19 – MODERN ART

A gallery is displaying pieces of modern art by several artists and is considering the different ways of arranging the exhibition. As this is modern art all pieces by the same artist are indistinguishable.

For example, suppose there is a single piece by artist A, two by artist B and one by artist C. There are 12 ways the gallery might arrange the exhibition:

ABBC
ABCB
ACBB
BABC
BACB
BBAC
BBCA
BCAB
BCBA
CABB
CBAB
CBBA
ABBC

These have been listed in alphabetical order.

Write a program to determine the nth way of arranging the exhibition. Your program should input five integers: **a, b, c** and **d** (each between 0 and 5 inclusive) indicating the number of works by artists A, B, C and D in order, and finally **n**.

You will only be given input where at least one artist is exhibiting a work and n is no greater than the number of possible exhibitions.

You should output the string which represents the nth arrangement.

[1]	**1 2 1 0 8**	BCAB
[2]	**1 0 0 0 1**	A
[2]	**1 1 0 0 2**	BA
[2]	**0 3 0 3 12**	DBBDBD
[2]	**5 5 0 0 56**	AABBBBBAAA
[2]	**2 2 2 2 2520**	DDCCBBAA
[4]	**2 3 4 5 1234567**	CCBDBDACDADBCD
[5]	**5 4 4 4 123456789**	CACBDAABDACBADCBD
[5]	**5 5 5 5 11223344556**	DDACBBABCDDDCAABCCBA