

# Validating Credit Card Numbers

You and Fredrick are good friends. Yesterday, Fredrick received  $N$  credit cards from **ABCD Bank**. He wants to verify whether his credit card numbers are valid or not. You happen to be great at regex so he is asking for your help!

A valid credit card from **ABCD Bank** has the following characteristics:

- ▶ It must start with a **4**, **5** or **6**.
- ▶ It must contain exactly **16** digits.
- ▶ It must only consist of digits (**0-9**).
- ▶ It may have digits in groups of **4**, separated by *one* hyphen "-".
- ▶ It must **NOT** use any other separator like ' ', '\_ ', etc.
- ▶ It must **NOT** have **4** or more consecutive repeated digits.

## Examples:

### Valid Credit Card Numbers

```
4253625879615786
4424424424442444
5122-2368-7954-3214
```

### Invalid Credit Card Numbers

```
42536258796157867      #17 digits in card number → Invalid
4424444424442444      #Consecutive digits are repeating 4 or more times → Invalid
5122-2368-7954 - 3214  #Separators other than '-' are used → Invalid
44244x4424442444      #Contains non digit characters → Invalid
0525362587961578      #Doesn't start with 4, 5 or 6 → Invalid
```

## Input Format

The first line of input contains an integer  $N$ .  
The next  $N$  lines contain credit card numbers.

## Constraints

$0 < N < 100$

## Output Format

Print 'Valid' if the credit card number is valid. Otherwise, print 'Invalid'. Do not print the quotes.

## Sample Input

```
6
4123456789123456
```

5123-4567-8912-3456  
61234-567-8912-3456  
4123356789123456  
5133-3367-8912-3456  
5123 - 3567 - 8912 - 3456

## Sample Output

Valid  
Valid  
Invalid  
Valid  
Invalid  
Invalid

## Explanation

4123456789123456 : **Valid**

5123-4567-8912-3456 : **Valid**

61234-~~567~~-8912-3456 : **Invalid**, because the card number is not divided into equal groups of **4**.

4123356789123456 : **Valid**

51**33-33**67-8912-3456 : **Invalid**, consecutive digits **3333** is repeating **4** times.

5123 — 4567 — 8912 — 3456 : **Invalid**, because space ' ' and  are used as separators.

```
import re

class Main:
    def __init__(self):
        self.test = re.compile(r'^(?!.*(\d)(-?\1){3})[456]\d{3}
(?:-?\d{4}){3}$')
        for _ in range(int(input())):
            self.s = input()
            print("Valid" if self.test.search(self.s) else
                "Invalid")

if __name__ == '__main__':
    obj = Main()
```