서로 다른 정수를 입력받아 가능한 모든 순열을 리턴하라.

Input: nums = [1,2,3]
Output: [[1,2,3],[1,3,2],[2,1,3],[2,3,1],[3,1,2],[3,2,1]]

1.dfs

```
from itertools import permutations

class Solution:
    def permute(self, nums: List[int]) -> List[List[int]]:
        def dfs(elements):
            if len(elements) == 0:
                results.append(prev_elements[:])
            for e in elements:
                next_elements = elements[:]
                next_elements.remove(e)
                prev_elements.append(e)
                dfs(next_elements)
                prev_elements.pop()

        results = []
        prev_elements = []
        dfs(nums)
        return results
```

```
class Solution:
    def permute(self, nums: List[int]) -> List[List[int]]:
        def dfs(cur, nex):
            if len(nex) == 0:
                result.append(cur)
                return
            for i, n in enumerate(nex):
                _cur = cur[:]
                _nex = nex[:]
                _cur.append(_nex.pop(i))
                dfs(_cur, _nex)

        result = []
        dfs([], nums)
        return result
```

2.itertools.permutaionts 모듈

```
from itertools import permutations

class Solution:
    def permute(self, nums: List[int]) -> List[List[int]]:
        return [list(p) for p in list(permutations(nums, len(nums)))]
```