

Problem

I'm providing you a list of n `digits`, where each digit is a random `integer` from 0 to 9. Solve the following:

1. From the array of n `digits`, create two `numbers` where the digits are split up as evenly as possible across the two numbers and the sum of those two numbers is the highest possible value from any combination of the n non-repeated digits. You cannot use the same digit more than once and each digit must be used. (See the examples below)
2. Write code to solve the above problem, programmatically. For this step, make sure you provide code that works, regardless of how efficient it is. Use any language you want.
3. Make the code better. This will depend on the first solution. Use proper programming fundamentals, proper math, reduce the number of loops, minimize memory usage, etc. Write down what you are attempting to improve. We want to know if you understand what could be better, regardless of your inability to implement the improvements.
4. Show us the evolution of your code. i.e. Send us your first answer and send us your final answer.
5. Send us instructions as to how we may execute your code and test it.

Examples:

Digits: 9, 4, 2, 7, 9, 0
Output: 1912

$$\begin{array}{r}
 \quad \begin{array}{ccc} ? & ? & ? \\ ? & ? & ? \\ ? & ? & ? \end{array} \\
 + \quad \begin{array}{ccc} ? & ? & ? \\ ? & ? & ? \\ ? & ? & ? \end{array} \\
 = \quad \underline{\underline{1 \ 9 \ 1 \ 2}}
 \end{array}$$

Digits: 9, 4, 2, 7, 9, 0, 1
Output: 10661

$$\begin{array}{r}
 \quad \begin{array}{cccc} ? & ? & ? & ? \\ ? & ? & ? & ? \\ ? & ? & ? & ? \end{array} \\
 + \quad \begin{array}{cccc} ? & ? & ? & ? \\ ? & ? & ? & ? \\ ? & ? & ? & ? \end{array} \\
 = \quad \underline{\underline{1 \ 0 \ 6 \ 6 \ 1}}
 \end{array}$$

Digits: 3, 2, 1, 3, 2, 1, 3, 2, 1
Output: 36432

Digits: 1
Output: 1

Extra Credit

1. Allow for n `digits` and m `numbers`.

Examples:

Digits: 3, 6, 4, 9, 0, 1
Numbers: 4
Output: 158

Digits: 1, 2, 3, 1, 2, 3, 4
Numbers: 3
Output: 484