

Programming test

The purpose of this test is to see what data structures and implementation is used to solve a logical problem.

```
--- Giant Squid ---
```

You're already almost 1.5km (almost a mile) below the surface of the ocean, already so deep that you can't see any sunlight. What you **can** see, however, is a giant squid that has attached itself to the outside of your submarine.

Maybe it wants to play **bingo**?

Bingo is played on a set of boards each consisting of a 5x5 grid of numbers. Numbers are chosen at random, and the chosen number is **marked** on all boards on which it appears. (Numbers may not appear on all boards.) If all numbers in any row or any column of a board are marked, that board **wins**. (Diagonals don't count.)

The submarine has a **bingo subsystem** to help passengers (currently, you and the giant squid) pass the time. It automatically generates a random order in which to draw numbers and a random set of boards (your puzzle input). For example:

```
7,4,9,5,11,17,23,2,0,14,21,24,10,16,13,6,15,25,12,22,18,20,8,19,3,26,1
```

```
22 13 17 11  0
 8  2 23  4 24
21  9 14 16  7
 6 10  3 18  5
 1 12 20 15 19
```

```
 3 15  0  2 22
 9 18 13 17  5
19  8  7 25 23
20 11 10 24  4
14 21 16 12  6
```

```
14 21 17 24  4
10 16 15  9 19
18  8 23 26 20
22 11 13  6  5
 2  0 12  3  7
```

After the first five numbers are drawn (7, 4, 9, 5, and 11), there are no winners, but the boards are marked as follows (shown here adjacent to each other to save space):

22 13 17 11 0	3 15 0 2 22	14 21 17 24 4
8 2 23 4 24	9 18 13 17 5	10 16 15 9 19
21 9 14 16 7	19 8 7 25 23	18 8 23 26 20
6 10 3 18 5	20 11 10 24 4	22 11 13 6 5
1 12 20 15 19	14 21 16 12 6	2 0 12 3 7

After the next six numbers are drawn (17, 23, 2, 0, 14, and 21), there are still no winners:

22 13 17 11 0	3 15 0 2 22	14 21 17 24 4
8 2 23 4 24	9 18 13 17 5	10 16 15 9 19
21 9 14 16 7	19 8 7 25 23	18 8 23 26 20
6 10 3 18 5	20 11 10 24 4	22 11 13 6 5
1 12 20 15 19	14 21 16 12 6	2 0 12 3 7

Finally, 24 is drawn:

22 13 17 11 0	3 15 0 2 22	14 21 17 24 4
8 2 23 4 24	9 18 13 17 5	10 16 15 9 19
21 9 14 16 7	19 8 7 25 23	18 8 23 26 20
6 10 3 18 5	20 11 10 24 4	22 11 13 6 5
1 12 20 15 19	14 21 16 12 6	2 0 12 3 7

At this point, the third board **wins** because it has at least one complete row or column of marked numbers (in this case, the entire top row is marked: 14 21 17 24 4).

The **score** of the winning board can now be calculated. Start by finding the **sum of all unmarked numbers** on that board; in this case, the sum is 188. Then, multiply that sum by **the number that was just called** when the board won, 24. So, to get the score of the board => $188 * 24 = 4512$. Great, now we know how to get the score of a board with bingo!

The actual challenge: You want to try a friendly strategy and let the giant squid win.

You aren't sure how many bingo boards a giant squid could play at once, so rather than waste time counting its arms, the safe thing to do is to **figure out which board will win last** and choose that one. That way, no matter which boards it picks, it will win for sure.

In the above example, the second board is the last to win, which happens after 13 is eventually called and its middle column is completely marked. If you were to keep playing until this point, the second board would have a sum of unmarked numbers equal to 148 for a final score of $148 * 13 = 1924$.

Figure out which board will win last. Once it wins, what would its final score be?

Test Input data

This is the test input data that is mentioned in the puzzle above. Just so it is easy to copy/paste input data into your code, when building your solution.

Draw number:

7, 4, 9, 5, 11, 17, 23, 2, 0, 14, 21, 24, 10, 16, 13, 6, 15, 25, 12, 22, 1
8, 20, 8, 19, 3, 26, 1

Boards:

```
22 13 17 11  0
 8  2 23  4 24
21  9 14 16  7
 6 10  3 18  5
 1 12 20 15 19
```

```
 3 15  0  2 22
 9 18 13 17  5
19  8  7 25 23
20 11 10 24  4
14 21 16 12  6
```

```
14 21 17 24  4
10 16 15  9 19
18  8 23 26 20
22 11 13  6  5
 2  0 12  3  7
```

Final score:

1924

Real Input data:

When you have built a solution that works for the test data above you need to use this “real” input data that you need to use to produce the real “Score”.

