Programing with Java

Arrays snacks – Credit Card Validator

Credit card numbers follow certain patterns: it must have between 13 and 16 digits, and the number must start with:

4 for Visa Cards

5 for MasterCard ,
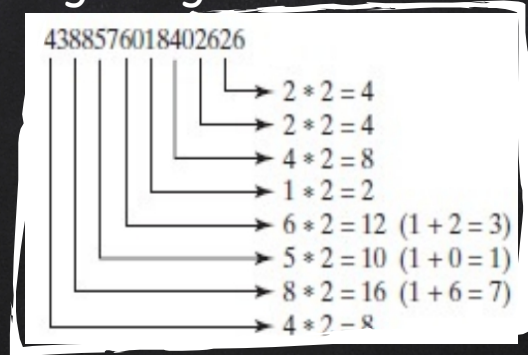
37 for American Express Cards

6 for Discover cards.

In 1954, Hans Luhn of IBM proposed an algorithm for validating credit card numbers. The algorithm is useful to determine whether a card number is entered correctly. Credit card numbers are generated following this validity check, commonly known as the Luhn check or the Mod 10 check, which can be described as follows:

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Consider the credit number – 4388576018402626

1. Double every second digit from right to left. If doubling of the digit results in a two-digit number, add up the two digits to get a single-digit number.

```
4388576018402626

         2 * 2 = 4
         2 * 2 = 4
         4 * 2 = 8
         1 * 2 = 2
         6 * 2 = 12  (1 + 2 = 3)
         5 * 2 = 10  (1 + 0 = 1)
         8 * 2 = 16  (1 + 6 = 7)
         4 * 2 = 8
```

2. Now add all single-digit numbers from Step 1:

4 + 4 + 8 + 2 + 3 + 1 + 7 + 8 = 37

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3. Add all digits in the odd places from right to left in the card number.

$$6 + 6 + 0 + 8 + 0 + 7 + 8 + 3 = 38$$
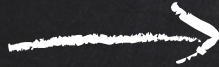
4. Sum the results from Steps 2 and 3:

$$37 + 38 = 75$$

5. If the result from Step 4 is divisible by 10, the card number is valid; otherwise, it is invalid. For example, the number 4388576018402626 is invalid, but the number 4388576018410707 is valid

– Implement an application that requests for a credit card number and returns the credit card type and validity status.

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Sample Input

→

Hello, Kindly Enter Card details to verify
5399831619690403

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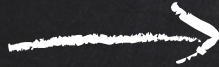
Sample Output

→

```
*****************************************
**Credit Card Type: MasterCard
**Credit Card Number: 5399831619690403
**Credit Card Digit Length: 16
**Credit Card Validity Status: Valid
*****************************************
```

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Sample Input

Hello, Kindly Enter Card details to verify
5399831619690404

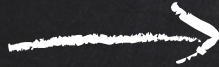# Sample Output

→
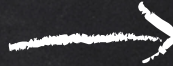
```
*********************************************
**Credit Card Type: MasterCard
**Credit Card Number: 5399831619690404
**Credit Card Digit Length: 16
**Credit Card Validity Status: Invalid

*********************************************
```

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Sample Input

→

Hello, Kindly Enter Card details to verify
234319283049582

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SAMPLE OUTPUT

→

```
*****************************************
**Credit Card Type: Invalid Card
**Credit Card Number: 234319283049582
**Credit Card Digit Length: 15
**Credit Card Validity Status: Invalid

*****************************************
```

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Submission is due on:

1:00pm, Thursday, August 8th 2024.

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Submission instruction:

Add to your existing git repository and send link.

Enjoy your
week!!!

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