

Insert into an initially empty hash table of size 13 the following keys, in order, using the given precomputed hash values and **double hashing** to handle collisions. Let $h(k)$ be the primary hash function and $d(k)$ be the secondary hash function.

Key	John	Mary	Sam	Jane	Eve	Zoe	Max	Jack	Lou	Ada	Ash	Ben
$h(k)$	3	0	6	5	4	3	6	10	9	3	12	4
$d(k)$	2	5	2	3	1	6	5	4	4	2	6	3

Insert John:

			John									
0	1	2	3	4	5	6	7	8	9	10	11	12

Insert Mary:

Mary			John									
0	1	2	3	4	5	6	7	8	9	10	11	12

Insert Sam:

Mary			John			Sam						
0	1	2	3	4	5	6	7	8	9	10	11	12

Insert Jane:

Mary			John		Jane	Sam						
0	1	2	3	4	5	6	7	8	9	10	11	12

Insert Eve:

Mary			John	Eve	Jane	Sam						
0	1	2	3	4	5	6	7	8	9	10	11	12

Insert Zoe (probe cells 3, then 9):

Mary			John	Eve	Jane	Sam			Zoe			
0	1	2	3	4	5	6	7	8	9	10	11	12

Insert Max (probe cells 6, then 11):

Mary			John	Eve	Jane	Sam			Zoe		Max	
0	1	2	3	4	5	6	7	8	9	10	11	12

Insert Jack:

Mary			John	Eve	Jane	Sam			Zoe	Jack	Max	
0	1	2	3	4	5	6	7	8	9	10	11	12

Insert Lou (probe cells 9, 0, 4, then 8):

Mary			John	Eve	Jane	Sam		Lou	Zoe	Jack	Max	
0	1	2	3	4	5	6	7	8	9	10	11	12

Insert Ada (probe cells 3, 5, then 7):

Mary			John	Eve	Jane	Sam	Ada	Lou	Zoe	Jack	Max	
0	1	2	3	4	5	6	7	8	9	10	11	12

Insert Ash:

Mary			John	Eve	Jane	Sam	Ada	Lou	Zoe	Jack	Max	Ash
0	1	2	3	4	5	6	7	8	9	10	11	12

Insert Ben (probe cells 4, 7, 10, 0, 3, 6, 9, 12, then 2):

Mary		Ben	John	Eve	Jane	Sam	Ada	Lou	Zoe	Jack	Max	Ash
0	1	2	3	4	5	6	7	8	9	10	11	12