

Problem B. A Knight's Journey

Background

The knight is getting bored of seeing the same black and white squares again and again and has decided to make a journey around the world. Whenever a knight moves, it is two squares in one direction and one square perpendicular to this. The world of a knight is the chessboard he is living on. Our knight lives on a chessboard that has a smaller area than a regular 8×8 board, but it is still rectangular. Can you help this adventurous knight to make travel plans? A knight has the eight possible moves.

Problem

Find a path such that the knight visits every square once. The knight can start and end on any square of the board.

Input

The input begins with a positive integer n in the first line. The following lines contain n test cases. Each test case consists of a single line with two positive integers p and q , such that $1 \leq p \cdot q \leq 26$. This represents a $p \times q$ chessboard, where p describes how many different square numbers $1, \dots, p$ exist, q describes how many different square letters exist. These are the first q letters of the Latin alphabet: A, \dots

Output

The output for every scenario begins with a line containing "Scenario #i:", where i is the number of the scenario starting at 1. Then print a single line containing the lexicographically first path that visits all squares of the chessboard with knight moves followed by an empty line. The path should be given on a single line by concatenating the names of the visited squares. Each square name consists of a capital letter followed by a number.

If no such path exist, you should output impossible on a single line.

Sample Input

```
3
1 1
2 3
4 3
```

Sample Output

```
Scenario #1:
A1
```

```
Scenario #2:
impossible
```

```
Scenario #3:
A1B3C1A2B4C2A3B1C3A4B2C4
```