Project Euler #24: Lexicographic permutations

This problem is a programming version of from projecteuler.net

A permutation is an ordered arrangement of objects. For example, $dabc$ is one possible permutation of the word $abcd$. If all of the permutations are listed alphabetically, we call it lexicographic order. The lexicographic permutations of abc are:
$$\text{abc acb bac bca cab cba}$$

What is the Nth lexicographic permutation of the word $abcdefghijklm$?

Input Format
The first line contains an integer T , i.e., number of test cases.
Next T lines will contain an integer N.

Output Format
Print the values corresponding to each test case.

Constraints
$1 \le T \le 1000$
$1 \le N \le 13!$

Sample Input

```
2
1
2
```

Sample Output

```
abcdefghijklm
abcdefghijkml
```