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Static Methods Of Digits

In this project we will write a new class to manipulate the digits of integers. This class will be named **`Digits`**. You will write the following static methods for the **`Digits`** class.

1. Write a method named `digitZero` that gets an integer n as parameter and returns its least significant digit. For example, if the parameter is 5786, the method should return 6.

2. Write a method named `digiti` that gets integers n and i as parameters. The method should return the ith digit of n. For example, if the parameters are 89745 and 2, the method should return 7. Note that zeroth digit is 5, the first digit is 4 and the second digit is 7.

3. Write a method named `digitLimitSum` that gets integers n and limit as parameters and returns the sum of the digits that are higher than the limit. For example, if the parameters are 89745 and 7, the method will return the sum of digits that are higher than 7 that is 8+9 = 17.

4. Write a method named `digitCount` that gets integers n and k as parameters. The method counts the number of digits that are equal to k in n. For example, if the parameters are 4574172 and 7, the method should return 2. Note that 7 exists 2 times in 4574172.

5. Write a method named `digitRemoveK` that gets integers n and k as parameters. The method removes the kth digit in n. For example, if the parameters are 61748 and 3, the method should return 6748. Note that the third digit is removed from 61748.

6. Write a method named `digitRemove` that gets integers n and k as parameters. The method should remove all digits with value k in n. For example, if the parameters are 647544 and 4, it should return 675. Note that all occurrences of 4 in 647544 are removed.

7. Write a method named `randomNumber` that gets an integer k as a parameter. The method should produce a k-digit integer with no numbers repeated. For example, if the parameters is 4, the method should produce 9276. Repetition of a digit such as 9296 is not allowed.

8. Write a method named `reverse` that gets an integer n as a parameter and reverses its digits. For example, if the parameter is 89745, the method should return 54798.

9. Write a method named `isPalindrome` that gets an integer n as a parameter and checks if it is a palindrome. A palindrome is such that it is read the same from left to right and from right to left. For example, 64146 is a palindrome whereas 5884 is not. The method returns true or false.

10. Write a method named `CharDigitSum` that gets a String str as a parameter and returns the sum of the integer equivalents of each character in the string. For example, if the parameter is “hello”, the

method will return the sum of characters that is 104 (for h) + 101 (for e) + 108 (for l) + 108 (for l) + 111 (for o) = 532.

11. Write a main program to use your `Digits` library. This main program should display a menu as in the sample run and ask the user what to perform.