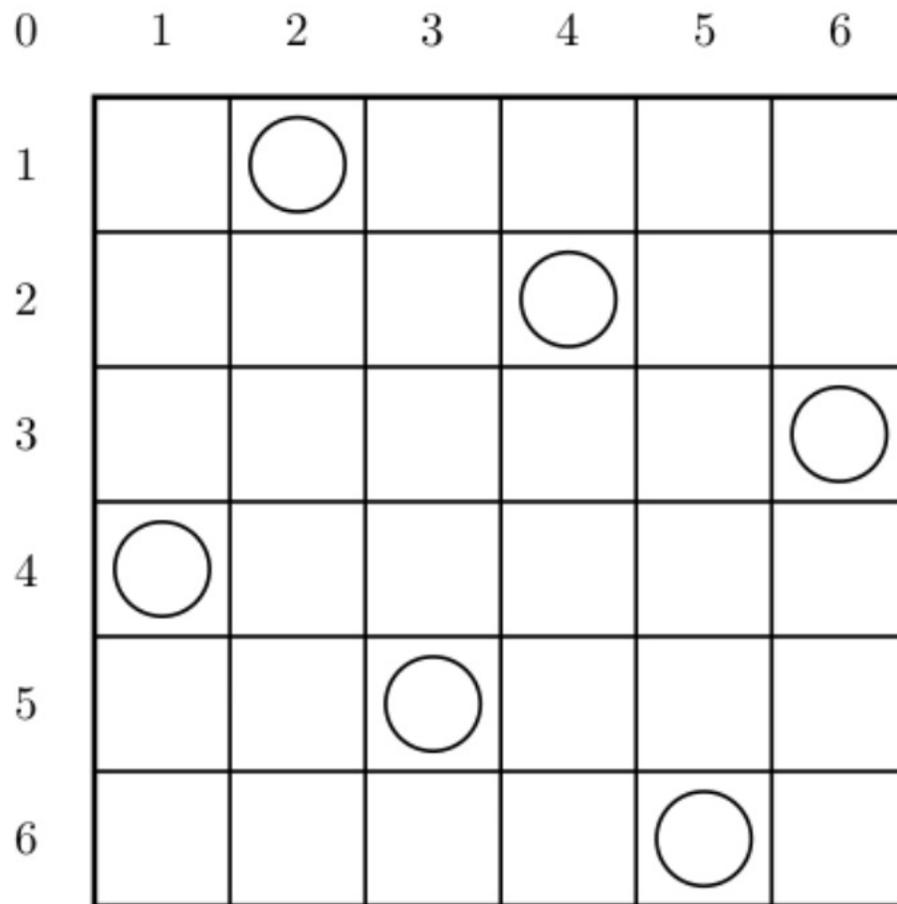


第一讲：八皇后问题 -P1219

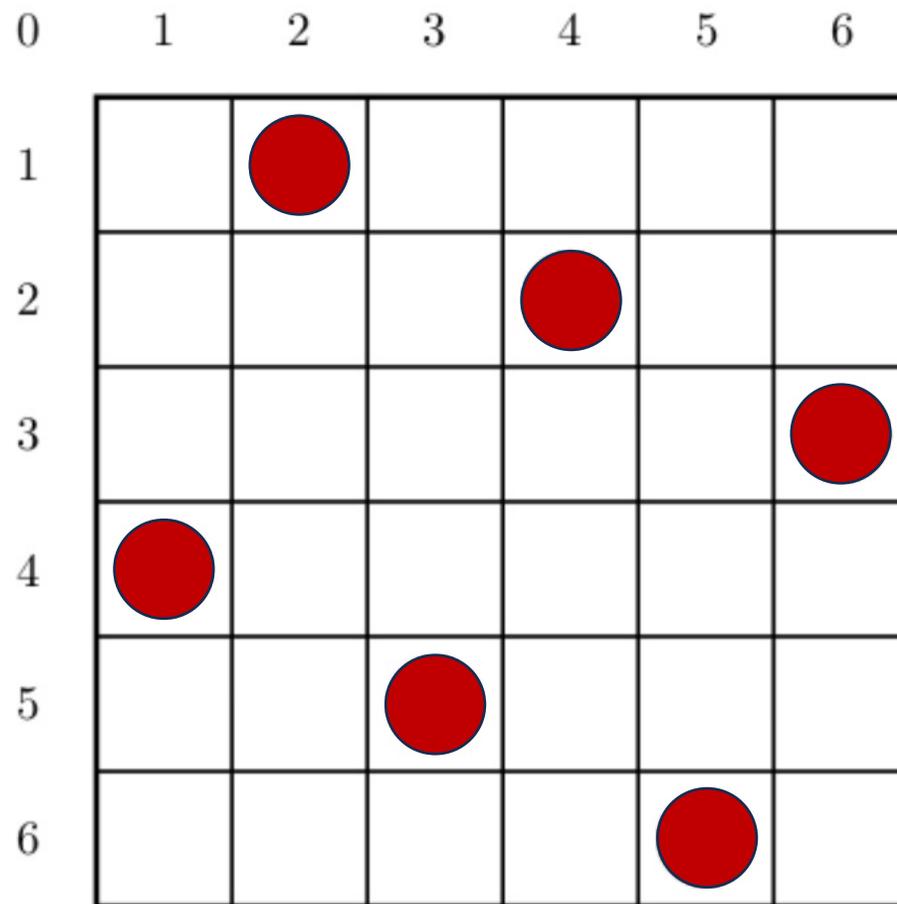
胡船长

初航我带你，远航靠自己

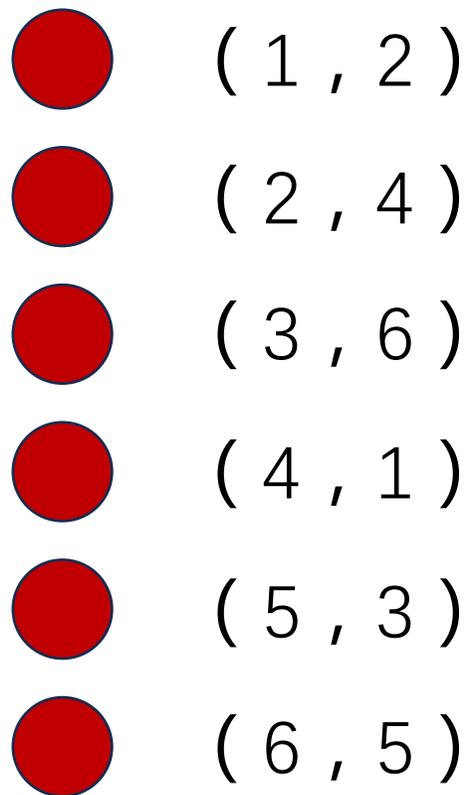
一、问题搜索树



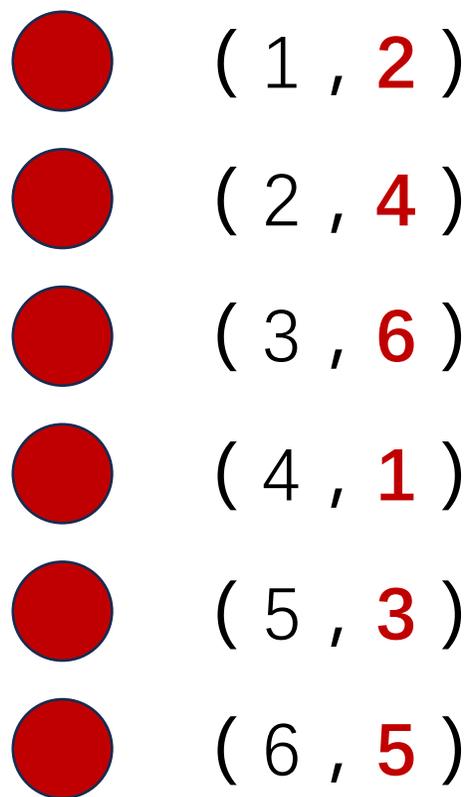
一、问题搜索树



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一、问题搜索树

● (1 , 2)

● (2 , 4)

● (3 , 6)

● (4 , 1)

● (5 , 3)

● (6 , 5)

排列型枚举问题

二、优化1：状态表示

$$t = \begin{array}{ccccccc} & 6 & 5 & 4 & 3 & 2 & 1 & 0 \\ \hline 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 \end{array}$$

二、优化1：状态表示

● (1, 2)

● (2, 4)

