// *
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// *

1. 4371%10 = 1 insert 4371 to index at one
1323%10 = 3 insert 1323 to index at three
6173%10 = 3   index 3 is occupied h = 3 + 7 - 6173%7 = 4
index 4 is empty insert 6173 to index 4
4199%10 = 9 index 9 is empty insert 4199 to index 9
4344%10 = 4 index 4 is occupied h = 4 + 7 - 4344%7 = 7
Index 7 is empty insert 4344 to index 7
9679%10 = 9 index 9 is occupied h = 9 + 7 - 9679%7 = 11 11%10 = 1
Index 1 is occupied h = 1 + 7 - 9679%7 = 3   index 3 is occupied
H = 3 + 7 - 9679%7 = 5 index 5 is empty   insert 9679 at index 5
1989%10 = 9 index 9 is occupied h = 9 + 7 - 1989%7 = 15 15%10 = 5
Index 5 is occupied h = 5 + 7 - 1989%7 = 11 11%10 = 1
Index 1 is occupied h = 1 + 7 - 1989%7 = 7
Index 7 is occupied h = 7 + 7 - 1989%7 = 13 13%10 = 3
Index 3 is occupied h = 3 + 7 - 1989%7 = 9
Index 9 is occupied h = 9 + 7
There is no way to insert 1989
0, 4371, 0 , 1323, 6173, 9679,0,4344, 0,4199

0	1	2	3	4	5	6	7	8	9
0	4371	0	1323	6173	9679	0	4344	0	4199

2. h(12) = (2*12+5)%11 = 7   insert 12 at index 7
h(44) = (2*44+5)%11 = 5 insert 44 at index 5
h(13) = (2*13+5)%11 = 9 insert 13 at index 9
h(88) = (2*88+5)%11 = 5 insert 88 at index 6
h(23) = (2*23+5)%11 = 7 insert 23 at index 8
h(94) = (2*94+5)%11 = 6 insert 94 at 10
h(11) = (2*11+5)%11 = 5 insert 11 at 0
h(39) = (2*39+5)%11 = 6 insert 39 at 1
h(20) = (2*20+5)%11 = 1 insert 20 at 2
h(16) = (2*16+5)%11 = 4 insert 16 at 4
h(5) = (2*5+5)%11 = 3 insert 5 at 3

0	1	2	3	4	5	6	7	8	9	10
11	39	20	5	16	44	88	12	23	13	94

3.h(5) = 5%9 = 5 insert 5 at 5
h(28) = 28%9 = 1 insert 28 at 1
h(19) = 19%9 = 1 insert 19 at 1 after 28
h(15) = 15%9 = 6 insert 15 at 6
h(20) = 20%9 = 2 insert 20 at 2
h(33) = 33%9 = 6 insert 33 at 6 after 15
h(12) = 12%9 = 3 insert 12 at index 3
h(17) = 17%9 = 8 insert 17 at index 8
h(10) = 10%9 = 1 insert 10 at 1 after 19

0	
1	28 19 10
2	20
3	12
4	
5	5
6	15 33
7	
8	17

4.It has both advantages and disadvantages. Since the dictionary is huge, using hash table can greatly increase the efficiency because the runtime is almost O(1). But the disadvantage is that it destroy the order in the dictionary.