# Repeated Digit Algorithm Explanation

Dave Houston

CIS 133U

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Lab 6 - Arrays

1 /\* repdigit.c

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3 \* Solution to Programming Project 1 (Chapter 8)

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5 \* From C PROGRAMMING: A MODERN APPROACH (Second Edition)

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13

14 #include <stdio.h>

15 #define true 1

16 #define false 0

17 int main(void)

18 {

19 // Declare some variabls to hold our data:

20 // digit\_count[] -- each index is a digit we are tracking in a base-10 number

21 // repeated\_digits -- An overall boolean to indicate if we should bother

22 // iterating over the array at all.

23 // digit, n -- placeholders for looping and input.

24 int digit\_count[10] = {0};

25 int repeated\_digits = false;

26 int digit;

27 long n;

28

29 printf("Enter a number (for example 89065590): "); // Collect a number

30 scanf("%ld", &n);

31

32 while (n > 0) { // Begin looping while there are digits left.

33 digit = n % 10; // Between this and line 37, treat the input like a stack; pop the last digit off.

34 if (digit\_count[digit] > 0)

35 repeated\_digits = true; // Set the boolean flag, so we can loop later.

36 digit\_count[digit]++; // keep track of # of times we've seen digit

37 n /= 10;

38 }

39

40 if (repeated\_digits) { // Check the boolean to save ourselves from uncessary looping

41 printf("Repeated digit(s):");

42 for (digit = 0; digit < 10; digit++) // Loop over our digit\_count

43 if (digit\_count[digit] > 1) // If we've got 2 or more, it's a repeat!

44 printf(" %d", digit); // Say so

45 printf("\n");

46 } else

47 printf("No repeated digit\n"); // .. or we got nothing.

48

49 return 0;

50 }