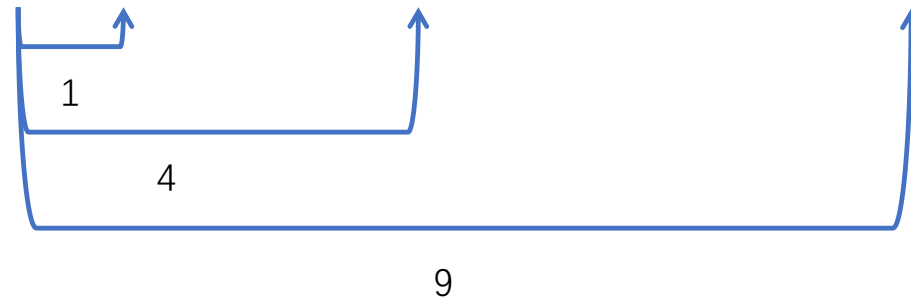


Given an integer  $n$ , return the least number of perfect square numbers that sum to  $n$ .  
A perfect square is an integer that is the square of an integer; in other words, it is the product of some integer with itself. For example, 1, 4, 9, and 16 are perfect squares while 3 and 11 are not.

Perfect square numbers under 12: 1, 4, 9

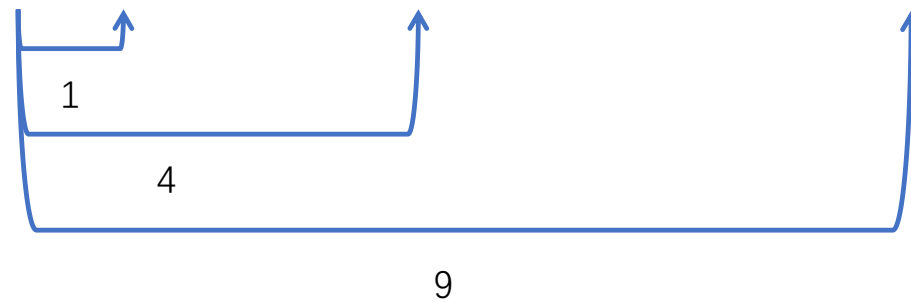
DP[]下标	0	1	2	3	4	5	6	7	8	9	10	11	12
DP	0	0	0	0	0	0	0	0	0	0	0	0	0



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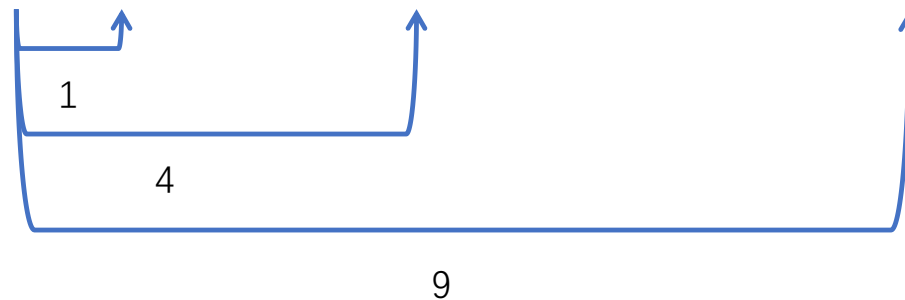
DP[]下标	0	1	2	3	4	5	6	7	8	9	10	11	12
DP	0	1	0	0	1	0	0	0	0	1	0	0	0



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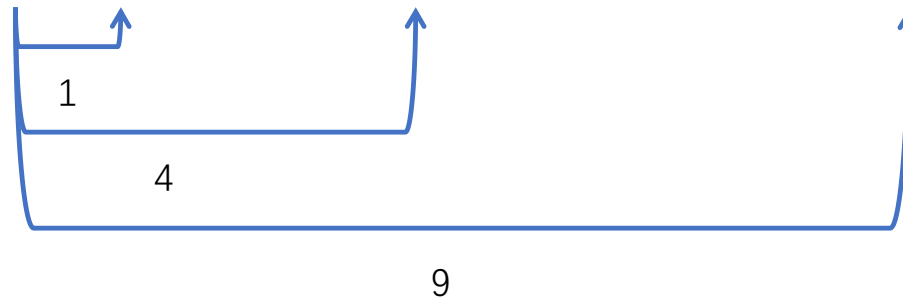
DP[]下标	0	1	2	3	4	5	6	7	8	9	10	11	12
DP	0	1	2	0	1	2	0	0	0	1	2	0	0



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DP[]下标	0	1	2	3	4	5	6	7	8	9	10	11	12
DP	0	1	2	3	1	2	3	0	0	1	2	3	0

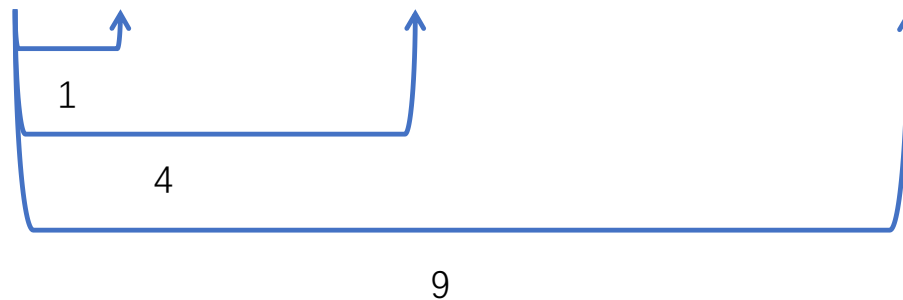


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Perfect square numbers under 12: 1, 4, 9

