IEEEXtreme Türkiye Kampı: Gün 1
IKIBIR

Problem

Let’s denote the set of numbers that contains only 1 and 2 in decimal as A. That is

A = {1,11,111,…, 2, 22, 112, 12,212,…}

When two numbers, p and q, are given; find the smallest and biggest numbers in A such that number of digits in these numbers is p and the number is divisible by 2^q.

Input

Input will contain several cases.

The first line of the input contains an integer, which is the number of cases. (T)

In the next T lines p,q pairs are given.

1 <= T <= 300

1 <= p,q <= 17

Output

For each case, print case number as “Case #:”. After that, print the smallest and biggest numbers in A, with space in between, which satisfies the above property.(p digits and divisible by 2^q) If there is only one number which satisfies the property, print only that number. If there is no number which satisfies the property print “impossible”. (Check sample output)

Sample Input

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

Sample Output

```
Case 1: 112
Case 2: 1112 2112
Case 3: impossible
```

Time Limit

C/C++/Java: 2 secs, Python: 4 secs