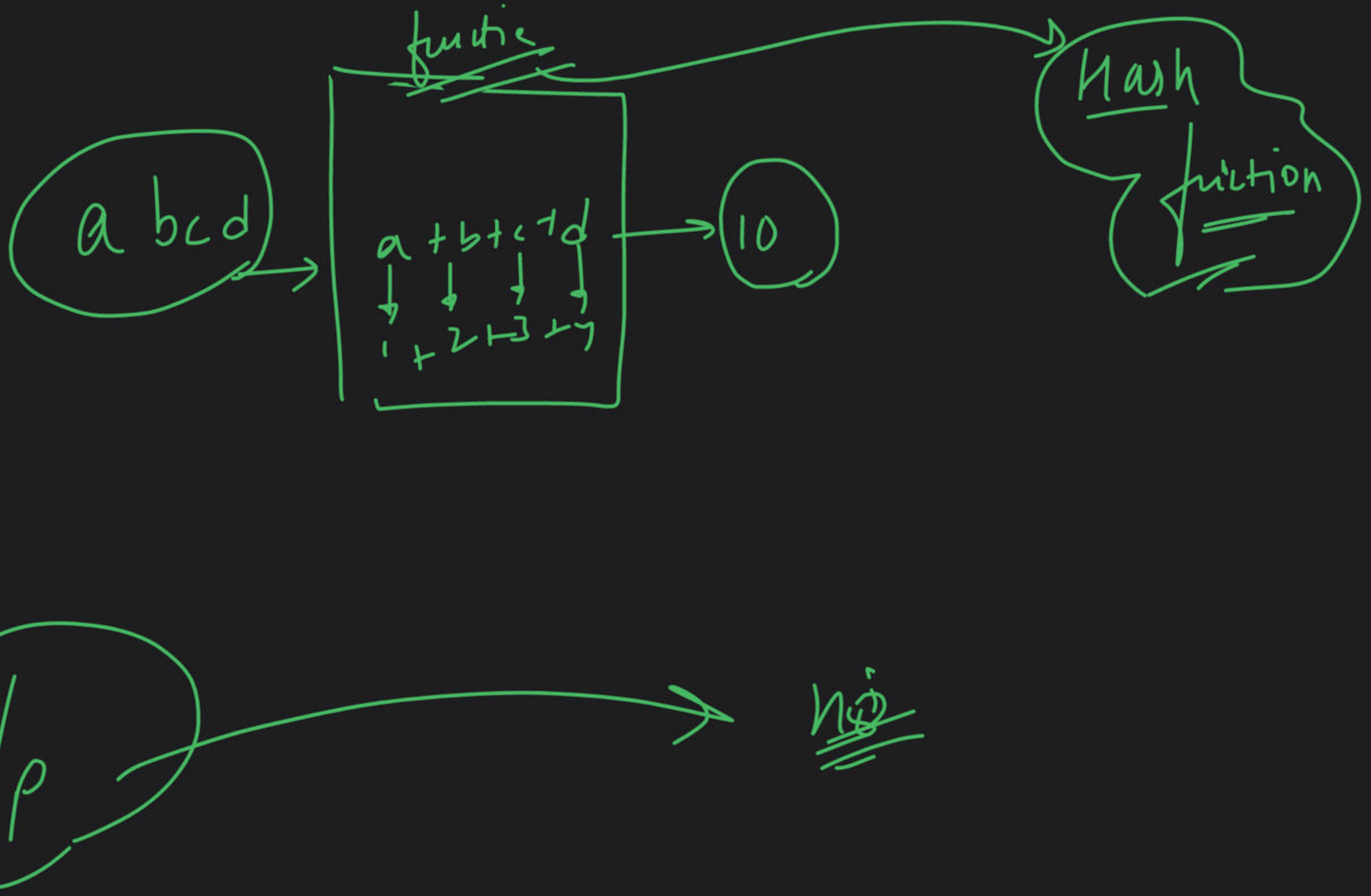
Hashmaps & Tries - Class 1

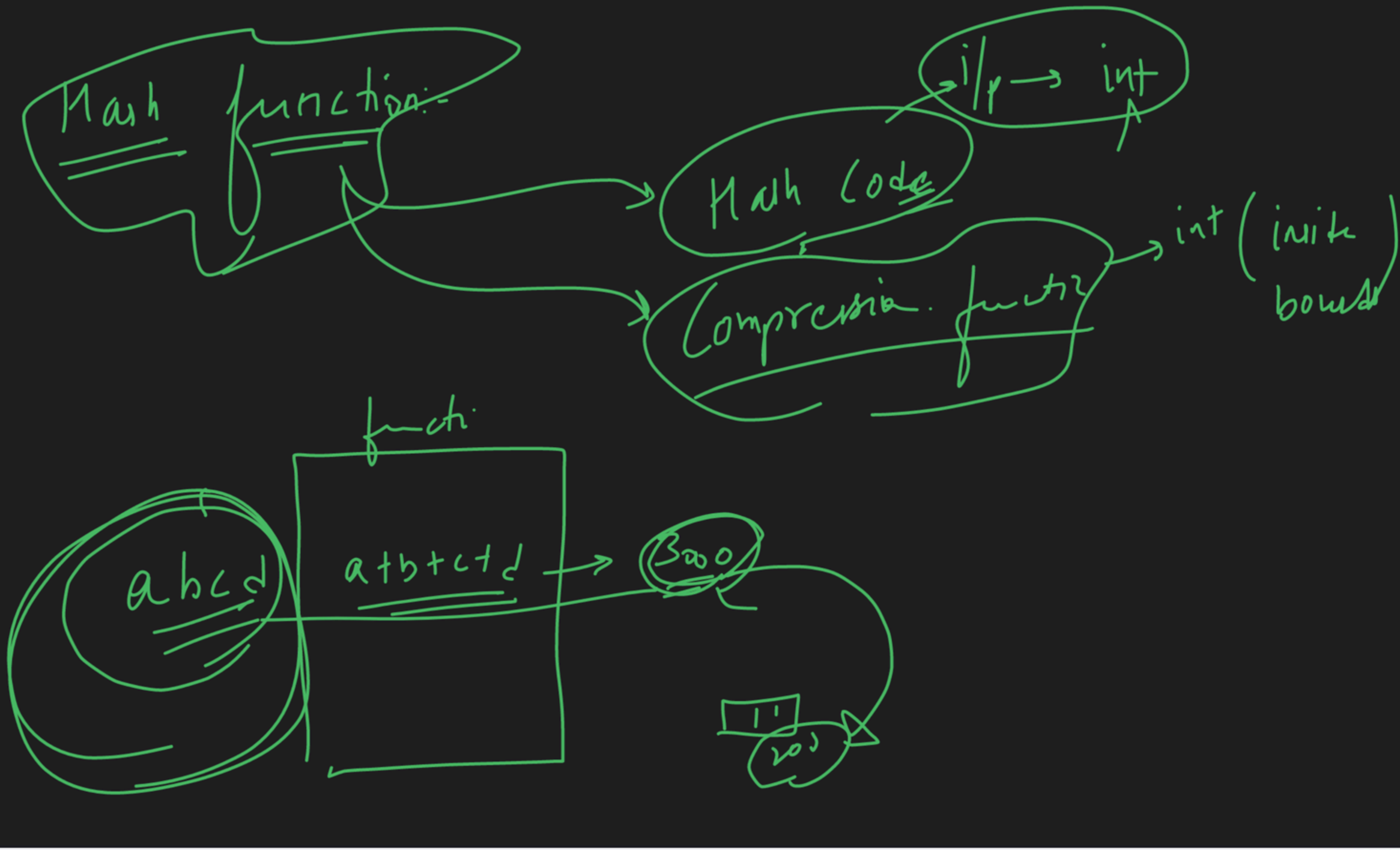
Special class

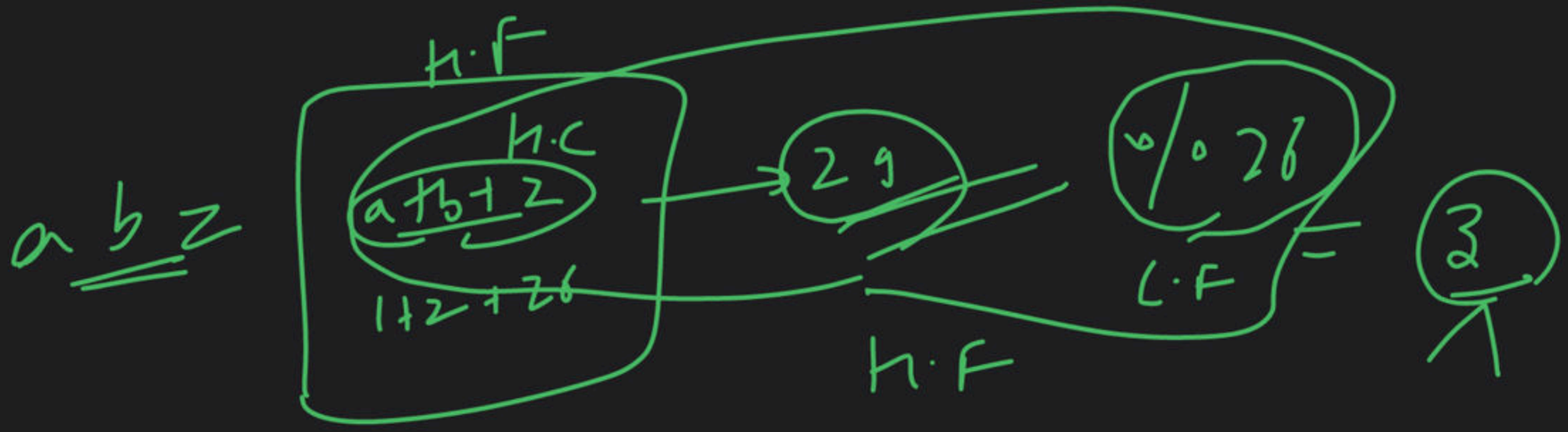
