**CS1010 (AY2014/15 Semester 1)**

Mock PE

Q1. **Magic value**

Given positive integers *n* and *k*, a magic value is derived by adding the first digit (from the right) of *n*, the (1+*k*)th digit of *n*, the (1+2*k*)th digit of *n*, etc. *k* is called the skip.

The table below shows some examples:

|  |  |  |  |
| --- | --- | --- | --- |
| Example | *n* | *k* | Magic number |
| 1 | 12345678 | 1 | 36 |
| 2 | 12345678 | 2 | 20 |
| 3 | 12345678 | 3 | 15 |

Write a program **numbers.c** to read in 2 positive integers *num1* and *num2*, and a skip value *k*. Suppose *magic1* and *magic2* are the magic values corresponding to *num1* and *num2* respectively, the final answer is the magic value of the product of *magic1*, *magic2* and *k*.

You should make your program modular.

Sample runs are shown below. Inputs are shown in bold.

***Sample run #1***

Enter 2 positive integers: **12 345**

Enter skip: **2**

Answer = 2

Explanation: The magic values of 12 and 345 with skip value of 2 are 2 and 8 respectively. 2 × 8 × 2 = 32. Hence the answer is the magic value of 32, which is 2.

***Sample run #2***

Enter 2 positive integers: **4567 8901234**

Enter skip: **3**

Answer = 9

Explanation: The magic values of 4567 and 8901234 with skip value of 3 are 11 and 13 respectively. 11 × 13 × 3 = 429. Hence the answer is the magic value of 429, which is 9.