

# itertools.permutations()

## itertools.permutations(iterable[, r])

This tool returns successive  $r$  length permutations of elements in an iterable.

If  $r$  is not specified or is `None`, then  $r$  defaults to the length of the iterable, and all possible full length permutations are generated.

Permutations are printed in a lexicographic sorted order. So, if the input iterable is sorted, the permutation tuples will be produced in a sorted order.

### Sample Code

```
>>> from itertools import permutations
>>> print permutations(['1','2','3'])
<itertools.permutations object at 0x02A45210>
>>>
>>> print list(permutations(['1','2','3']))
[('1', '2', '3'), ('1', '3', '2'), ('2', '1', '3'), ('2', '3', '1'), ('3', '1', '2'), ('3', '2', '1')]
>>>
>>> print list(permutations(['1','2','3'],2))
[('1', '2'), ('1', '3'), ('2', '1'), ('2', '3'), ('3', '1'), ('3', '2')]
>>>
>>> print list(permutations('abc',3))
[('a', 'b', 'c'), ('a', 'c', 'b'), ('b', 'a', 'c'), ('b', 'c', 'a'), ('c', 'a', 'b'), ('c', 'b', 'a')]
```

### Task

You are given a string  $S$ .

Your task is to print all possible permutations of size  $k$  of the string in lexicographic sorted order.

### Input Format

A single line containing the space separated string  $S$  and the integer value  $k$ .

### Constraints

$$0 < k \leq \text{len}(S)$$

The string contains only *UPPERCASE* characters.

### Output Format

Print the permutations of the string  $S$  on separate lines.

### Sample Input

```
HACK 2
```

### Sample Output

AC  
AH  
AK  
CA  
CH  
CK  
HA  
HC  
HK  
KA  
KC  
KH

### Explanation

All possible size **2** permutations of the string "**HACK**" are printed in lexicographic sorted order.