Love Babbar • Dec 27, 2023

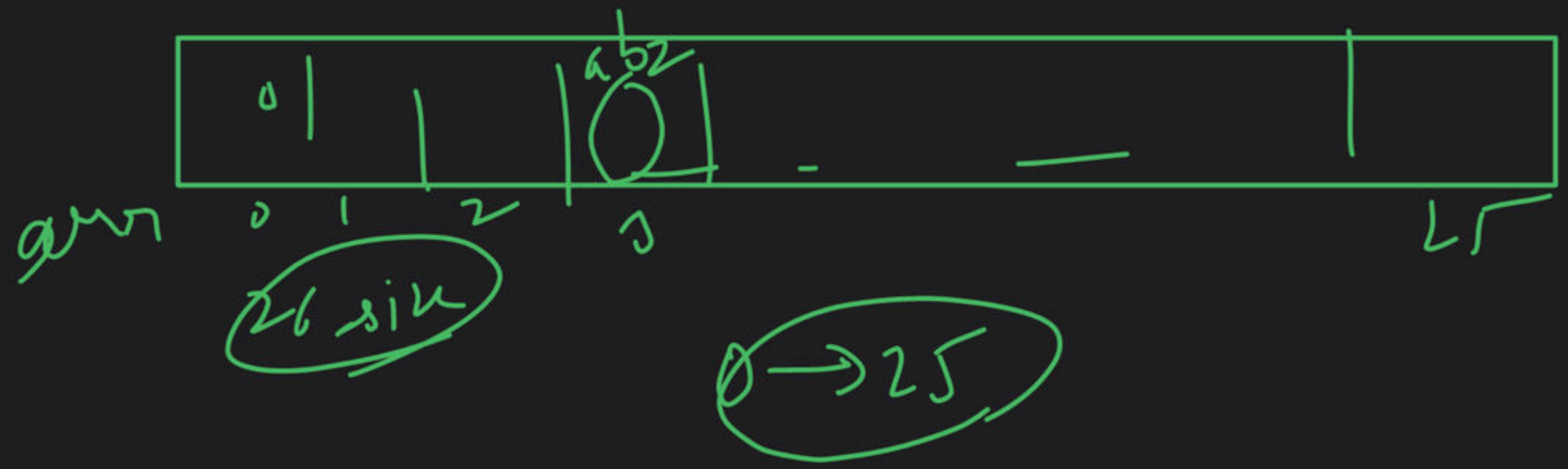

Maps:-
D.S
Contest - 2
8 dec
<Key, value>
map
D.S
string
int
Love → 25
dipanh → 24
Anh → 22
Kishan → 21
Value
Keys
<String, int>
STL
Implement →
Balanced BST
ordered map
O(logn)
unordered
O(1)
Implementation → Array / Hashtable / Bucket array