●

●

●

●

t =

6	5	4	3	2	1	0
1	1	0	1	0	1	0

三、优化2：快速枚举

-t & t

t =

	6	5	4	3	2	1	0
	1	0	0	1	1	0	0

三、优化2：快速枚举

-t & t

	6	5	4	3	2	1	0
t =	1	0	0	1	1	0	0

	6	5	4	3	2	1	0
-t =	0	1	1	0	1	0	0

三、优化2：快速枚举

-t & t

	6	5	4	3	2	1	0
t =	1	0	0	1	1	0	0

	6	5	4	3	2	1	0
-t =	0	1	1	0	1	0	0

	6	5	4	3	2	1	0
	0	0	0	0	1	0	0

三、优化2：快速枚举

-t & t

	6	5	4	3	2	1	0
t =	1	0	0	1	1	0	0

	6	5	4	3	2	1	0
-t =	0	1	1	0	1	0	0

	6	5	4	3	2	1	0
	0	0	0	0	1	0	0

三、优化2：快速枚举

$$\underline{t \ -= \ (-t \ \& \ t)}$$

	6	5	4	3	2	1	0
t =	1	0	0	1	1	0	0

	6	5	4	3	2	1	0
-t =	0	1	1	0	1	0	0

	6	5	4	3	2	1	0
	0	0	0	0	1	0	0

