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CSC 235 PROJECT 3(self-describing numbers)

GITHUB LINK: <https://github.com/drixesxs>

PSEUDOCODE

1. Open the self.txt file in read-only mode.
2. Read the number of test cases from the file.
3. Loop over the test cases:
   1. Read a number from the file.
   2. Find the number of digits in the number.
   3. Loop over the digits in the number:
      1. Find the number of times the current digit appears in the number.
      2. If the number of times the digit appears does not match the digit itself, the number is not self-describing and the program prints an appropriate message.
   4. If the number is self-describing, the program prints a different message.
4. Exit the program.

ALGORITHM

INCLUDE stdio.h, stdlib.h, string.h

DEFINE check(num, digit)

count = 0

WHILE num > 0

IF num % 10 == digit

count++

num = num / 10

RETURN count

DEFINE getNumDigits(num)

digits = 0

WHILE num > 0

digits++

num = num / 10

RETURN digits - 1

DEFINE main()

self\_in = fopen("self.txt", "r")

IF self\_in == NULL

PRINT "Error! File cannot be opened..."

EXIT

READ test\_cases

testcase\_count = 0

WHILE testcase\_count < test\_cases

READ num

temp = num

flag = 1

numDigit = getNumDigits(temp)

WHILE temp > 0

digit = temp % 10

count = check(num, numDigit)

IF count != digit

PRINT "\nNot self-describing"

flag = 0

BREAK

temp = temp / 10

numDigit--

IF flag

PRINT "\nSelf-describing"

testcase\_count++

EXIT

CALL main()