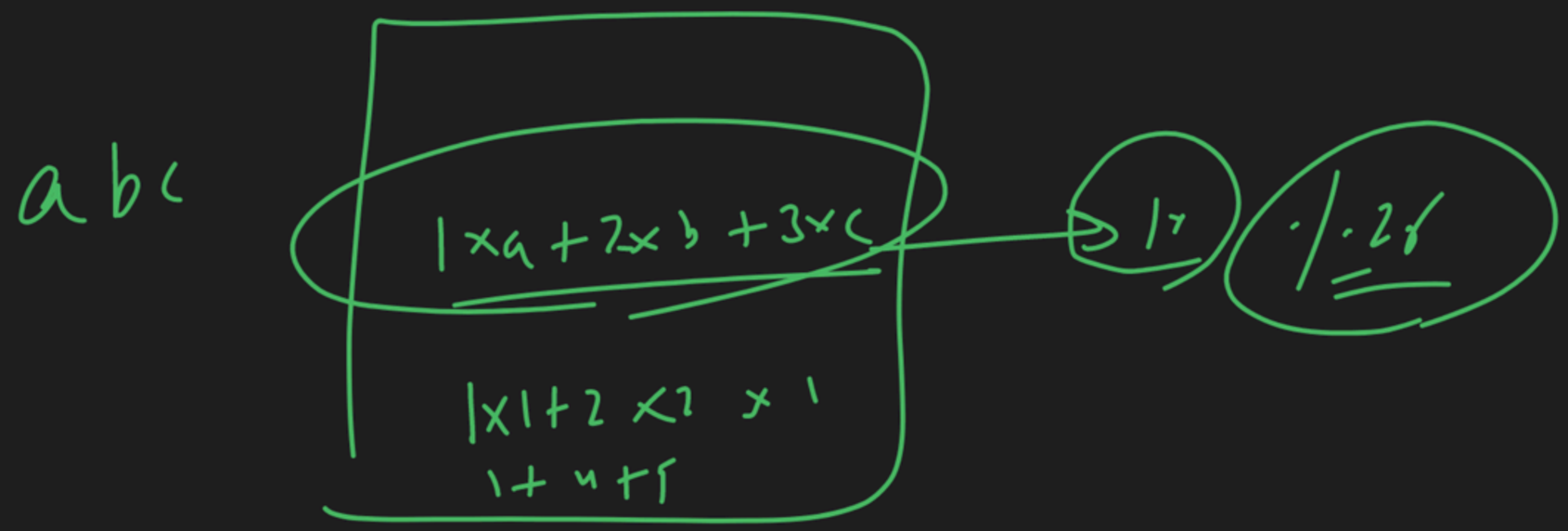

Unordered - map
Based on
Array
love → 25
dip → 24
Arun → 23
"love" → 0
Map
a → 5
b → 10
c → 15
d → 17
e = 19
5
10
15
17
0
1
2
3
'a'
'b'
'c'
'd'
i + 'a'

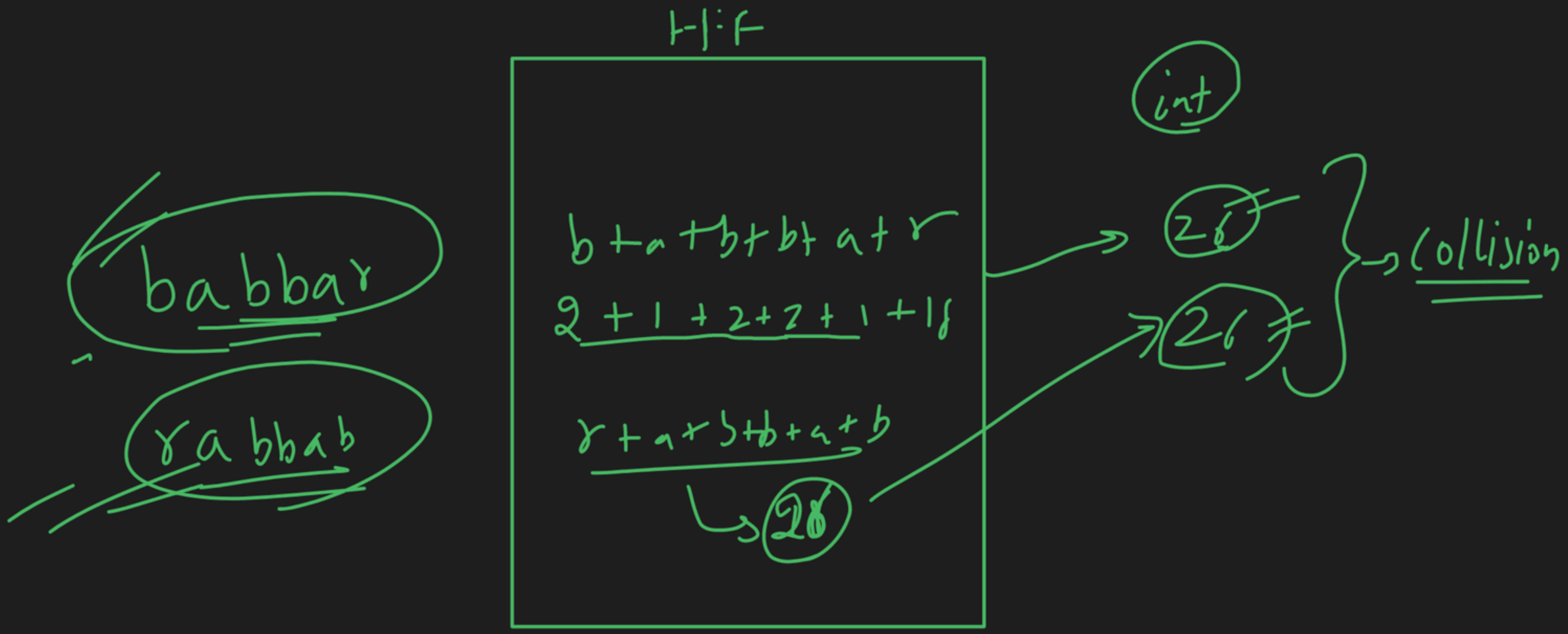

function
Hash function
a b c d
a + b + c + d
1 + 2 + 3 + 4
10
i/p
hash


Hash function:-
i/p → int
Hash Code
Compression function
int (init bound)
func:
abcd
a+b+c+d
Boo
1
20