三、优化2：快速枚举

$$\underline{t \ -= \ (-t \ \& \ t)}$$

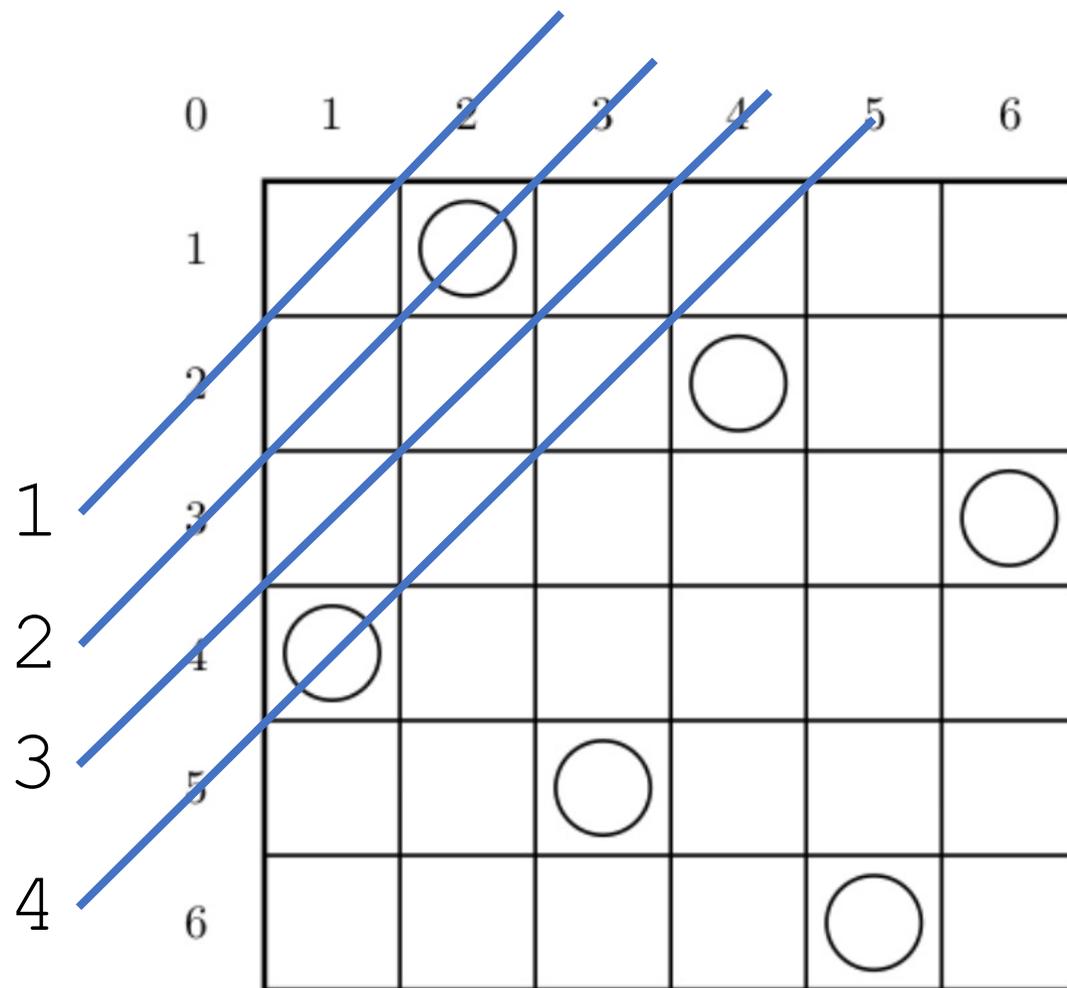
	6	5	4	3	2	1	0
t =	1	0	0	1	0	0	0

四、优化3：斜边表示

	0	1	2	3	4	5	6
1			○				
2					○		
3							○
4	○						
5				○			
6						○	

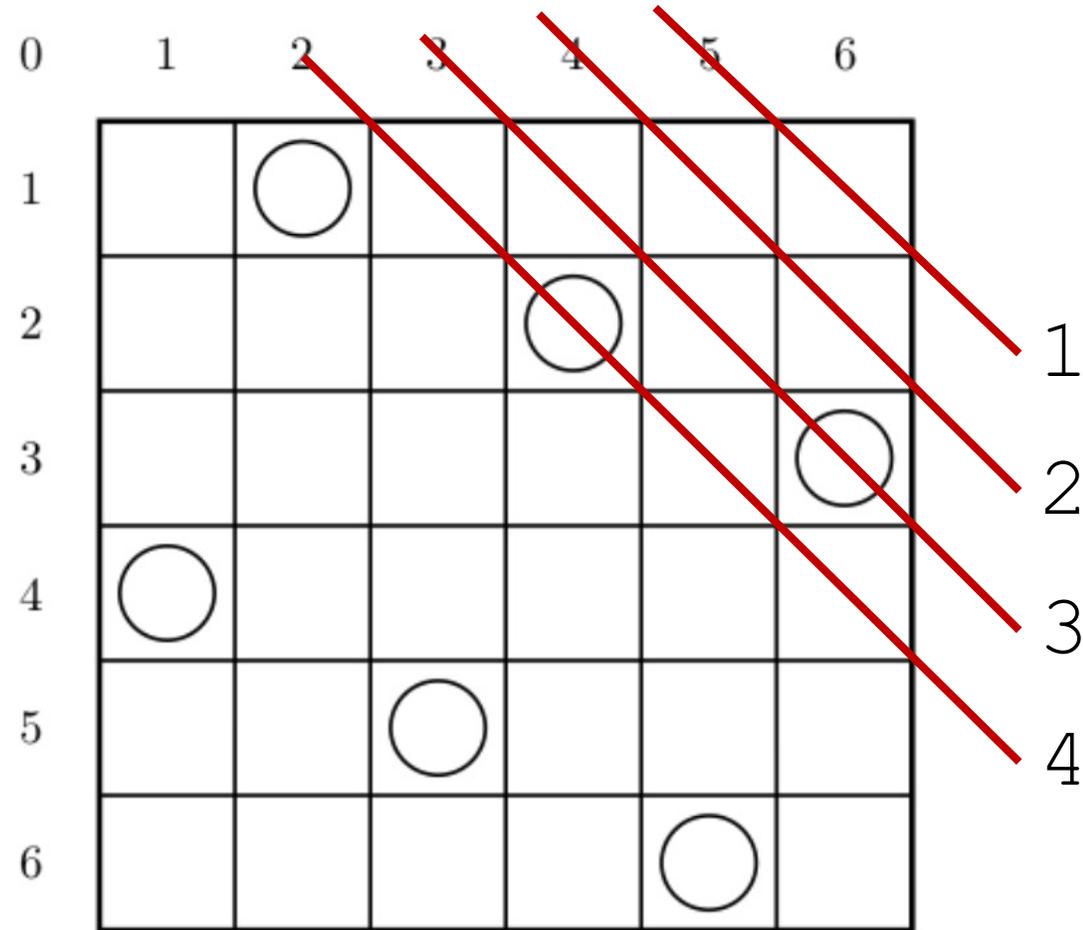
四、优化3：斜边表示

$$\underline{i+j-1}$$

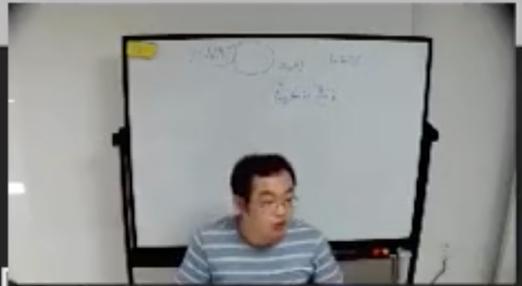


四、优化3：斜边表示

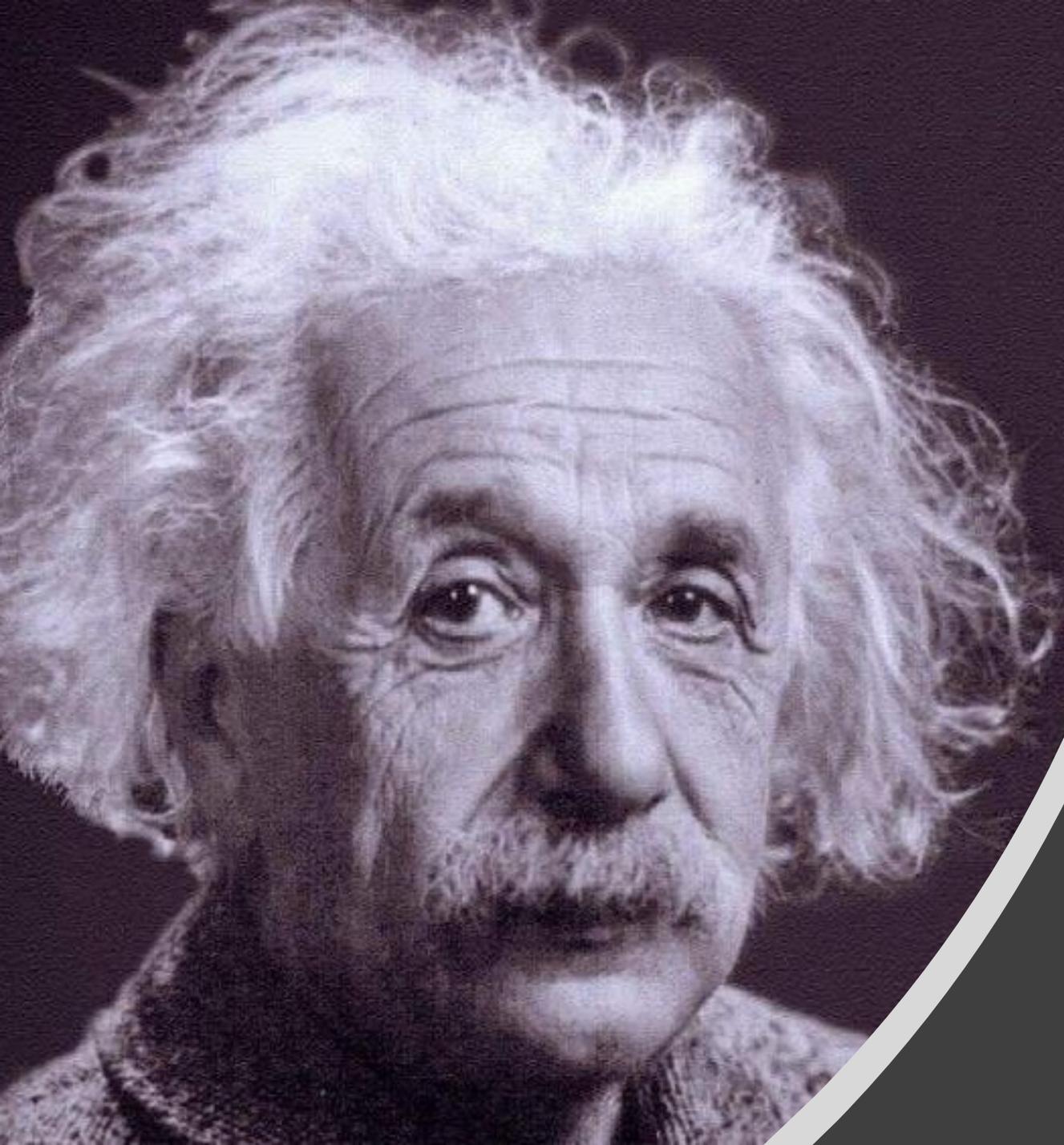
$$\underline{i-j+n}$$



```
1. vim
vim #1 bash #2 bash #3
39 }
40
41 Node *insert_maintain(Node *root) {
42     if (!hasRedChild(root)) return root;
43     if (root->lchild->color == RED && root->rchild->color == RED, {
44         if (!hasRedChild(root->lchild) && !hasRedChild(root->rchild)) return root;
45         root->color = RED;
46         root->lchild->color = root->rchild->color = BLACK;
47         return root;
48     }
49     if (root->lchild->color == RED) {
50         if (!hasRedChild(root->lchild)) return root;
51
52     } else {
53         if (!hasRedChild(root->rchild)) return root;
54
55     }
56 }
57
58
59
60
61 Node *__insert(Node *root, int key) {
62     if (root == NIL) return getNewNode(key);
```



八皇后问题-P1219：代码演示



为什么
会出一样的题目？