Next Permutation:

Brute force:

Generate all permutations and check

Optimal:

Find pivot

Swap with the next larger element

And sort right half of pivot

Code:

def nextPermutation(permutation, n):

    pivot=-1

    for i in range(n-2,-1,-1):

        if permutation[i]<permutation[i+1]:

            pivot=i

            break

    if pivot==-1:

        permutation.sort()

        return permutation

    index=0

    mini=float('inf')

    for i in range(pivot+1,n):

        if permutation[i]>permutation[pivot]:

            if permutation[i]<mini:

                mini=permutation[i]

                index=i

    permutation[pivot],permutation[index]=permutation[index],permutation[pivot]

    permutation[pivot+1:] = sorted(permutation[pivot+1:])

    return permutation