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Practice › Python › Itertools › itertools.product()

itertools.product() ☆

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itertools.product()

This tool computes the cartesian product of input iterables.

It is equivalent to nested *for-loops*.

For example, `product(A, B)` returns the same as `((x,y) for x in A for y in B)`.

Sample Code

```
>>> from itertools import product
>>>
>>> print list(product([1,2,3],repeat = 2))
[(1, 1), (1, 2), (1, 3), (2, 1), (2, 2), (2, 3), (3, 1), (3, 2), (3, 3)]
>>>
>>> print list(product([1,2,3],[3,4]))
[(1, 3), (1, 4), (2, 3), (2, 4), (3, 3), (3, 4)]
>>>
>>> A = [[1,2,3],[3,4,5]]
>>> print list(product(*A))
[(1, 3), (1, 4), (1, 5), (2, 3), (2, 4), (2, 5), (3, 3), (3, 4), (3, 5)]
>>>
>>> B = [[1,2,3],[3,4,5],[7,8]]
>>> print list(product(*B))
[(1, 3, 7), (1, 3, 8), (1, 4, 7), (1, 4, 8), (1, 5, 7), (1, 5, 8), (2, 3, 7),
(2, 3, 8), (2, 4, 7), (2, 4, 8), (2, 5, 7), (2, 5, 8), (3, 3, 7), (3, 3, 8), (3,
4, 7), (3, 4, 8), (3, 5, 7), (3, 5, 8)]
```

Task

You are given a two lists A and B. Your task is to compute their cartesian product AxB.

Example

```
A = [1, 2]
B = [3, 4]

AxB = [(1, 3), (1, 4), (2, 3), (2, 4)]
```

Note: A and B are sorted lists, and the cartesian product's tuples should be output in sorted order.

Input Format

The first line contains the space separated elements of list A.
The second line contains the space separated elements of list B.

Author	DOSHI
Difficulty	Easy
Max Score	10
Submitted By	23350

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Both lists have no duplicate integer elements.

Constraints

$0 < A < 30$
$0 < B < 30$

Output Format

Output the space separated tuples of the cartesian product.

Sample Input

```
1 2
3 4
```

Sample Output

```
(1, 3) (1, 4) (2, 3) (2, 4)
```

Current Buffer (saved locally, editable)   Python 3

```python
1  from itertools import product
2  a=[int(i) for i in input().split()]
3  b=[int(i) for i in input().split()]
4  print(*product(a,b))
```

Line: 4 Col: 8

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6 Testcases ⌄

Input (stdin)   Download   Expected Output   Download

    1 2   (1, 3) (1, 4) (2, 3) (2, 4)
    3 4

Compiler Message

Success

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