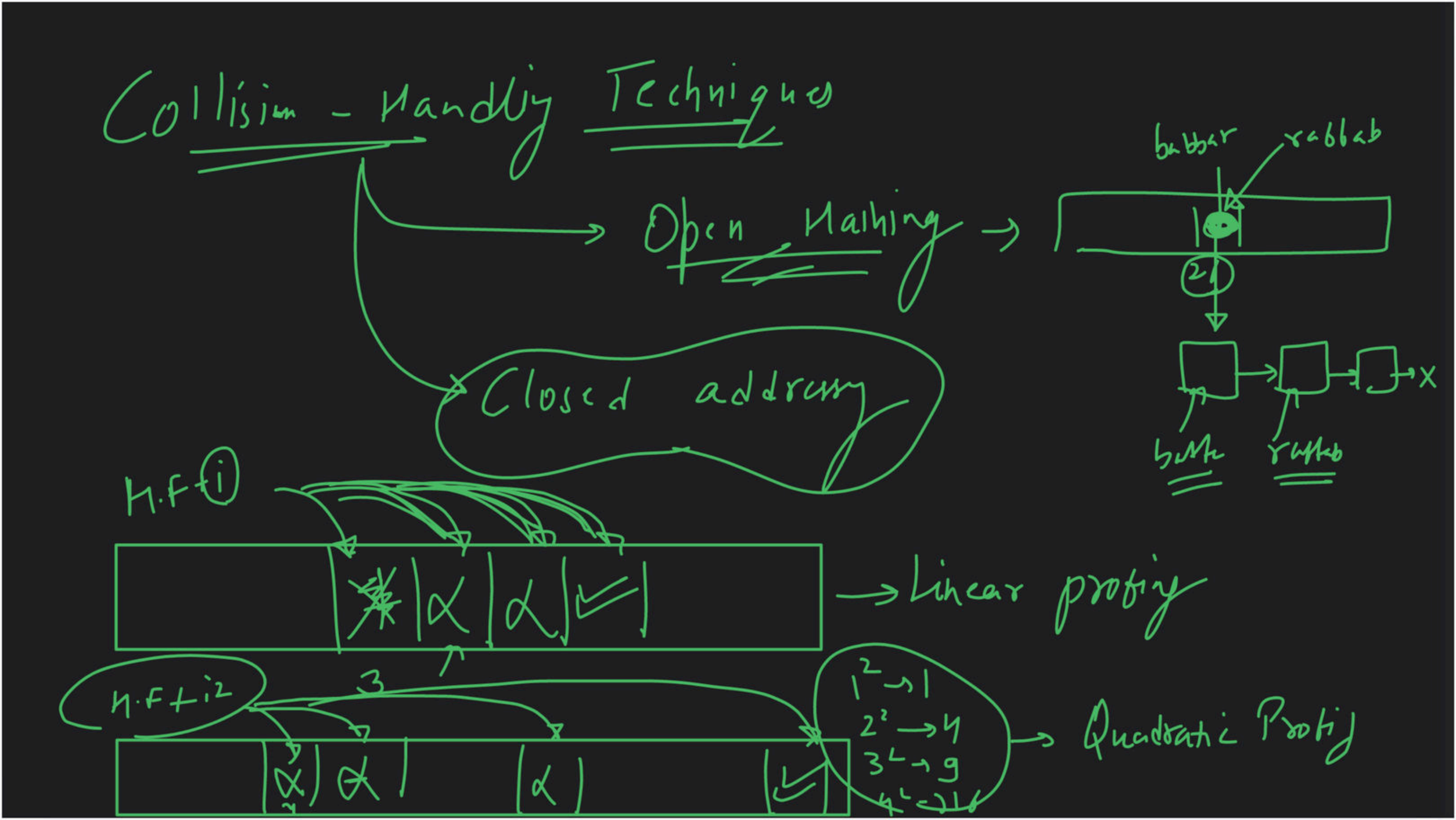

a b z
M.F
M.C
a+b+z
1+2+26
29
%o 26
L.F
M.F
3

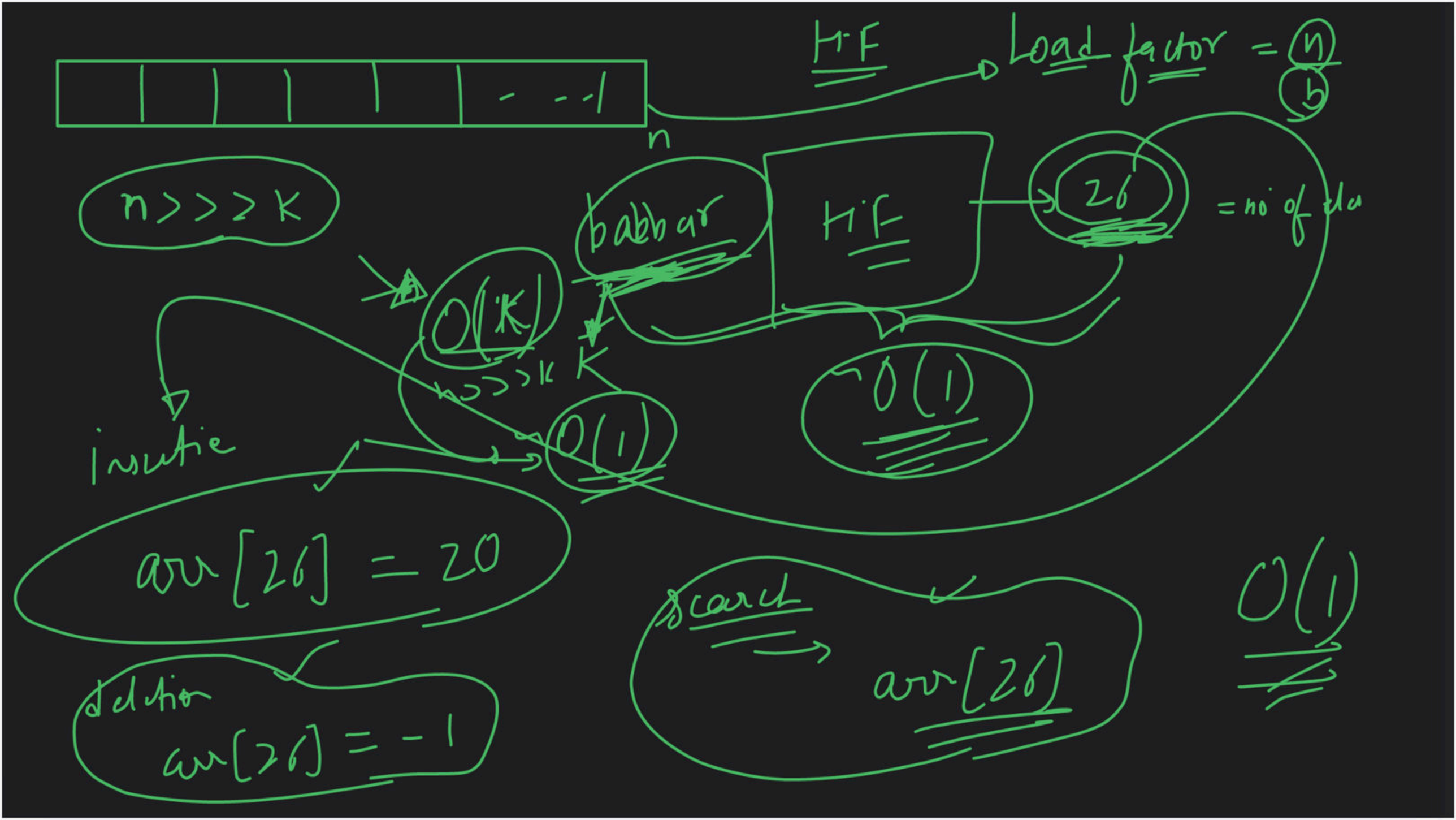

0
a b z
args
0
1
2
3
L
26 size
0 → 25

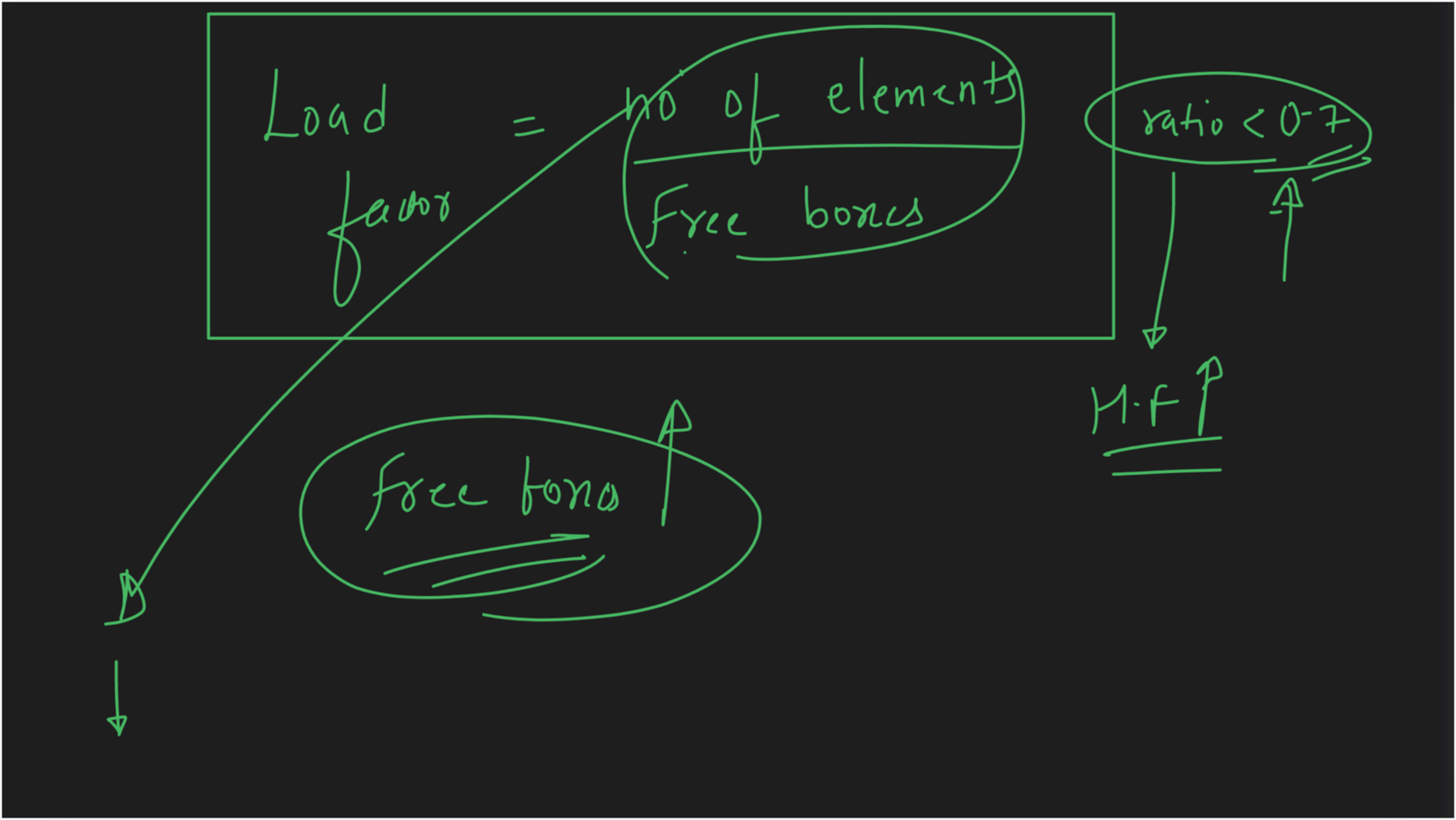