Draw numbers:

1, 76, 38, 96, 62, 41, 27, 33, 4, 2, 94, 15, 89, 25, 66, 14, 30, 0, 71, 2
1, 48, 44, 87, 73, 60, 50, 77, 45, 29, 18, 5, 99, 65, 16, 93, 95, 37, 3,
52, 32, 46, 80, 98, 63, 92, 24, 35, 55, 12, 81, 51, 17, 70, 78, 61, 91,
54, 8, 72, 40, 74, 68, 75, 67, 39, 64, 10, 53, 9, 31, 6, 7, 47, 42, 90, 2
0, 19, 36, 22, 43, 58, 28, 79, 86, 57, 49, 83, 84, 97, 11, 85, 26, 69, 2
3, 59, 82, 88, 34, 56, 13

Boards:

85	23	65	78	93
27	53	10	12	26
5	34	83	25	6
56	40	73	29	54
33	68	41	32	82

8	31	14	70	91
53	49	86	13	21
66	28	76	78	93
39	63	80	43	23
56	25	60	67	72

67	78	36	64	14
46	16	80	23	94
22	47	51	65	57
33	76	21	92	97
31	95	54	27	20

1	77	86	43	30
28	88	7	5	60
66	24	3	57	33

38 23 59 84 44
74 47 17 29 85

21 50 86 2 70
85 19 22 93 25
99 38 74 30 65
81 0 47 78 63
34 11 51 88 64

45 15 29 81 30
75 21 88 91 49
39 20 4 17 78
10 12 38 11 7
98 6 65 69 86

36 20 31 44 69
30 65 55 88 64
74 85 82 61 5
57 17 90 43 54
58 83 52 23 7

42 16 82 86 76
60 26 27 59 55
7 53 22 78 5
18 61 10 15 17
28 46 14 87 77

21 43 15 47 61
24 76 28 3 27
19 62 69 82 93
49 29 97 74 41
92 36 37 99 40

31 4 3 62 51
24 57 78 67 53

13	5	76	38	55
79	9	75	98	71
65	1	39	18	47

59	4	38	95	99
85	68	69	93	43
83	57	48	42	15
47	50	80	79	90
56	87	78	64	25

21	37	14	67	95
88	39	26	38	49
89	83	54	77	96
48	86	94	19	20
43	41	8	74	58

1	36	12	90	91
63	21	98	82	66
39	86	7	52	77
80	81	44	33	58
78	30	11	51	28

81	74	7	33	96
75	60	87	47	91
39	73	30	50	13
4	41	9	43	77
34	82	72	48	12

93	63	74	25	57
29	76	9	45	70
98	77	71	16	41
47	54	18	14	55
31	89	67	87	83

8	72	45	93	68
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74	26	69	94	65
28	9	20	47	41
46	54	21	56	22
84	62	18	15	48

