

Programming Assignment 9

Due at your recitation session on October 27-31

Reading

Read Chapter 23 in the textbook.

Programming

In this assignment, you will debug the numbers application (posted on blackboard). Here are the original specifications, which were then incorrectly implemented in the provided code:



Write a method that accepts an integer number in English and prints it out in numerical notation. For example:

Input	Output
one hundred thirty one	131
two thousand five	2005
nine hundred ninety nine million nine hundred ninety nine thousand nine hundred ninety nine	999999999
minus four hundred fifty thousand two	-450002
naught	0

Here are the rules for the input format. You will have to decide on and implement error handling if the input is invalid. All letters are lower case. Only integers between

-999999999 and 999999999 are valid. The number 0 is represented by “naught” or “zero”. The other integers are represented as

[minus|negative] [<prefix> million] [<prefix> thousand] [<prefix>]

([...] means that the ... is optional). In turn, <prefix> is

[<digit> hundred] [(<n-ty> [<digit>] | <teen> | ten | <digit>)]

where (x | y | z | ...) means exactly one of x, y, z, ...; <n-ty> is

(twenty | thirty | forty | fifty | sixty | seventy | eighty | ninety)

<teen> is

(eleven | twelve | thirteen | fourteen | fifteen | sixteen | seventeen | eighteen
| nineteen)

and <digit> is

(one | two | three | four | five | six | seven | eight | nine)



If the provided code fails to implement this specification, you should consider it a defect to fix.

Debug the code provided in blackboard to match the specification above. Submit a diff file to document all of the fixes that you made. Create test cases that capture the defects that you find.

Create a new git repository called debug.git and submit your work to it.

Discussion Guidelines

The class discussion will focus on refactoring (changes to the source code) to fix bugs, and on the debug test cases.

Grading Guidelines

Starting with Programming Assignment 7, an automatic C (or less) is triggered by improperly named routines. An automatic C (or less) is also triggered by any routine with complexity greater than 4 or by any substantially repeated piece of code.