abc
1xa+2xb+3xc
1x
1x1+2x2 x1
1+4+5


Hiif
babbar
rabbab
b+a+b+b+a+r
2+1+2+2+1+18
r+a+b+b+a+b
28
int
28
26
collision

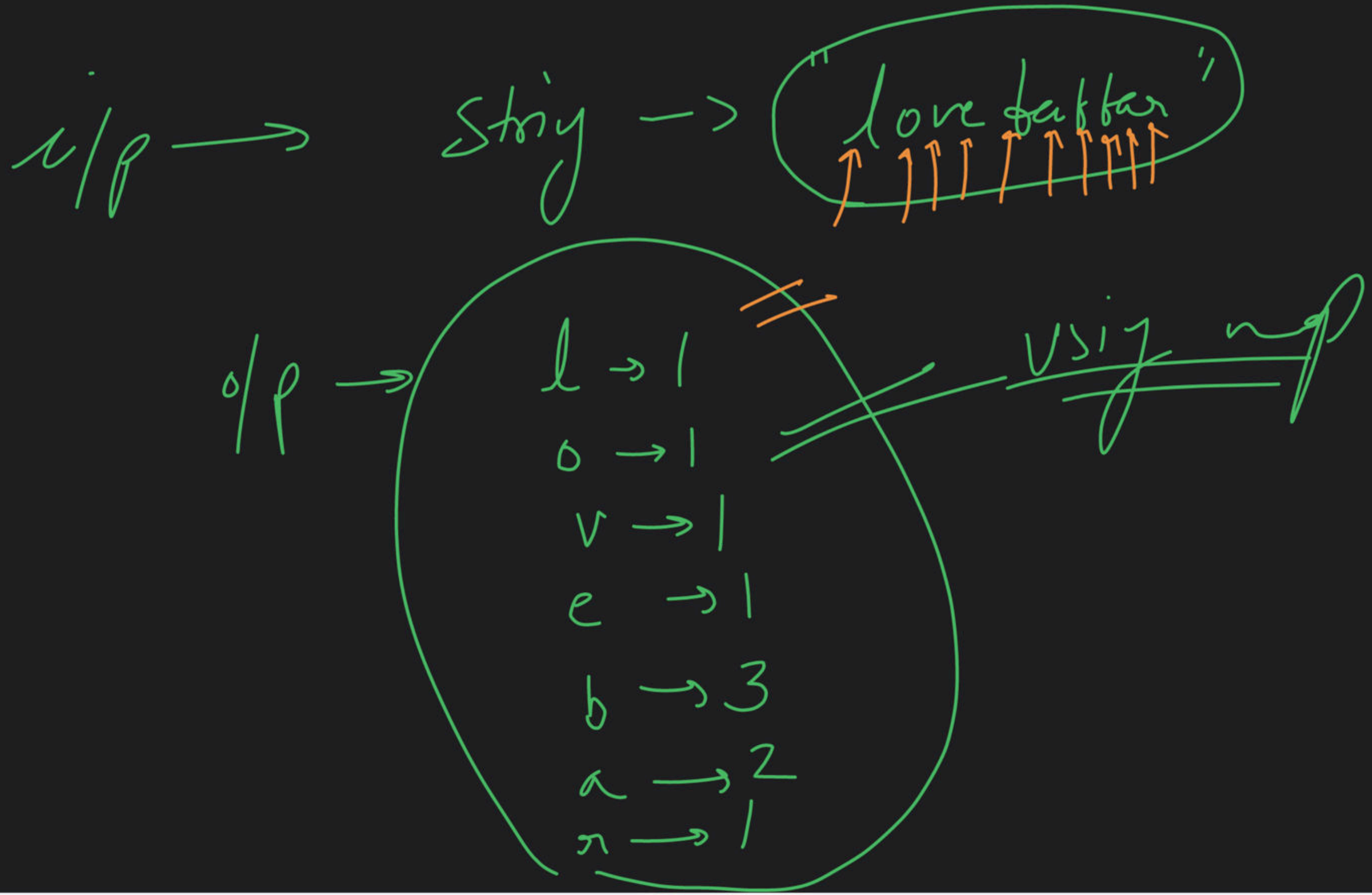
Collision - Handling Techniques



