

American Computer Science League

2021 Finals • Subrect • Junior Division

PROBLEM: Given an array of integers, find the subrectangle with the greatest sum.

0	-2	-7
9	2	-6
-4	1	-4
-1	8	0
-2	-4	-3

For example, in the array above, of all the 5-by-3, 5-by-2, 5-by-1, 4-by-3, etc. subrectangles, the shaded rectangle has the largest sum of 15. The first Sample Input is the array above.

INPUT: There will be 10 data sets. Each set will contain two positive integers, R and C , the number of rows and the number of columns, respectively. These numbers are followed by $R * C$ integers, filling the cells of the array in row-major order. We guarantee that each array will have more than 10 rows or 10 columns.

OUTPUT: For each data set, find the subrectangle with the largest sum. Print the sum.

SAMPLE INPUT (3 data sets):

```
5 3 0 -2 -7 9 2 -6 -4 1 -4 -1 8 0 -2 -4 -3
4 2 1 2 -3 4 -5 6 7 -8
3 6 1 2 3 4 -5 -6 6 5 4 3 2 1 -9 2 -4 4 0 6
```

SAMPLE OUTPUT:

```
15
12
28
```

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TEST DATA

TEST INPUT:

```
3 5 0 -2 -7 9 2 -6 -4 1 -4 -1 8 0 -2 -4 -3
5 3 -4 1 -4 -2 -4 -3 -1 8 0 0 -2 -7 9 2 -6
4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 4 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1
9 1 1 -2 3 -4 5 -6 7 -8 9
2 9 1 -2 3 -4 5 -6 7 -8 9 1 -2 3 -4 5 -6 7 -8 9
5 5 1 2 3 4 5 -5 -4 -3 -2 -1 1 2 3 4 5 1 2 3 4 5 -9 -6 -3 -6 -9
6 4 -1 1 -8 -8 -2 2 -5 -5 -3 3 3 3 -4 4 4 4 -5 -5 5 5 -6 -6 6 6
4 6 -1 1 -8 -8 -2 2 -5 -5 -3 3 3 3 -4 4 4 4 -5 -5 5 5 -6 -6 6 6
1 1 5
```

TEST OUTPUT:

```
11
16
0
-1
9
18
32
36
12
5
```

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题目：给定一个整数数组，找出数值之和最大的子矩阵。

0	-2	-7
9	2	-6
-4	1	-4
-1	8	0
-2	-4	-3

例如，在以上数组的 5×3 、 5×2 、 5×1 、 4×3 ... 所有子矩阵中，阴影矩阵的数值之和最大，值为 15。下面的第一个样本输入就是上面的数组。

输入：这里将有 10 个数据集，每个集合包含两个正整数： R 和 C ，分别表示行数和列数。 R 和 C 后面跟着 $R * C$ 个整数，并以行优先的顺序填充到数组的单元格中。我们保证每个数组将有超过 10 行或 10 列。

输出：对于每个数据集，找到数值之和最大的子矩阵。输出数值之和。

样本输入 (3 个数据集):

```
5 3 0 -2 -7 9 2 -6 -4 1 -4 -1 8 0 -2 -4 -3
4 2 1 2 -3 4 -5 6 7 -8
3 6 1 2 3 4 -5 -6 6 5 4 3 2 1 -9 2 -4 4 0 6
```

样本输出:

```
15
12
28
```

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测试数据

测试输入:

```
3 5 0 -2 -7 9 2 -6 -4 1 -4 -1 8 0 -2 -4 -3
5 3 -4 1 -4 -2 -4 -3 -1 8 0 0 -2 -7 9 2 -6
4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4 4 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1
9 1 1 -2 3 -4 5 -6 7 -8 9
2 9 1 -2 3 -4 5 -6 7 -8 9 1 -2 3 -4 5 -6 7 -8 9
5 5 1 2 3 4 5 -5 -4 -3 -2 -1 1 2 3 4 5 1 2 3 4 5 -9 -6 -3 -6 -9
6 4 -1 1 -8 -8 -2 2 -5 -5 -3 3 3 3 -4 4 4 4 -5 -5 5 5 -6 -6 6 6
4 6 -1 1 -8 -8 -2 2 -5 -5 -3 3 3 3 -4 4 4 4 -5 -5 5 5 -6 -6 6 6
1 1 5
```

测试输出:

```
11
16
0
-1
9
18
32
36
12
5
```