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TOPIC PRESENTATION

Topic: Heap's algorithm for Permutation Generation

Introduction:

The idea is to generate each permutation from the previous permutation by choosing a pair of elements to interchange, without disturbing the other (n-2) elements.

Ex:-

Input : 1 2 3

Output : No. Of possible permutation are,

1 2 3

2 1 3

3 1 2

1 3 2

2 3 1

3 2 1

Algorithm:

1) The algorithm generates (n-1)! permutations of the first (n-1) elements, adjoining the last element to these.

2) If n is odd, swap first and last elements.

3) If n is even, swap ith element(I is the counter starting from 0) and last element and repeat the above algorithm till I is less than n.

4) In each iteration, the algorithm will produce all the permutations that end with the current last element.

References:

https://en.wikipedia.org/wiki/Heap%27s_algorithm#cite_note-3

THANK YOU