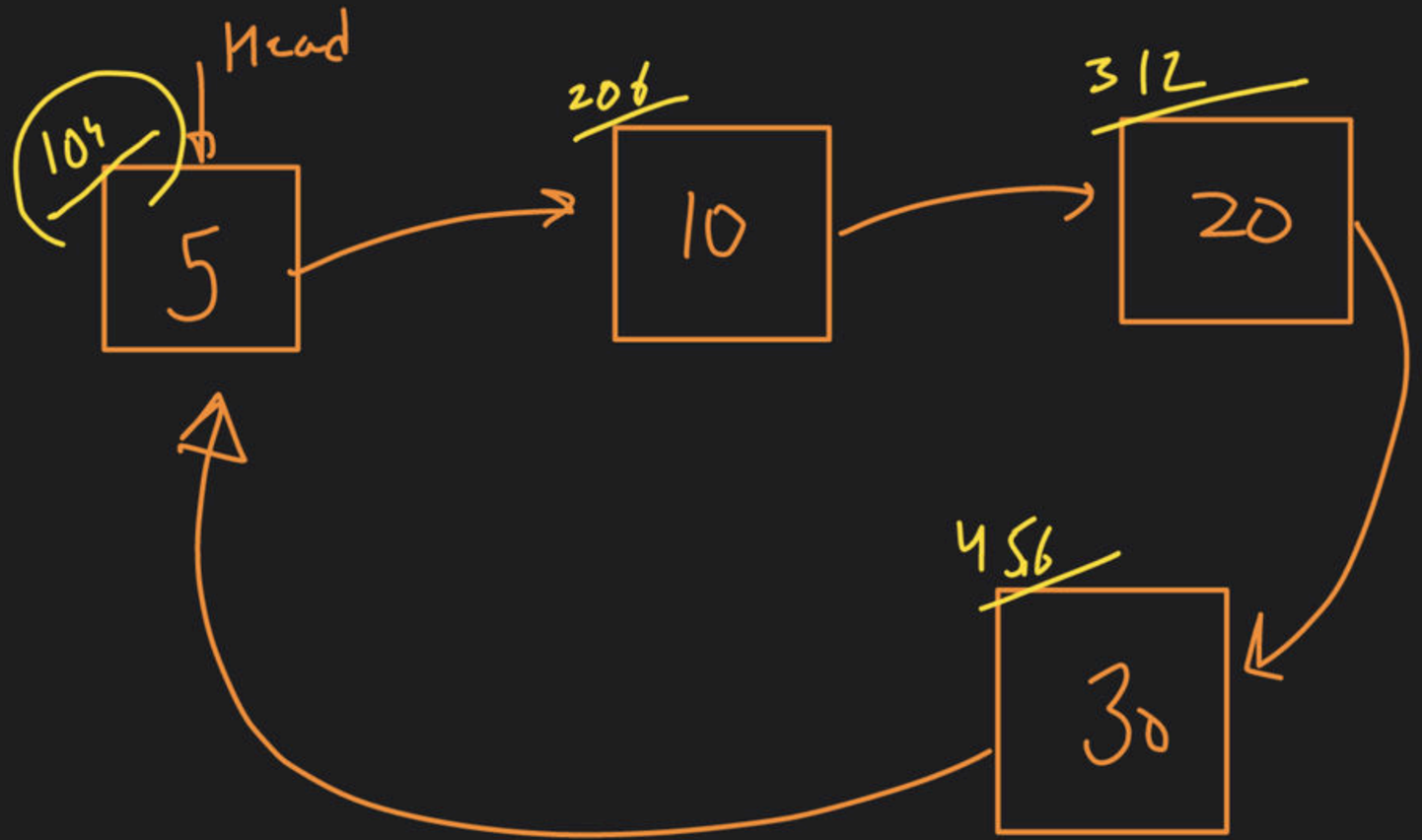

HF
Load factor = n/b
n
n >>> k
babbar
HF
26
= no of elements
O(K)
K
O(1)
insertie
arr[26] = 20
O(1)
delete
arr[26] = -1
search
arr[26]
O(1)


Load factor = no of elements / Free boxes
ratio < 0.7
M.F
Free fons

2 min


i/p →
String →
"love baffar"
o/p →
l → 1
o → 1
v → 1
e → 1
b → 3
a → 2
r → 1
visit map

LL is circular or not ?



Circular

104 → True

206 → True

312 → True

456 → True