

Project Euler #24: Lexicographic permutations

Problem Statement

This problem is a programming version of [Problem 24](#) 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:

abc acb bac bca cab cba

What is the N^{th} 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

$$1 \leq T \leq 1000$$

$$1 \leq N \leq 13!$$

Sample Input

```
2
1
2
```

Sample Output

```
abcdefghijklm
abcdefghijkl
```