

## TelephoneFinder

Started in 2008 and recently resurging in popularity, a game known as Number Neighbour or Text Door Neighbor has people sending a text message to phone numbers near their own. Traditionally this was done for numbers  $\pm 1$ , so someone with the phone number 555-555-5555 has neighbors 555-555-5554 and 555-555-5556.

We're going to take this a step further and think about neighbors based on a classic phone keypad.

First, let's take a look at the classic phone keypad:

```
1 2 3
4 5 6
7 8 9
  0
```

We can consider certain numbers adjacent if they appear directly next to or above/below each other. For example, 1 is adjacent to 2 and 4 (and nothing else), while 5 is adjacent to 2, 4, 6, and 8.

Let's look for phone numbers that are "neighbors" of a given phone number by having any one (and only one) of their digits be off-by-one as a number adjacent to the original.

By this definition, 555-555-5555 has both its original neighbors but also, e.g., 554-555-5555 and 555-555-5558.

### Problem

Given a phone number of string from integers length  $N$  ( $1 \leq N \leq 10$ ) as a number string (e.g. 555-555-5555 would be passed as "5555555555"), return an array of all phone numbers as number strings that would be considered neighbors of that phone number.

### Examples

Given:

```
"1"
```

Return:

```
["2", "4"]
```

Given:

"8675309"

Return:

```
["5675309", "7675309", "9675309", "0675309", "8375309",  
"8575309", "8975309",  
"8645309", "8685309", "8672309", "8674309", "8676309",  
"8678309", "8675209",  
"8675609", "8675389", "8675306", "8675308"]
```

Notes

Do not wrap around a side of the keypad when finding adjacent numbers. That is, do not consider 6 adjacent to 4 nor 0 adjacent to 2.

Do not consider numbers that are diagonal to each other adjacent

In case input number is negative return nil

Do not worry about the order of number strings in the array being returned