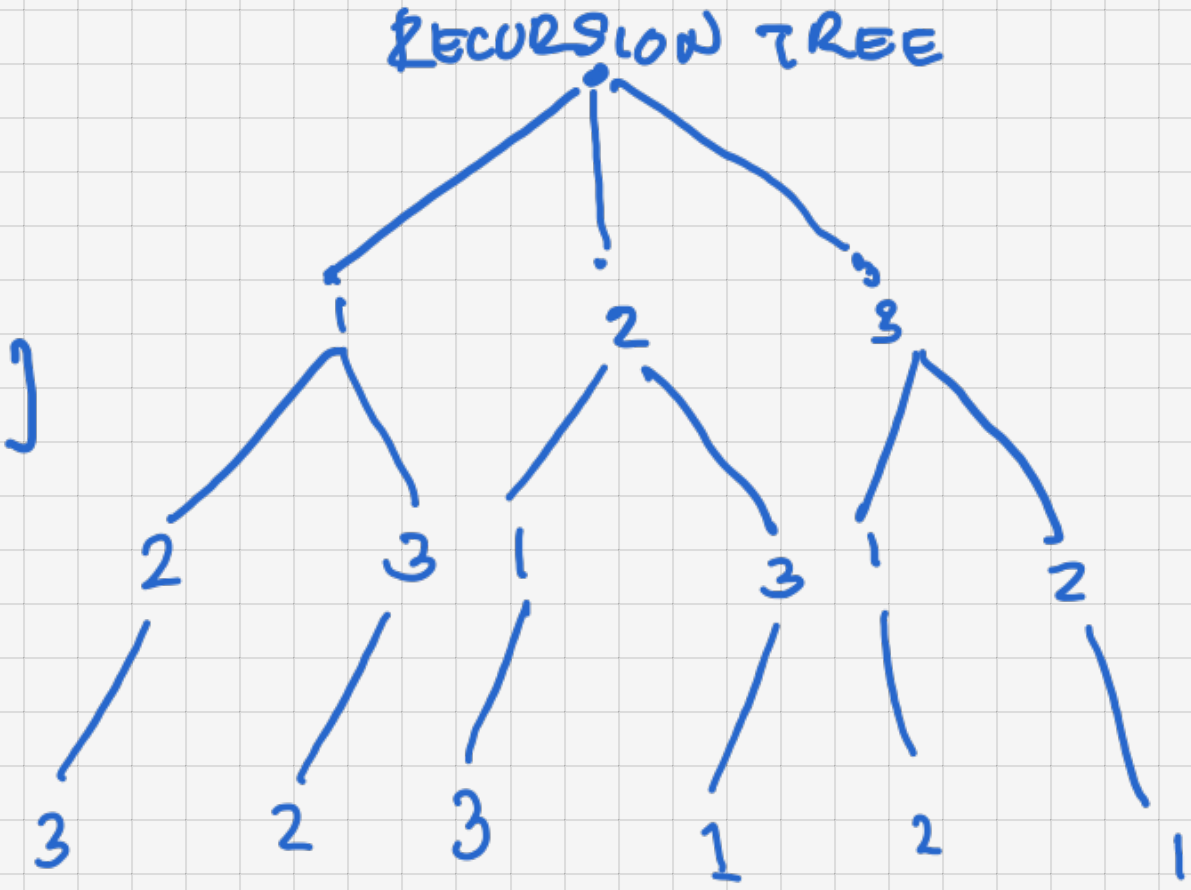
Permutation of list

Input: [1,2,3]

[[1,2,3]
[1,3,2]
[2,1,3]
[2,3,1]
[3,1,2]
[3,2,1]]



① Initialize two lists: leftover = input_list, sofar = [ ]
② Terminal conditions: You're done if leftover's empty
③ Recursion: explore if each element in the "leftover" were the next.
   a) for each element, form the leftover as removing that element, and sofar as adding it
   b) explore that branch as a perm.

```
def permute(leftover, sofar=[]):
    if leftover==[]:
        return [sofar]
    perms=[]
    for i,elt in enumerate(leftover):
        without = leftover[:i]+leftaver[i+1:]
        added = sofar+[elt]
        perms=permute(without,added)

    return perms
```