

**DWITE Online Computer Programming Contest  
January 2005**

**Problem 3**

**Harshad Numbers**

A Harshad number is a positive integer that is divisible by the sum of its digits. They are also called Niven numbers.

For example, 720 is a Harshad number because  $7 + 2 + 0 = 9$ , which divides evenly into 720.

Write a program that determines how many Harshad numbers are in the largest consecutive sequence of Harshad numbers in a given range.

The input file (**DATA31.txt** for the first submission and **DATA32.txt** for the second submission) will contain five sets of data. Each set of data will contain two lines, with the first line containing an integer,  $m$ , the lower bound of the range and the second line containing an integer,  $n$ , the upper bound of the range.

$0 < m < n \leq 1000000$ .

The output file (**OUT31.txt** for the first submission and **OUT32.txt** for the second submission) will contain five lines of data. It will list the length of the largest consecutive sequence of Harshad numbers of the .

<u>Sample Input (3 sets of data only)</u>	<u>Sample Output</u>
80	2
100	4
1000	4
10000	
500	
525	

Explanation of the output for the first set...

The Harshad numbers in the range 80 to 100 are: 80, 81, 84, 90 and 100. The largest consecutive sequence is 80, 81 which consists of 2 numbers.

<http://mathworld.wolfram.com/HarshadNumber.html>