20	51	81	40	69
71	10	13	93	75
44	86	0	95	37
99	39	76	80	66
14	64	49	62	27

75	7	51	86	79
43	30	61	39	16
85	63	90	28	96
88	78	72	31	73
98	87	23	19	58

20	95	47	97	12
92	25	68	87	91
37	10	78	23	63
74	93	58	39	5
76	51	48	72	16

37	18	32	34	85
22	31	98	42	19
29	72	48	76	25
47	1	21	7	53
79	82	86	52	78

20	16	47	78	92
88	15	71	67	2
5	52	90	70	9
22	49	28	82	27
6	19	61	73	48

71	26	7	11	79
52	30	47	1	31
17	75	94	91	28
81	98	23	55	21
77	15	39	24	16

5	75	44	88	65
89	45	23	69	19
41	61	67	52	54
47	38	57	12	98
62	70	26	87	53

50	4	65	77	25
6	21	5	27	92
39	63	97	75	79
60	34	87	26	74
99	24	44	85	2

13	64	38	78	21
74	17	83	57	94
25	39	69	53	4
54	33	81	50	76
42	75	19	77	26

63	31	70	19	39
38	87	15	90	75
61	98	6	29	86
78	62	32	11	60
55	97	13	73	82

51	63	68	84	36
12	33	37	31	8
18	41	34	74	23
72	39	85	48	60
24	19	29	88	0

46	51	17	23	13
20	93	97	99	81
57	47	33	84	44
28	96	2	43	56
68	36	62	15	5

81	99	5	30	10
38	62	57	8	37
7	86	98	3	54
46	82	96	15	72
83	1	75	25	50

47	57	11	61	27
53	10	31	91	98
76	85	55	38	23
6	81	67	71	70
35	29	17	50	56

24	65	15	1	89
45	60	97	23	14
84	56	58	5	54
3	72	51	46	79
67	70	78	34	77

38	11	54	23	2
33	14	10	96	63
43	5	36	20	30
70	53	66	71	9
91	90	21	7	88

94	44	4	86	26
39	70	54	50	30
55	40	12	72	71
68	7	66	47	91

31 24 13 1 96

79 14 40 87 68

16 32 53 46 98

38 95 21 89 69

62 60 19 81 33

70 52 28 83 0

62 42 38 48 64

61 79 78 97 98

89 7 3 29 68

92 76 14 67 1

41 99 72 47 60

5 75 18 42 33

72 61 36 31 29

19 58 1 34 94

54 84 92 99 38

76 68 79 53 37

14 91 37 5 98

68 29 34 76 43

75 0 67 33 69

81 47 58 30 93

88 92 42 77 54

64 24 28 54 53

72 68 3 73 4

83 6 59 66 94

87 80 55 20 16

13 82 74 31 70

63 92 71 0 83

98 40 50 55 2

88 5 85 30 23

10	75	81	58	68
51	31	14	89	1

67	93	94	54	53
38	71	34	40	24
31	63	30	99	75
4	57	86	19	70
60	49	87	68	74

56	94	79	53	7
24	12	19	6	99
82	51	41	46	43
17	49	52	78	55
75	48	61	70	87

14	55	32	21	31
88	83	23	44	4
1	77	45	90	85
46	81	51	27	62
60	24	29	18	0

95	92	91	27	26
22	43	45	64	62
83	23	25	85	94
84	53	72	28	20
75	60	52	18	73

95	41	7	21	32
58	65	16	56	97
68	25	91	83	24
66	89	15	55	6
2	30	84	10	90

58	86	44	19	74
57	89	17	6	83

77	35	60	32	13
97	63	62	28	76
55	31	11	0	52

33	39	59	42	45
61	50	92	9	79
15	0	28	5	72
91	24	21	29	87
86	76	43	31	93

63	11	86	45	85
96	74	66	93	32
95	30	99	23	18
69	97	48	15	1
42	87	47	83	80

93	5	40	64	2
44	51	15	54	83
69	77	90	58	11
0	48	43	30	55
25	72	38	73	52

89	58	71	68	15
23	65	9	36	74
21	29	42	79	98
55	47	33	39	28
16	75	91	69	57

13	79	12	71	2
60	94	99	43	82
84	89	29	91	87
74	80	25	32	21
70	14	68	92	11

78	1	16	51	87
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58	94	59	15	43
79	41	50	47	39
53	37	9	28	72
34	63	89	35	18

