Approach

Let us first take an example to under the idea:

Suppose n = 4.

So we have elements - 1,2,3,4

There are total n!= 4! = 24 permutations possible. We can see a specific pattern here:

arr
```
[ 1      2       3      4]
1 2 3 4   2 1 3 4   3 1 2 4   4 1 2 3
1 2 4 3   2 1 4 3   3 1 4 2   4 1 3 2
1 3 2 4   2 3 1 4   3 2 1 4   4 2 1 3
1 3 4 2   2 3 4 1   3 2 4 1   4 2 3 1
1 4 2 3   2 4 1 3   3 4 1 2   4 3 1 2
1 4 3 2   2 4 3 1   3 4 2 1   4 3 2 1
```

So we have 4 block with 6 elements each.

n = 4 we can take an array [1,2,3,4] , initital ans = ""

lets say we have k =15, the 15 th permutation is "3 2 1 4":

As we can see the first value is 3 that means out of the four blocks we need the 3rd block.

Each blocks has n-1! = 3! = 6 elements --> 15 = 6*2 + 3 i.e. we skip 2 blocks and our ans is the third element in the 3rd block

Let us assume the blocks are zero indexed.

Now 15 / 6 = 2; So we select the 2nd block (0-indexed) that means 2nd index in our array - 3

Now ans = "3"

Remove this element from the array and our array becomes: [1,2,4]

Now we are in this block:

3 1 2 4 - 1

3 1 4 2 - 2   Block 0

 ------

3 2 1 4 - 3 (ans)

3 2 4 1 - 4   Block 1

 ------

3 4 1 2 - 5

3 4 2 1 - 6   Block 2

Now we have 3 blocks each of with 2 elements

i.e. n = n-1 = 3blocks and n-1! = 2! = 2 elements

n = 3, what will be the k? As we passed 12 elements we have k = 15-12 => the third element in this large block.

k = 3
element in partition (p) = 2;
k / p = 3 / 2 = 1 => ans is in block 1, value to add to ans = 2
arr[1] = 2;
ans = "32"
remove 2 from array => [1,4]
Now we have 2 elements left(n-1 = 3-1)
----
32 1 4 Block 0
32 4 1 Block 1

n=2, k = 1
1 will be added ans = "321" arr= [4]
As we only have one value value in array append it to ans. ans = "3214"

One very important note:(Corner case)
When we have k as a multiple of elements in partition for e.g. k = 12 Then we want to be in block with index 1
but as index = 12 / 6 = 2; we have to keep index = index-1;
Only when we are aiming at the last element we will hit this case.
Here the blocks are zero indexed but the elements inside them are 1 index.
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