

**DWITE Online Computer Programming Contest
December 2006**

Problem 4

THE UBIQUITOUS 196

Take any positive integer of two digits or more, reverse the digits, and add to the original number. If the resulting number is not a palindrome, repeat the procedure with the sum until the resulting number is a palindrome.

For example, start with 87 or 88 or 89. Applying this process, we obtain:

87	88	89
$87 + 78 = 165$	88 is a palindrome	$89 + 98 = 187$
$165 + 561 = 726$		$187 + 781 = 968$
$726 + 627 = 1353$		$968 + 869 = 1837$
$1353 + 3531 = 4884$		until finally after 24 steps
4884 is a palindrome		becomes 8813200023188

196 is the smallest number that may not produce a palindrome.

The input file (**DATA41.txt** for the first submission and **DATA42.txt** for the second submission) will contain five lines of data. Each line will contain an integer, N . $10 \leq N \leq 999$.

The output file (**OUT41.txt** for the first submission and **OUT42.txt** for the second submission) will contain five lines of data, corresponding to each line of the input file. Each line will display N , the number of steps to produce the palindrome and the palindrome, each separated with a hyphen. If the number of steps exceeds 100 then output N-UBIQUITOUS. See the samples below.

<u>Sample Input</u>	<u>Sample Output</u>
87	87-4-4884
88	88-0-88
89	89-24-8813200023188
196	196-UBIQUITOUS
431	431-1-565

For more information about the Ubiquitous 196 visit:
<http://www.geocities.com/~harveyh/palindromes.htm>