AP Computer Science | Homework 0507 | Name:
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Problem 1. Consider the following framework for a class designed to investigate the digits of an integer.

```
public class Digits
{
    private int number;
    private int[] digits;

    public Digits(int number)
    {
        // constructor code
    }
}
```

Write the entire class, as specified below.

(a) Complete the constructor. It should take the parameter `number`, store it in the field `number`, and take apart the digits, storing them in the array `digits`. For example, if `number` is 13542, then digits is an array of length 5 containing `[1,3,5,4,2]`.

(b) Write a method `public boolean isStrictlyIncreasing()`, which returns `true` if the digits appear in strictly increasing order, and `false` otherwise. For example, the number 12345 and 1358 are strictly increasing, but the numbers 13542 and 13345 are not.

(c) Write a method `public boolean isPalindrome()`. This returns `true` if reversing the order of the digits does not change the number, and returns false otherwise. For example, the numbers 135531 and 1992991 are palidromes, but 11121 and 13542 are not.

(d) Write a method `public static int rotate(int n, int r)` which rotates the digits of the integer n by r places leftward, cycling digits at the end to the front. Interpret r modulo the number of digits of n. If a zero appears in the front of the number, it is eliminated. For example:

```
rotate(123409,0) = 123409
rotate(123409,1) = 234091
rotate(123409,2) = 340912
rotate(123409,3) = 409123
rotate(123409,4) = 91234
rotate(123409,5) = 912340
rotate(123409,6) = 123409
rotate(123409,8) = 340912
rotate(123409,-1) = 912340
rotate(123409,-2) = 91234
rotate(123409,-3) = 409123
rotate(123409,666) = 123409
```