当出现最小值的时候我们以(a,b)保留多个值  
 并根据题目要求在下一页删去较大的值

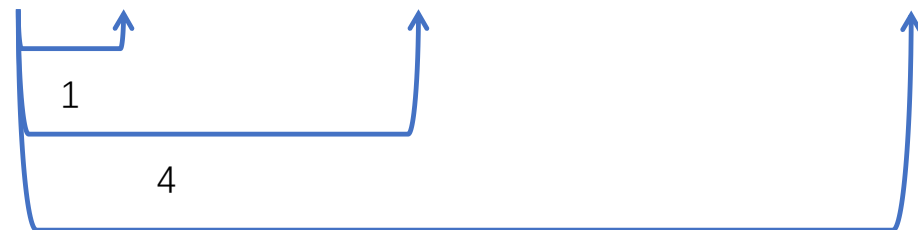
DP[]下标	0	1	2	3	4	5	6	7	8	9	10	11	12
DP	0	1	2	3	(1,4)	2	3	4	0	1	2	3	4



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Perfect square numbers under 12: 1, 4, 9

DP[]下标	0	1	2	3	4	5	6	7	8	9	10	11	12
DP	0	1	2	3	1	(2,2)	3	4	2	1	2	3	4

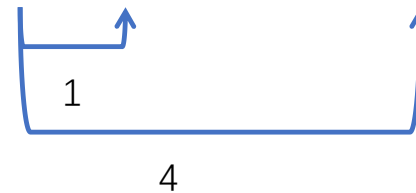


注意到此时9已经超出DP[]的索引  
 因此我们去除9这一个分支

Given an integer  $n$ , return the least number of perfect square numbers that sum to  $n$ .  
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Perfect square numbers under 12: 1, 4, 9

DP[]下标	0	1	2	3	4	5	6	7	8	9	10	11	12
DP	0	1	2	3	1	2	(3,3)	4	2	(1,3)	2	3	4

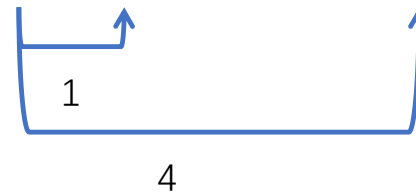


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Given an integer  $n$ , return the least number of perfect square numbers that sum to  $n$ .  
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Perfect square numbers under 12: 1, 4, 9

DP[]下标	0	1	2	3	4	5	6	7	8	9	10	11	12
DP	0	1	2	3	1	2	3	(4,4)	2	1	(2,4)	3	4

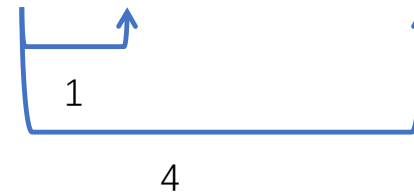




Given an integer n, return the least number of perfect square numbers that sum to n.  
 A perfect square is an integer that is the square of an integer; in other words, it is the product of some integer with itself. For example, 1, 4, 9, and 16 are perfect squares while 3 and 11 are not.

Perfect square numbers under 12: 1, 4, 9

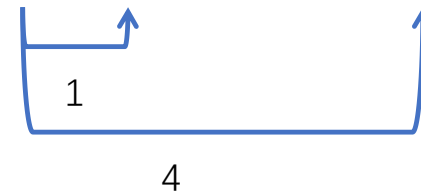
DP[]下标	0	1	2	3	4	5	6	7	8	9	10	11	12
DP	0	1	2	3	1	2	3	4	(2,5)	1	2	(3,5)	4



Given an integer  $n$ , return the least number of perfect square numbers that sum to  $n$ .  
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Perfect square numbers under 12: 1, 4, 9

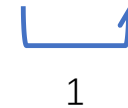
DP[]下标	0	1	2	3	4	5	6	7	8	9	10	11	12
DP	0	1	2	3	1	2	3	4	2	(1,3)	2	3	(4,3)



Given an integer  $n$ , return the least number of perfect square numbers that sum to  $n$ .  
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Perfect square numbers under 12: 1, 4, 9

DP[]下标	0	1	2	3	4	5	6	7	8	9	10	11	12
DP	0	1	2	3	1	2	3	4	2	1	(2,2)	3	3

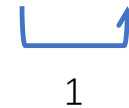


注意到此时4已经超出DP[]的索引  
因此我们去除4这一个分支

Given an integer n, return the least number of perfect square numbers that sum to n.  
 A perfect square is an integer that is the square of an integer; in other words, it is the product of some integer with itself. For example, 1, 4, 9, and 16 are perfect squares while 3 and 11 are not.

Perfect square numbers under 12: 1, 4, 9

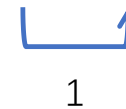
DP[]下标	0	1	2	3	4	5	6	7	8	9	10	11	12
DP	0	1	2	3	1	2	3	4	2	1	2	(3,3)	3



Given an integer  $n$ , return the least number of perfect square numbers that sum to  $n$ .  
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Perfect square numbers under 12: 1, 4, 9

DP[]下标	0	1	2	3	4	5	6	7	8	9	10	11	12
DP	0	1	2	3	1	2	3	4	2	1	2	3	(3,4)



Given an integer  $n$ , return the least number of perfect square numbers that sum to  $n$ .  
A perfect square is an integer that is the square of an integer; in other words, it is the product of some integer with itself. For example, 1, 4, 9, and 16 are perfect squares while 3 and 11 are not.

Perfect square numbers under 12: 1, 4, 9

DP[]下标	0	1	2	3	4	5	6	7	8	9	10	11	12
DP	0	1	2	3	1	2	3	4	2	1	2	3	3