31	67	70	42	43
60	2	89	49	22
56	17	81	24	74
20	65	1	96	51
68	7	0	38	25

59	14	29	53	19
9	2	11	33	44
81	6	10	47	58
20	34	62	55	40
71	38	69	45	78

59	36	70	42	21
3	16	49	79	98
74	25	8	84	19
61	80	47	65	64
91	62	52	9	40

1	85	63	7	2
0	20	61	26	77
99	37	74	42	76
25	94	19	78	60
79	72	95	22	11

51	21	79	76	32
55	23	69	19	61
71	54	94	47	92
5	64	6	68	16
91	81	9	99	30

61	69	82	86	68
66	81	28	38	36
26	29	31	11	8
72	51	12	95	63
18	30	88	17	32

34	8	14	42	67
66	79	65	20	52
37	87	74	24	3
59	54	21	32	89
31	4	62	76	30

11	93	8	92	55
38	72	99	3	83
12	75	0	41	46
17	25	5	39	48
14	18	86	29	84

6	20	41	51	48
5	67	30	24	47
3	8	92	22	39
4	56	36	31	75
2	45	85	81	96

47	43	72	22	3
19	87	53	12	60
29	40	56	68	18
66	97	70	33	39
85	37	0	90	98

61	35	81	84	94
11	1	58	45	77
6	99	67	36	43
5	7	0	87	80
44	78	39	70	20

58	34	49	29	75
17	15	28	23	84
59	25	92	48	0
20	81	47	3	71
68	60	5	22	87

90	32	41	39	6
36	78	67	24	50
55	72	52	75	44
87	15	92	31	58
83	89	68	19	43

99	44	53	68	25
71	67	16	19	36
35	58	14	86	48
88	18	61	24	23
87	9	91	37	15

37	5	63	68	28
41	50	76	99	64
34	92	78	94	71
11	96	97	42	58
33	45	0	93	48

33	68	9	12	81
60	98	28	8	99
14	17	6	82	15
57	69	43	38	29
47	84	76	22	18

79	70	92	38	47
12	82	98	46	0
76	15	53	59	97
18	52	49	29	96

44 64 68 89 24

95 14 17 27 42

55 43 57 29 25

34 73 86 50 16

69 37 75 63 39

78 79 3 4 30

27 31 15 92 46

36 23 72 40 50

51 99 55 89 21

12 70 84 63 85

78 88 77 75 0

15 67 40 39 28

9 79 22 52 75

96 65 86 98 14

97 87 44 84 68

36 26 89 43 27

79 59 48 27 36

85 92 93 76 24

2 25 7 42 90

23 29 74 35 86

58 60 31 75 57

10 43 83 75 8

88 12 38 30 9

60 67 59 76 6

55 45 74 34 25

97 49 65 96 69

59 86 15 3 19

89 4 74 61 23

52 98 8 79 39

95 17 22 14 51
50 18 94 30 84

19 63 58 72 67
35 93 29 91 0
39 26 43 84 21
70 42 2 53 12
59 99 8 1 86

23 86 34 22 65
71 10 16 50 91
66 89 49 81 43
40 7 26 75 61
62 59 2 46 95

24 21 0 49 25
92 42 48 12 7
81 93 59 68 3
14 23 63 39 29
35 43 6 44 89

67 74 95 34 10
39 90 59 44 51
17 16 97 24 62
20 54 76 63 88
87 66 14 78 82

96 86 67 59 79
66 3 30 77 71
2 91 99 82 31
48 65 75 98 53
63 54 64 76 1

85 96 40 98 24
16 20 10 23 17

79	59	53	42	65
67	2	5	80	75
62	38	19	74	73

43	10	79	92	8
52	36	4	5	67
56	29	33	24	97
85	17	53	75	65
62	64	1	21	83

93	92	79	17	12
40	88	6	82	34
90	96	53	25	43
14	62	54	10	39
49	68	41	16	44

67	99	24	58	76
43	53	59	54	51
47	6	61	8	2
80	68	90	14	4
29	46	94	89	50

14	45	19	33	43
6	55	4	31	80
51	2	69	68	61
71	70	79	91	93
66	18	54	13	87

8	45	61	54	30
85	16	19	82	37
56	39	11	47	4
74	70	10	60	91
21	63	95	53	72

71	21	63	86	27
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53	52	40	23	81
2	47	92	68	15
46	45	31	8	1
34	80	37	11	69

96	0	15	90	66
65	43	92	83	18
3	47	19	8	32
71	26	42	34	28
62	99	55	5	12

37	99	30	21	3
63	18	68	47	27
57	0	65	85	20
7	58	40	92	43
15	19	5	4	53

46	16	45	95	68
6	44	31	47	73
84	82	71	75	94
26	25	17	32	49
18	96	13	58	9

71	36	13	68	10
84	7	60	79	41
1	83	43	81	97
90	53	80	19	38
48	25	32	42	29

37	68	86	44	78
87	67	77	70	60
45	34	27	15	47
12	21	13	55	26
81	41	63	40	74

24	50	93	94	57
99	4	56	5	28
42	31	22	6	76
90	89	16	49	59
9	7	43	71	54

69	75	94	38	46
52	64	50	72	42
76	63	13	60	10
99	80	43	33	17
25	31	4	89	22

88	57	22	66	34
85	16	87	95	59
73	2	46	5	29
25	69	53	6	14
96	77	19	91	43

46	99	52	47	76
89	53	24	13	59
45	5	1	30	19
68	25	22	10	73
42	27	31	0	94

42	44	98	89	87
65	10	80	56	41
3	35	95	48	43
85	97	83	12	94
50	38	93	47	17

16	73	18	81	89
6	48	54	93	19
35	52	88	49	31
43	79	83	14	28
50	62	98	26	22

```
38 47 7 20 35
45 76 63 96 24
98 53 2 87 80
83 86 92 48 1
73 60 26 94 6
```

```
80 50 29 53 92
66 90 79 98 46
40 21 58 38 60
35 13 72 28 6
48 76 51 96 12
```

```
79 80 24 37 51
86 70 1 22 71
52 69 10 83 13
12 40 3 0 30
46 50 48 76 5
```

Final score:

<This is the score you should produce>

Submit your answer:

Verify you score:

When you think that your solution is complete, you can verify your Final score by sending a POST request to

<https://API-endpoint>

With the body:

```
{
  "answer": "<your answer>",
  "name": "<your name>"
}
```

If you submit the correct answer we will be notified (your your real name). When this is done please write to us on teamtailer and provide the github link so we can review your solution. After reviewing it, we will contact you in teamtailer about how we proceed in the recruitment process.

Good luck and have fun :)!!