

Student Name _____ **Section** _____
Instructor _____ **Due Date** _____

Thoroughly read the objectives, instructions and requirements of this special project and then use suitable electronic technology tools to solve the given project(s).

Submit both your program source code, with your name, date and course information in the heading portion of your code, as well as the required output(s).

(A Divisibility Algorithm) (100 Points Maximum) *your score* _____

Objective To investigate a divisibility algorithm.

PROJECT DESCRIPTION

One particular test for divisibility by 11 was given in 1897 by Charles L. Dodgson (aka author Lewis Carroll) .

The algorithm for this test is as follows:

As long as the number being tested has more than two digits, form a new number by:

- deleting the units digit
- subtracting the deleted digit from the shortened number

The remaining number is divisible by 11 if and only if the original number is divisible by 11 .

For example, if you were to test 1,358,016 , the new number you obtain is

$$135,801 - 6 = 135,795$$

Repeat the procedure until you arrive at a number that you know is or is not divisible by 11 .

$$13,579 - 5 = 13,574$$

$$1,357 - 4 = 1,353$$

$$135 - 3 = 132$$

$$13 - 2 = 11 \text{ (a known number that is divisible by 11)}$$

Hence, 1,358,016 is divisible by 11 .

Information About This Project

Divisibility algorithms are useful to study in that they represent a step by step procedure to solve a particular problem, namely to test whether or not one number is divisible by another.

Steps To Complete This Project

STEP 1 **Open Visual C++ On Your Computer**

Launch Visual Studio. Start a **New Project** (Console Application) by clicking the **File** menu item and then choosing **New Project ...** . Name your project as: **Divisible**

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PROJECT A Divisibility Algorithm**STEP 2****Code Your Algorithm**

Write your program code which will allow the user to enter a positive integer and then test whether or not the number is divisible by 11 .

STEP 3**Run your Application**

Run and test your application.

STEP 4**Submit Screen Snapshots**

Submit screen snapshots showing the operation of you program.