

PalindromicNumber

According to Wikipedia:

A **palindrome** is a word, number, phrase, or other sequence of characters which reads the same backward as forward, such as *madam* or *racecar* or the number *10801*.

A number is said to have the palindromic property if the digits in the number can be rearranged to form a palindrome. By definition, all palindromes have the palindromic property.

- The number 10081 has the palindromic property as the digits in 10081 can be rearranged as the palindrome 10801.

Note that any zeros in the number cannot be used as leading zeros. For example, the number 4104 does not have the palindromic property since the arrangement 0414 is not valid.

In this problem you are to write two methods. The first method is the `isPalindromic(int n)` method which returns true if the digits in the parameter `n` can be rearranged to form a palindrome.

The following code shows the results of the `isPalindromic` method.

The following code	Returns
<code>PalindromicNumber.isPalindromic(10081);</code>	true
<code>PalindromicNumber.isPalindromic(123321);</code>	true
<code>PalindromicNumber.isPalindromic(110);</code>	true
<code>PalindromicNumber.isPalindromic(1231);</code>	false
<code>PalindromicNumber.isPalindromic(4104);</code>	false

The second method is the `getSmallestPalindrome(int n)` method which returns the smallest (positive) palindrome that can be formed using the digits in the parameter `n`. Similar to the first method (`isPalindromic`), zeros in the number cannot be used as leading zeros. That is, `getSmallestPalindrome(110)` should **not** return the value 11 and should return the value 101.

If needed, you may include additional digits not in the given number. For example, the digits in the number 3211 cannot be rearranged to form a palindrome. Therefore, `getSmallestPalindrome(3211)` should return 12321, the smallest palindrome which contains the digits 3, 2, 1, and 1.

You may assume the created palindrome will be in the legal `int` range.

The following code shows the results of the `getSmallestPalindrome` method.

The following code	Returns
<code>PalindromicNumber.getSmallestPalindrome(123321);</code>	123321
<code>PalindromicNumber.getSmallestPalindrome(321123);</code>	123321
<code>PalindromicNumber.getSmallestPalindrome(110);</code>	101
<code>PalindromicNumber.getSmallestPalindrome(3211);</code>	12321
<code>PalindromicNumber.getSmallestPalindrome(32140);</code>	102343201