

④  $m=13$

$$\text{hash function: } h1(\text{int key}) = \frac{((\text{key}+19) \cdot (\text{key}+11) + \text{key})}{15} \% 13$$

$$h2(\text{key}) = \text{reverse}(\text{key})$$

Key	$h1(\text{key})$	$h1(\text{key})$
25	$\frac{(25+19) \cdot (25+11) + 25}{15} \% 13 = (105+25) \% 13 = 113 \% 13 = 10$	10
14	$\frac{(14+19) \cdot (14+11) + 14}{15} \% 13 = (55+14) \% 13 = 69 \% 13 = 4$	4
9	$\frac{(9+19) \cdot (9+11) + 9}{15} \% 13 = (37+9) \% 13 = 46 \% 13 = 7$	7
7	$\frac{(7+19) \cdot (7+11) + 7}{15} \% 13 = (31+7) \% 13 = 38 \% 13 = 12$	12
5	$\frac{(5+19) \cdot (5+11) + 5}{15} \% 13 = (25+5) \% 13 = 30 \% 13 = 4$	4 (collision)
3	$\frac{(3+19) \cdot (3+11) + 3}{15} \% 13 = (20+3) \% 13 = 23 \% 13 = 10$	10
0	$\frac{(0+19) \cdot (0+11) + 0}{15} \% 13 = (13+0) \% 13 = 13 \% 13 = 0$	0 (collision)
21	$\frac{(21+19) \cdot (21+11) + 21}{15} \% 13 = (85+21) \% 13 = 106 \% 13 = 2$	2
6	$\frac{(6+19) \cdot (6+11) + 6}{15} \% 13 = (28+6) \% 13 = 34 \% 13 = 8$	8
33	$\frac{(33+19) \cdot (33+11) + 33}{15} \% 13 = (152+33) \% 13 = 185 \% 13 = 3$	3
25	Duplicate key	←
42	$\frac{(42+19) \cdot (42+11) + 42}{15} \% 13 = (215+42) \% 13 = 257 \% 13 = 10$	10 (collision)
24	$\frac{(24+19) \cdot (24+11) + 24}{15} \% 13 = (100+24) \% 13 = 124 \% 13 = 7$	7 (collision)
107	$\frac{(107+19) \cdot (107+11) + 107}{15} \% 13 = (991+107) \% 13 = 1098 \% 13 = 6$	6

new index  $(h1+\lfloor \cdot \rfloor \cdot h2) \% 13$

Key	hashed slot	$h2(\text{key})$	collisions	Final slot	K	HS	$h2$	C	FS
25	0	52		0	107	6	701	1	6
14	4	41		4					
9	7	9		7					
7	12	7		12					
5	4	5	4 → 9	9					
3	10	3		10					
0	0	0 → 1	0 → 1	1					
21	2	12		2					
6	8	6		8					
33	3	33		3					
42	10	24	10 → 9 → 5	5					
24	7	42	7 → 9 → 5 → 10 → 6	resize					